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Olli Turunen

The Emergence of Intangible Capital

Human, Social, and Intellectual Capital in Nineteenth Century British, French, and German Economic Thought

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Editors
Ilkka Nummela
Department of History and Ethnology, University of Jyväskylä
Pekka Olsbo, Ville Korkiakangas
Publishing Unit, University Library of Jyväskylä

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ABSTRACT

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Since the late 1950s the concept of human capital, understood as the stock of knowledge, skills, and abilities that determine individual productivity, has become one of the central tools with which economists explain both individual success and economic growth. During the latter half of the 20th century complementing concepts such as social capital, meaning the value of social networks and norms of reciprocity, and intangible capital, meaning the investments in knowledge and innovation generation, have emerged. The term intellectual capital is sometimes used as a major concept to bind different forms of intangible capital. This study focuses on the conceptual equivalents of these ideas in 19th century English, French, and German economic thought in order to show that most of the phenomena now connected to human capital, intangible capital, intellectual capital, and social capital were already extensively discussed as capital in different phases of the long 19th century (1789-1914). Equally, many of the arguments presented since the late 1950s against the extension of the concept of capital to human beings, human attributes, knowledge, reputation, social norms, or social relations after the new emergence of these ideas were also part of the earlier discussion. A better understanding of past debates about the definitional scope and functional role of capital in economic theory should help to avoid unintentionally circular or repetitive argumentation which presents what were in fact once solid arguments of political economy as previously unattainable insights made in the past five decades.

Keywords: history of economic thought, human capital, intangible capital, social capital, intellectual capital, conceptual history

Author's address

Olli Turunen
Department of History and Ethnology
P.O. Box 35 (H)
FIN-40014 University of Jyväskylä
Finland
olli.t.turunen@jyu.fi

Supervisors

Ilkka Nummela
Department of History and Ethnology
University of Jyväskylä

Jari Ojala
Department of History and Ethnology
University of Jyväskylä

Jari Eloranta
Department of History
Appalachian State University

Reviewers

Reino Hjerppe
VATT Institute for Economic Research

Sulevi Riukulehto
University of Helsinki

Opponent

Reino Hjerppe
VATT Institute for Economic Research

PREFACE

This book is an attempt to describe the emergence and development of the idea that acquired human attributes as well as various phenomena of the social sphere are similar enough to financial investments and material capital to be treated as capital in economic and social analysis. The idea is not wholly trivial, since such a capital framework offers a forward-looking perspective for investing time and resources in education, health, science, governance, and institutions that work. It is followed by the idea that the real constraint on our existence is our level of technology, and not land as has classically been perceived. As the reader will discover, the nineteenth-century discussion on these subjects was vibrant and diverse.

While I have been working with this theme from the late 2000s to this date in March 2016, different aspects and variants of what (as will be explained later) I call the "intangible capital connection" have resurfaced and become topical. First, during the latter half of the previous decade, the publication boom on the subject of 'social capital' was still in full swing. Research looked for the secret of thriving societies and communities in social aspects such as trust, reciprocity, and healthy institutions. Secondly, at the same time, the UN System of National Accounts (2008, SNA) was being reformed to better account for investments in intangible capital (research and development). This has also meant revisions of contemporary and historical GDP figures to reflect the new accounting methods.

Thirdly, the consequences of the financial crisis of 2007-2008 combined with the continued effects of globalization and automatization have created an environment of increasing inequality, which has prompted some prominent economists to challenge the promise of the human capital theory in the same manner as Karl Marx or Eugen Böhm von Bawerk challenged the liberal idea of *Mitkapitalistentum* of workers in the nineteenth century. Indeed, the fears that robots and automatization will wipe out jobs on a large scale have their counterpart in fears caused by early industrialization. Fourthly, the old resource constraint of classical economics has come to haunt us on a global scale. Whether our investments in knowledge and technology are the key to helping us through this remains to be seen. All these themes had quite close parallels in nineteenth-century economic literature.

While writing this volume, the availability of digitized eighteenth and nineteenth-century literature has been constantly improving. The digitization projects and libraries of Google Books, Archive.org, Calliga, Deutsche Digitale Bibliothek, DigiZeitschriften, Persée, Europeana, Econlib.org, and others have combined to give access to a library of proportions that few physical libraries can match. In this work, I have barely scratched the surface of possibilities that these resources are revealing; but at the same time, digitized literature has helped tremendously in locating and studying the relevant discourses.

I would like to thank professors Ilkka Nummela, Jari Ojala, Jari Eloranta, Juha-Antti Lamberg, and Kustaa Vilkuna for their help and guidance. The reviewers Reino Hjerppe and Sulevi Riukulehto gave numerous constructive

suggestions on how to improve the work. Unfortunately, there was not quite enough time to carry out all of these. The colleagues at the Department of History and Ethnology have created a great work community, and reflective discussions with Miikka Voutilainen, Pasi Saarimäki, Timo Särkkä, Matti Roitto, Sofia Kotilainen, Heli Valtonen, Maare Paloheimo, Ville Sarkamo, Pasi Nevalainen, Heli Niskanen, Merja Uotila, Eerika Koskinen-Koivisto, and many others have provided diverse perspectives to the practices of scholarship. Thanks also goes to Alex Reed for greatly improving the language of the work.

The Kone Foundation, the Emil Aaltonen Foundation, and the University of Jyväskylä (Rector's Research Grant) have provided funding for this research, for which I am grateful. While writing this book, I have also been employed by Aalto University and two Academy of Finland projects. In addition, I have had the privilege to work with IEHA and MIT in preparing the World Economic History Congress (2018) in Boston. I would like to thank Matti Pursula and Mauri Airila at Aalto, Jari Ojala and Juha-Antti Lamberg here in Jyväskylä, Anne E.C. McCants at MIT, and Jari Eloranta at Appalachian State University for these much appreciated opportunities. Furthermore, my long-standing involvement with the Economic and Business History Society, especially with Dan Giedeman and Jason E. Taylor, has brought invaluable experience in organizing conferences, scholarly publishing, and in the running of a scholarly association.

Finally, I want to thank my wife Arja for her loving patience. I dedicate this book to my children Hilda and Tuure. I hope to be able to offer them as much support and love as I have received from my own close and extended family.

Jyväskylä, March 28, 2016

FIGURE

TABLE

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1 TOKENS OF TOIL AND LABOR AND THE QUEST FOR WEALTH

> It is not in our power to say with Humpty-Dumpty, "When I use a word it means just what I choose it to mean"; we cannot escape the associations.[1]
>
> John Hicks in *Capital Controversies: Ancient and Modern* (1974)

> To all such, he would desire to call to mind the fact that in almost all departments of knowledge the orthodoxy of the present day is but the heresy of time past, and that many of those doctrines now held by themselves, and believed to be undeniably true, were, but a little time since, ridiculed as absurd.[2]
>
> H. C. Carey in *Principles of Political Economy* (1837)

1.1 Introduction

As developed economies and societies have grown increasingly complicated (and rich), they have invested more and more resources in finding out and ascertaining the real and ultimate factors behind growth and development. As a broad argument, one could claim that the more technologically advanced that economies have grown, the more *intangible* factors have appeared to explain this development to economic thinkers. Yet, by no means has this development been linear during the last quarter of a millennium. The economic value ascribed to intangibles, whether concerning an individual or collective, seems to reflect factors such as technological levels, ideologies, national idiosyncrasies, political realities, scholarly traditions and fads, and freedom of trade or occupation. For example, Adam Smith wrote about investment in skills as comparable

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1 John Hicks, "Capital Controversies: Ancient and Modern," *The American Economic Review* 64, no. 2 (1974), 307.

2 Henry Charles Carey, *Principles of Political Economy. First Part: The Laws of the Production and Distribution of Wealth*, vol. 1/3 (Philadelphia: Carey, Lea & Blanchard, 1837), v.

to investment in machines; in post-revolution France many economists saw the business skills and networks of an entrepreneur as his most important capital; mid-19th century Germany had economic authors seizing on the idea that the betterment of material circumstances leads to an increase in mental capital and creates a reciprocal loop of growth and development; and yet, towards the end of the 19th century, during a period of heavy technology-based industrialization, economic discourse almost forgot these ideas, and they did not return until after the second world war. From there we have come to an economic world view in which every developed nation considers it a high priority, if not necessity, to have a highly educated population, with research institutions, and universities providing a source of research and development capable of creating and providing productive jobs. Maintaining and developing the right set of institutions to keep individuals and companies humming in a purposeful fashion is part of this *Weltanschauung*. It is now possible for a World Bank report to attribute four-fifths of the wealth in developed nations to this intangible capital. This is defined in plain language as skills and know-how; trust and ability to work for a common purpose; and all elements of governance which boost productivity.[3] Andrew Haldane, the Chief Economist at the Bank of England, summed this up in a speech in the spring of 2015.

> The factors driving growth are multiple, not singular. They are as much sociological as technological – skills and education, culture and cooperation, institutions and infrastructure. These factors are mutually supporting, not exogenous and idiosyncratic. And they build in a cumulative, evolutionary fashion, rather than spontaneously combusting. One way of accommodating these broader factors is to widen the definition of "capital": *physical* capital (such as plant and machinery); human capital (such as skills and expertise); *social* capital (such as cooperation and trust); intellectual capital (such as ideas and technologies); and *infrastructural* capital (such as transport networks and legal systems). Growth results from the cumulative accretion of multiple sources of capital.[4]

On top of this more aggregated view of national wealth, growing income inequality has made intangible capital, or more precisely human capital (in terms of education and skills) as topical again as it once was in the early 19th century from the perspective of wealth and income distribution. Some 19th century French liberal economists wrote then that the new science of political economy had solved the dilemma of haves and have-nots, because everybody had capital or could have capital by investing in themselves through education and acquiring skills – thereby increasing their productivity. Increased productivity could be the rising tide that lifted all boats, and so high wages would no longer seem

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3 Kirk Hamilton and others, *Where is the Wealth of Nations? Measuring Capital for the 21st Century* (Washington, D.C.: World Bank, 2006).

4 Andrew G. Haldane, "Growing, Fast and Slow: Speech Given at University of East Anglia, 17 February 2015," http://www.bankofengland.co.uk/publications/Documents/speeches/2015/speech797.pdf (accessed June 1, 2015), 7-8. Haldane cited here standards of endogenous growth theory: Paul M. Romer, "Increasing Returns and Long-Run Growth," *Journal of Political Economy* 94, no. 5 (1986): 1002-1037; Philippe Aghion and others, *Endogenous Growth Theory* (Cambridge, Mass.: MIT Press, 1998); Daron Acemoglu, *Introduction to Modern Economic Growth* (Princeton: Princeton University Press, 2009).

a threat and contradiction to high profits. Furthermore, increases and improvements in knowledge and technology could increase productivity indefinitely meaning that the field would be finally free of Cantillonian or Malthusian resource scarcity as a fundamental limit to human existence.[5] In a similar way, contemporary economic historians see universal education as a factor which has induced firms to develop technology to raise the productivity of labor. At the same universal education has continued to train children to meet the demand for educated labor after the education systems were initially set up in the 19th century.[6] Human capital thus has a long history of being part of social policy and income distribution debates, and is an oft-heard argument, especially from the employer or industry side. This is usually to say that the labor force has the wrong kind or too little educational credentials and skills, which slows economic growth and skews income distribution. Furthermore, in complex economies where education is the key asset in competition for higher wages and positions, inequalities accumulate in later life particularly in those countries with school systems that have a large variation in the quality and funding of education. Debates about human capital and social capital (to some degree) thus revolve around arguments about equality of opportunity.[7] However, some authors, like Thomas Piketty, have speculated that the human capital argument might actually conceal more acute problems of income and wealth inequality.[8] But this too was part of the debate in the 19th century. Eugen Böhm-Bawerk summarized the theory he was very critical of in following manner.

> All honour to the motives which have given rise to this theory. It is devised in the interests of the poor, and for the reconciliation of all classes. Between the iron law of wages which takes away all hope from the worker of earning anything but bare ne-

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5 See for instance section 6.2.2 on Paul Leroy-Beaulieu and 3.2.13. on Hippolyte Dussard.

6 Robert C. Allen, "American Exceptionalism as a Problem in Global History," *The Journal of Economic History* 74, no. 02 (2014), 339. Many economic historians also recognize culture, institutions, values, etc. as ultimate causes of growth, but as they are difficult to quantify, research often focuses on proximate causes such as land, capital, labor, education, and structural change. Albert Carreras and Camilla Josephson, "Aggregate Growth, 1870–1914: Growing at the Production Frontier," in *The Cambridge Economic History of Modern Europe, Volume 2: 1870 to the Present,* ed. S. N. Broadberry and Kevin H. O'Rourke, (New York: Cambridge University Press, 2010), 48.

7 For the US, children in the richest quarter with low 8th grade test scores are as likely to make it through college as kids in the poorest quarter with high scores. And the richest quarter high achievers are three times more likely to graduate from college than the poorest quarter high achievers. "Minding the Nurture Gap [Review of Our Kids: The American Dream in Crisis. By Robert Putnam. Simon & Schuster; 386 Pages]," *The Economist*, March 21 2015. In Germany, the differences based on socio-economic background in educational access to different secondary schools Hauptschule, Realschule, and Gymnasium create similar if not worse results. Markus Freitag and Raphaela Schlicht, "Educational Federalism in Germany: Foundations of Social Inequality in Education," *Governance* 22, no. 1 (2009), 50-51.

8 Thomas Piketty, *Capital in the Twenty-First Century*, trans. Arthur Goldhammer (Cambridge (Mass.): The Belknap Press of Harvard University Press, 2014), 21. On the reversal in the demand of skill and cognitive tasks, see: Paul Beaudry, David A. Green, and Benjamin M. Sand, "The Great Reversal in the Demand for Skill and Cognitive Tasks," *NBER Working Papers* No. 18091, (March 2013): 1-72.

> cessaries, and the socialist theory which promises the labourers everything, and the propertied classes nothing, it steers a middle course; it leaves the owner of material capital his hard contested interest, but would have him share it with the owner of personal capital. Thus the joint capitalism of the worker becomes on this theory the magic formula that is to be followed by the golden fruits of reconciliation and humanity. The pity is that it is only a formula […].[9]

In his recent book, *Conceptualizing Capitalism* (2015), the institutional economist and historian of economic thought, Geoffrey Hodgson, has argued that the modern broad understanding of capital is to misuse the concept, and proposes a return to the meaning of capital "that emerged in Europe by the 13th century in the real-world context of trading and investment."[10] According to Hodgson, the economists and sociologists have muddied the concept of capital by extending it to cover human attributes and phenomena in the social sphere, and it should be changed back.[11] As many of Hodgson's arguments were presented already during the early 19th century, we shall see later that many of these earlier elements still linger in the debate about the concept of capital.

Indeed, we should perhaps question what is happening when it becomes more commonplace nowadays to ascribe more and more of our wealth to intangible factors, and these then become 'capital' through metaphor or analogy. After Paul Romer first included both stock of human capital and stock of knowledge in his model of endogenous growth in *Endogenous Technological Change* (1990), it sometimes seems as if the tables have turned, and material capital has become simply a proxy for the true, human and intangible capital, without which we could not maintain nor develop our material capital.[12] There were, after all, economists in the 19th century who denied the whole concept of intangible forms of capital, discussing it more as "quasi capital," alongside the ones who argued that economics should deal with intangible capital and the revenue based on it as with any other form of capital. Similar critics exist today, yet they are fewer, and intangible capital is now being embedded into the way

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9 Eugen von Böhm-Bawerk, *The Positive Theory of Capital*, trans. William A. Smart (London: Macmillan, 1891), 53. In German, from the fourth edition: "Alle Ehre den Motiven, denen diese Theorie entsprungen ist. Sie ist ausgedacht, um den Elenden zu helfen und alle zu versöhnen. Zwischen dem ehernen Lohngesetz, das den Arbeitern hoffnungslos nur die blanke Notdurft zuerkennt, und der Sozialistentheori, die den Arbeitern alles und den besitzenden Klasses nichts zuteilt, halt sie die versöhnende Mitte: sie läßt den Besitzern des Sachkapitales ihre harte bestrittene Rente, sie sollen sie nur teilen mit den Besitzern des persönlichen Kapitales. Das Mitkapitalistentum des Arbeiters wird so im Munde dieser Theorie zur Zauberformel, der die goldenen Früchte der Versöhnung und Humanität entquellen. Schade nur, daß sie eben eine bloße Formel, ein Wortpränge ohne innere Warheit ist!" Eugen von Böhm-Bawerk, *Kapital und Kapitalzins: Zweite Abteilung. Positive Theorie des Kapitales. Erster Band*, 4 ed., vol. 1/2 (Jena: Fischer, 1921), 63.

10 Geoffrey Martin Hodgson, *Conceptualizing Capitalism: Institutions, Evolution, Future* (Chicago: The University of Chicago Press, 2015), 166, 170.

11 Geoffrey M. Hodgson, "What is Capital? Economists and Sociologists Have Changed Its Meaning: Should it be Changed Back?," *Cambridge Journal of Economics* 38, no. 5 (2014): 1063-1086.

12 Paul M. Romer, "Endogenous Technological Change," *Journal of Political Economy* 98, no. 5 (1990): 71-102. The idea of material capital as a proxy for true intellectual capital was presented for example by Friedrich Buchholz in 1807. See chapter 4.

national accounts are kept.[13] This has also meant recalculating the size and composition of the historical figures for gross domestic product, since research and development is now treated as capital investment, and intellectual property as capital - in the arts and entertainment.[14] Social capital still has many doubters among the economists, although a considerable amount of research in economics uses the concept. Nevertheless, intangible forms of capital are a category of their own, and it is interesting to try to gauge how far we have come from the end of the 18th century when the economist's concept of capital started to diverge from that of the layman and came to include most of what keeps modern economies and societies running.

A key motivating factor for writing this book is, as I mentioned at the very start, the observable amnesia in social sciences and economics. Often economists skim over previous views on the matter too easily and thus forget or lose sight of the clearly cyclical nature of economic thought. It might perhaps be that there is circular progress in economics, which would mean that when confronted with analogous problems and phenomena, economics tends to find similar solutions and explanations.[15] Indeed, Hayek has observed that this is common to many other fields of knowledge.

> In economics, no less than in other sciences, it not infrequently happens that shortly after a 'new' doctrine has become accepted the discovery is made that some earlier, long-forgotten thinkers had genially anticipated in their own days the very ideas that have just gained sway.[16]

One way to contemplate this is to see the cyclical process either as a reflection of the development of theory and research methods, or as reflecting the changing fortunes of societies and economies. Different things seem more pertinent at different times, and the methodological tool-kit used at the time may render the old ideas as new in disguise or just make those old ideas seem actual and current again. This is in line with the argument of Margaret Schabas that "since about 1700 there have been few genuinely new phenomena in economic discourse."[17] This does not mean that the development of political economy has

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13 The UN System of National Accounts (SNA) 1993 recommended the costs of producing artistic originals and computer software and the expense of mineral exploration to be treated as fixed investments. The SNA 2008 added the conduct of R&D following the resurgence of interest in intangibles in the early 2000s. Carol Corrado and others, "Intangible Capital and Growth in Advanced Economies: Measurement Methods and Comparative Results," *IZA Discussion Paper* No. 6733, (2012), 11.

14 Robin Harding, "Data Shift to Lift Us Economy 3%," *Financial Times*, April 21, 2013.

15 Ernst Helmstädter, "Die Geschichte der Nationalökonomie als Geschichte ihres Fortschritts," in *Geschichte der Nationalökonomie,* ed. Otmar Issing, (München: Vahlen, 2002), 10-12.

16 Friedrich A. Hayek, "Richard Cantillon (C. 1680–1734)," in *The Trend of Economic Thinking: Essays on Political Economists and Economic History,* ed. W.W. Bartley III and Stephen Kresge, The Collected Works of F. A. Hayek (London: Routledge, 1991), 245-246. Hayek said this in an essay discussing Richard Cantillon's long lost work: Richard Cantillon, *Essai sur la nature du commerce en général* (Londres: Fletcher Gyles, 1755).

17 Margaret Schabas, "British Economic Theory From Locke to Marshall," in *The Cambridge History of Science: The Modern Social Sciences,* ed. Theodore M. Porter and Dorothy Ross, (Cambridge: Cambridge University Press, 2003), 171.

ground to halt, and nor does Schabas argue so. New data, definitions, and methods have had significant implications for economic theory. But compared to, for instance, physics, there has been no such phenomena as electromagnetic induction or x-rays to set off completely new fields of research; instead, the economists have more or less been simply rearranging the same constituents.[18]

Sometimes this amnesia seems to be conscious, sometimes just based on a lack of effort to find out more about how ideas were discussed before. Robert Solow, for example, seems to clearly ignore or be unaware of what went before.

> Originally anyone who talked about capital had in mind a stock of tangible, solid, often durable things such as building, machinery, and inventories.[19]

However, we shall see that many authors who tried to rein in the expanding debate about capital during the 19th century held Adam Smith responsible for causing the whole debacle by his metaphoric extension of the original idea of financial capital to include material goods.[20] Indeed, in the early modern context, this material conception of capital was as much a metaphorical shift from the former meaning as intangible capital is from material capital.

The direction of the metaphor or analogy has changed from earlier too. Livius and Cicero wrote about *caput* as the principal of loaning a sum of money for interest.[21] When the term capital appeared in the Romance languages around the 12th century, *chetel* indicated goods and property whereas *chetiex* referred to cattle. Such variations of the vernacular word *chattel* in Old French could indicate assets, movable goods, and especially cattle. The word was a loan from *capitale* of Medieval Latin, derived from the classical *capitalis,* meaning important or principal. The idea of capital as a stock of physical goods remained in use and entered modern English in the 16th or early 17th century. From the 13th and 14th century, however, Northern Italy was exporting a new meaning connected with trade and credit. Capital was now the main part of a property in terms of money, and it was related to interest or profit, which was its yield. The new meaning spread from Italy to France through fairs and bankers, and in the 16th century reached England, where *stock* was also used. In the early 17th century the idea of income as a constituent part of money capital was already in place.[22] In the deeds for establishing companies drawn from different parts of Europe between the 16th and 18th centuries, the term capital never in-

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18 *Ibid.*, 172.

19 Robert Solow, "Notes on Social Capital and Economic Performance," in *Social Capital: A Multifaceted Perspective,* ed. Partha Dasgupta and Ismail Serageldin, (Washington, D.C: World Bank, 2000), 6.

20 "Ein Geldkapital kann nicht eigentlich zerstört werden, da es kein wirkliches Kapital, sondern bloß den Begriff eines Kapitale enthält […]"Christian von Schlözer, *Anfangsgründe der Staatswirtschaft oder die Lehre von dem Nationalreichthume* (Riga: Hartmann, 1805), 103.

21 Werner Brylewski, *Die verschiedenen Vorstellungsinhalte des Begriffes Kapital* (Stuttgart: Kohlhammer, 1933), 84.

22 Francesco Boldizzoni, *Means and Ends: The Idea of Capital in the West, 1500-1970* (Basingstoke; New York: Palgrave Macmillan, 2008), 11–13.

dicated tools or machinery, it meant money. Even when complex equipment was set up, the term capital was reserved for liquid money in contracts.[23]

Many authors are quick to proclaim as a starting point that these concepts, be it human capital, social capital, intangible or intellectual capital, are new or at least quite recent in economic thought or more broadly in social sciences. For instance, T. W. Schultz stated in *Investment in Human Capital* (1961) that "among the few who have looked upon human beings as capital, there are three distinguished names [...] Adam Smith [von Thünen] [...] and Irving Fisher."[24] Schultz also stated that the mainstream of "modern" economics had bypassed any systematic analysis of human wealth,[25] which made Kiker wonder what time period he meant by "modern" and that maybe Schultz should have used the term 'current' instead.[26] Furthermore, giving credit to for example Fisher is problematic, since his definitions of wealth and capital excluded intangible and incorporeal phenomena - defining honesty, wisdom, skill, or health as being "attributes" of men instead. Men could indeed be wealth, but only as whole "material" beings.[27] In spite of all this, Schultz's article became cited as a building block for subsequent human capital theory, and thus Claudia Goldin, for example, in her recent article *Human Capital* gives credit to Fisher for being the first economist to use "human capital" and that it only became part of the *lingua franca* of economists in the late 1950s.[28] Besides the fact that this statement about Fisher does not hold true, the concept of *intangible* human capital was already being used by economists of the 19th century, but in the form of 'moral capital', 'intellectual capital', 'mental capital', and 'immaterial capital' (and their French and German equivalents). Senior (1836) is, clearly commenting on intangible human capital, albeit in 19th century terms here:

> […] the intellectual and moral capital of Great Britain far exceeds all her material capital, not only in importance, but even in productiveness. The families that receive mere wages probably do not form a fourth of the community; and the comparatively large amount of the wages even of these is principally owing to the capital and skill with which their efforts are assisted and directed by the more educated members of the society. Those who receive mere rent, even using that word in its largest sense, are still fewer: and the amount of rent, like that of wages, principally depends on the knowledge by which the gifts of nature are directed and employed. The bulk of the national revenue is profit; and of that profit the portion which is mere interest on ma-

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23 Francesco Boldizzoni, "The Italian Way to Seignorage: Public Finance, Personal Power and Inflation Shocks in the Po Valley Between XVIIIth and XVIIth Centuries," *The Journal of European Economic History* 2004, no. 3 (2004), 630.

24 Theodore Schultz, W., "Investment in Human Capital," *The American Economic Review* 51, no. 1 (1961), 2-3. Also cited in B. F. Kiker, "The Historical Roots of the Concept of Human Capital," *Journal of Political Economy* 74, no. 5 (1966), 488.

25 Theodore W. Schultz, "Investment in Man: An Economist's View," *Social Service Review* 33, no. 2 (1959), 110.

26 B. F. Kiker, "The Historical Roots of the Concept of Human Capital," *Journal of Political Economy* 74, no. 5 (1966), 488.

27 Irving Fisher, *The Nature of Capital and Income* (London: Macmillan & Co, 1906), 39.

28 Claudia Goldin, "Human Capital," in *Handbook of Cliometrics,* ed. Claude Diebolt and Michael Haupert, (Berlin: Springer, 2016), 56–57.

> terial capital probably does not amount to one-third. The rest is the result of personal capital, or, in other words, of education.[29]

Furthermore, Peter Lewin has recently stated in *The Oxford Handbook of Human Capital* (2011) that it is a "a concept of relatively recent vintage, though hints at its essence can be found throughout the history of economic thought" and that it was conceived by T. W. Schultz in the 1950s, though Arthur Pigou "may have" used the term earlier. Meanwhile, Hanushek and Welch only mention William Petty and Adam Smith, and then jump to Mincer.[30] Mireille Laroche et al. have claimed that, after Adam Smith, economists largely forgot the idea of human capital until its rebirth in the 1960s, and that only after the emergence of endogenous growth theory in the 1980s was it properly seen as an engine of growth which could stimulate technological advancement and enhance labor productivity.[31] Geoffrey Hodgson, on the other hand, traces the use of the term "human capital" much further back to 1844 in a work of Cornwallis Harris, although he adds that its precise meaning is unclear; it is possible that Cornwallis was writing about slaves. He then goes on to follow B. F. Kiker in stating that the first truly scientific procedure to calculate human capital was presented by William Farr in 1853, and that the term made its first appearance when it was used in a major economics journal by Fisher in 1907.[32]

However, if we broaden the scope to look at French and German language economics, as we clearly should in the 19th century, things look quite different. The term *capital humain* was used in 1838 to mean people and their faculties, first appearing in the *Journal des économistes* in 1865, and appearing as early as 1820 in *L'économiste belge* - although in the context of demography. Meanwhile, J. H. Thünen's calculations regarding *Erziehungskapital* in the second part of *Der Isolierte Staat* (1850) predate those of Farr's, and were not only just as modern, but also cited by T. W. Schultz. In *Gallica*, the digital records of the French national library, the term appears 235 times during the 19th century, and was becoming more and more common towards the end of the century, so that between 1870 and 1914 it appears 418 times. Henri Baudrillart used it in its modern sense in 1857 in his textbook, and Léon Walras in 1860 to indicate the value of personal

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29 Yet further: "It is not on the accidents of soil or climate, or on the existing accumulation of the material instruments of production, but on the quantity and the diffusion of this immaterial capital, that the wealth of a Country depends." Nassau W. Senior, *An Outline of the Science of Political Economy* (London: W. Clowes and sons, 1836), 184–185. 'Moral capital' was sometimes also used to denote technical skills. Anonymous member of parliament, "Freedom of Commerce," *The Quarterly Review* XXIV, no. XLVIII (1821), 291.

30 Peter Lewin, "A Capital-Based Approach to the Firm: Reflections on the Nature and Scope of the Concept of Capital and Its Extension to Intangibles," in *The Oxford Handbook of Human Capital,* ed. Alan Burton-Jones and J.-C. Spender, (Oxford: Oxford University Press, 2011), ch. 5.1 and footnote 1. Eric A. Hanushek and Finis Welch, eds., *Handbook of the Economics of Education*, 1 (Amsterdam: Elsevier, 2006), xix.

31 Mireille Laroche, Marcel Mérette, and G. C. Ruggeri, "On the Concept and Dimensions of Human Capital in a Knowledge-Based Economy Context," *Canadian Public Policy / Analyse de Politiques* 25, no. 1 (1999), 87–88.

32 Geoffrey Martin Hodgson, *Conceptualizing Capitalism: Institutions, Evolution, Future* (Chicago: The University of Chicago Press, 2015), 169, 185. Fisher had used the term already in 1897.

faculties while refuting arguments of P. J. Proudhon.[33] So there were more than hints of the concept and such authors as Léon Walras, Henri Baudrillart, Auguste Comte, and others even used the term *capital humain*.[34] However, these first uses of the term may not be that significant, as the idea of human capital was already expressed with various other terms that had modifiers like 'intellectual', 'moral', and 'immaterial'. For many the idea was precisely that human capital and its variants augmented labor productivity and improved technology.[35] In this sense, the endogenous growth theory has roots or strong conceptual predecessors in the 19th century. In 1815 Charles Ganilh attributed profit unexplained by traditional factors to "unknown capital" (*capital inconnue*), consisting of the insights, talents, morality, and reputation of a merchant.[36]

Regarding social capital, John Field has claimed that it was only in the 1960s that capital was expanded to include people and their capacities, and that until this point social ties, as a form of capital, were simply a metaphor.[37] Ben Fine has gone further to argue that social capital has no significant conceptual history beyond the contemporary notion.[38] Taormina et al., while attacking social capital (and human capital) as a dehumanizing concept and unsuitable for empirical research, seem to be wholly unaware that prominent economists in the 19th century were already voicing similar opinions averse to the extension of capital as a concept to include intangible phenomena.[39] David Throsby, when building a case for his idea that economics should embrace cultural capital also dates the emergence of human capital theory to the 1960s and fails to note antecedents to his idea of cultural capital beyond Bourdieu.[40] Such examples suggest that the claims of novelty for a concept in economic and social science are more defined in relation to the immediately preceding theory than real novelty, which is to some degree understandable in forward-looking fields. Yet, such claims of novelty may also hamper the inclusion of otherwise productive concepts. More worrying is the naïve assumption that economics is, or has been, a self-correcting discipline in the same way as the natural sciences, and that the field has somehow distilled all useful and relevant knowledge and ideas in the

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33 Léon Walras, *L'économie politique et la justice, examen critique et réfutation des doctrines économiques de M. P.-J. Proudhon: Précédés d'une introduction à l'étude de la question sociale* (Paris: Guilaumin, 1860), 164.

34 In French it is *capital humain*, in English translations 'human capital'. Comte wrote about the social transmission of human capital over generations, see section 3.2.11 on Comte. Auguste Comte, *Système de politique positive, ou traité de sociologie. Tome deuxième*, vol. 2 (Paris: Carilian-Goeury, 1852), 156, 169, 277, 408.

35 Were we to abandon the connection to capital and understand intellectual faculties as property or wealth synonymous to intellectual faculties as capital, the amount of historical antecedents would explode.

36 See section 3.2.6 on Ganilh.

37 John Field, *Social Capital* (London: Routledge, 2003), 11-12.

38 Ben Fine, *Social Capital Versus Social Theory: Political Economy and Social Science at the Turn of the Millennium* (London: Routledge, 2001); Ben Fine, "Eleven Hypotheses on the Conceptual History of Social Capital: A Response to James Farr," *Political Theory* 35, no. 1 (2007): 47-53.

39 Robert J. Taormina, Angus C. H. Kuok, and Wei Wei, "Social Capital as Dehumanizing Terminology," *Advances in Applied Sociology* 2, no. 2 (2012): 143-148.

40 David Throsby, "Cultural Capital," *Journal of Cultural Economics* 23, no. 1-2 (1999), 4-5.

modern textbooks and literature. Regarding the social sciences more broadly, some of the debates about social capital and its connection and similarity to physical and financial capital could probably have been avoided if the debaters had known how the inclusion of trust, reputation, social norms, morality, habits, relations, the customer base, and other such phenomena were already being argued about in relation to the concept of capital in the 19th century.

However, the purpose here is not to simply point out unsubstantiated claims of novelty; the argument that these contemporary research streams have brought something new to the table often have some validity: definitional, conceptual, methodological, philosophical, historical, and sociological factors, some external and some internal to research, step in to form our ideas and direct our focus. An example of this is how the emergence of human capital literature directed the focus of historical accounts so effectively to the theme, that paradoxically a broader understanding of the issue by many authors from earlier in history was bypassed. The histories of disciplines, schools, ideas, or single theories quickly become canonized, which regrettably often narrows our focus in a way that prevents us from appreciating the insights of those outside the canon. When a novel looking idea comes to the fore in economics or the social sciences, it usually inspires some historically-minded economist or historian to study the longer-term roots of the problem. Thus, when human capital theory was in the ascendant at the turn of the 1960s, the first researchers were quick to look at classical economists and claim that Adam Smith and his later adherents were already expressing most of these ideas. Mark Blaug then showed that this was not the case. However, broadening the focus from the classical school also allows for features of modern intangible capital theories to be found in the 19th century too.

Should we thus reconsider the importance of classical economists, still obsessing with Malthusian checks, when we know that a political economist from a more unorthodox school of thought got some points about intangible capital very right from our modern perspective (e.g., treating the knowledge and skills of the population as capital and seeing the interactive process between material circumstances and intellectual powers as a way to intensive growth)? In comparison, many economists in the UK were lagging behind in their ideas about major education reforms so that the importance of educating the general populace in anything more than moral restraint entered their work only after the political shift to enable these changes had already taken place. However, many did also advocate state intervention and a publicly funded system (at least partially) to address a matter of this importance. Of course, it is one thing to say about a past economist that he (in this case always a he) did not understand education, skills, or business networks as capital, and another to say that he did not see the economic or social returns these might have had. Indeed, as we shall see later, there were other reasons, both ethical and intellectual, why capital did not seem the best framework on which to pin tangible and intangible human attributes and social relations.

And despite being with us for more than two centuries, the concept which connects capital and human attributes still makes many in academia and else-

where uneasy. In Germany "human capital" was chosen as the *Unwort* (non-word) of the year in 2004.[41] The argument of the jury of six linguists was that not only does the word degrade employees of companies but also people generally by evaluating them only in terms of economically interesting variables. The jury compared the word to *Menschenmaterial* (human material), which Theodor Fontane used first in 1854 followed later by Karl Marx to denounce capitalism.[42] Some scholars have also denounced social capital as dehumanizing.[43] As we shall see later, this argument, in both ethical and linguistic forms, was present also in the 19th century debate before both Fontane and Marx. *Menschenkapital*, which translates as human capital, was also a common term in German demographic and statistical studies from the late 18th century onwards.[44]

1.1.1 From Conceptual History to Economic Theories

> Die Kraft, Reichthümer zu schaffen, ist demnach unendlich wichtiger, als der Reichthum selbst; […][45]
>
> Friedrich List in *Das nationale System der Politischen Oekonomie*, 1841

In this section I will describe the broader goals of this work and explain what kind of questions it might help to answer. More precise research questions are discussed in the next. It is fairly easy to showcase why intangible capital matters, but for a historian to present a research task that covers such a long time span, which includes dozens of authors, and lumps together multiple concepts (sometimes from different fields of research) and also different languages is another matter. Furthermore, it will help to explain why this work starts from contemporary concepts, presented in subchapter 1.2, rather than from how the 19th-century authors discussed these subjects. But, precisely herein lies the insight this work is based on. So as not to be led astray by the subtitle of this work, one should note that it is less about the substance of the modern concepts themselves, and more about the emergence and evolution of the theory that *certain intangible social phenomena and human attributes could and maybe should be considered as capital.* In effect, the partial history of the modern concepts of human, social and intangible capital is a by-product of tracing the economic thinkers of

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41 FAZ, "Das 'Unwort des Jahres': 'Humankapital'," *Frankfurter Allgemeine Zeitung*, 18.1.2005.

42 Der Spiegel, "Sprache: 'Humankapital' ist Unwort des Jahres," *Spiegel Online*, 18.1.2005.

43 Robert J. Taormina, Angus C. H. Kuok, and Wei Wei, "Social Capital as Dehumanizing Terminology," *Advances in Applied Sociology* 2, no. 2 (2012): 143-148.

44 The first use I have found is from 1790 and discusses protecting human capital (i.e., population) with enlightenment to protect people from charlatans and quacks. Johann Ludvig Ewald, *Ueber Volksaufklärung: ihre Gränzen und Vorthelle* (Berlin: Unger, 1790), 62. The term was usually connected to health, population, or serfs. Sometimes it was discussed in connection to intellectual properties.

45 "The power to create riches is indefinitely more important than the riches themselves." Friedrich List, *Das nationale System der Politischen Oekonomie* (Stuttgart: J.G. Cotta'scher, 1841), 201. See also: Heinz Rieter and Peter Dobias, "Historische Schulen," in *Geschichte der Nationalökonomie,* ed. Otmar Issing, (München: Vahlen, 2002), 140.

the long 19th century who applied, debated, theorized, and sometimes discarded this idea in their work.

Once the theory of human capital properly entered into mainstream economics at the turn of the 1960s and became the heart of growth theory, interest in the history of the concept then followed. But the focus of this interest was to showcase the work of those economic thinkers of the past who were broadly on the same wavelength as the emerging theory, so the works discussing the history of human capital concentrated mostly on authors of the past who saw education, skills, and knowledge on the intangible side and health, longevity, and mortality on the material side as capital. Yet, if the focus had been wider, there would have been a host of authors who included a multitude of other intangible phenomena in their notion of capital. Usually they didn't call it human capital. Similarly, the mounting interest in social capital, especially from the 1990s onwards, led to some interest in its conceptual history, which has included very broad accounts where the authors do not so much talk about these issues as capital, although they are discussed as being precursors of the idea. In these accounts it is argued that the economic debates and issues in this earlier period went on to heavily influence Durkheimian, Weberian, and Marxist traditions within classical sociology, and therefore much of what we now refer to as 'social capital' was actually also at the heart of these concerns.[46] Even if this was the case, discussing Marx or Weber as some kind of precursors of the idea of social capital is rather strange, because both were explicitly forthright in their opinions that capital was precisely *not* about such issues as we currently ascribe to social 'capital'. At the same time, a host of much earlier authors discussed morals, institutions, mores, habits, trust, relationships, and reputation as capital, and yet they have been ignored. Indeed, some accounts have limited the discussion to only those who used the precise term 'social capital'. Concentrating on terminology in this way has thus persuaded some scholars to assume that there is no traceable history of social capital before the 20th century. Indeed, the German project to trace the history of fundamental concepts of the modern era treated the concept of capital in terms of a material production factor, although the focus of the project was on the emergence of the concepts during the *Sattelzeit*, the period from 1750 to 1850 (or 1870). Although this period saw very ingenious and broad attempts to define capital so that it would take into account various human attributes and phenomena from the social sphere, any definitive account of the conceptual history of the subject steered clear of it.[47] So even here, a contemporary understanding of what was capital or what was thought to be capital guided the scholar.

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46 Michael Woolcock, "Social Capital and Economic Development: Toward a Theoretical Synthesis and Policy Framework," *Theory and Society* 27, no. 2 (1998), 160. Woolcock cites to Swedberg: Richard Swedberg, "Economic Sociology: Past and Present," *Current Sociology* 35, no. 1 (1987): 1-215.

47 Marie-Elisabeth Hilger, "Kapital, Kapitalist, Kapitalismus," in *Geschichtliche Grundbegriffe: Historisches Lexikon zur politisch-sozialen Sprache in Deutschland,* ed. Otto Brunner, Werner Conze, and Reinhart Koselleck, (Stuttgart: Klett-Cotta, 1982).

To avoid such pitfalls and to position this work differently, the focus in these pages is on the history and emergence of the idea of understanding intangible phenomena (e.g., skills, education, knowledge, trust, reputation) as capital. The contemporary concepts are understood as tokens of this idea with stronger or weaker genealogical ties to the past. I shall discuss them to allow comparison to past authors, to show how fundamental the idea has become in how we understood personal success, wealth creation, and growth, as well as to analyze the reasons that make the importance ascribed to such concepts wax and wane in economic thought.

We often think that the modern concepts of human, social, and intangible capital are based on metaphors and analogies (such as knowledge as capital, or networks as capital), but as already briefly mentioned the idea of capital as a material production factor (meaning tools and machines) was itself once such an extension by metaphor.[48] In these conceptualizations, the characteristics of the source domain of capital describe the target domain of knowledge, networks or other intangible asset. Literature on, for example, education, cultural background, or trust as capital has grown since the 1960s; but this has gathered pace especially during the last two decades in the form of work on human capital, social capital, and intangible capital. These concepts seem to have become fundamental for a modern understanding of what constitutes the bulk of the wealth and productive capacity for modern societies, firms, and even individuals; as well as understanding how resources are distributed between them. The concepts seem almost self-explanatory to many following debates in social sciences or economics let alone social and economic policies; and yet the primacy of explaining wealth, prosperity and productive powers through intangible attributes running in parallel with physical factors of production have by no means been the norm in economic analysis. Although it was certainly well-known from at least the end of the 18th century onwards; this seemingly evident connection was ignored even during some of the most intense periods of growth during the last 250 years. Why was this so? For example it was deemed almost useless by classical economists during industrialization in the UK; and the younger historical school in Germany abandoned what had previously been a prominent idea in their literature during the second phase of the Industrial Revolution, when Germany surpassed Britain in its science and research-based technical, electrical, and chemical industries. So it has been that intangible capital concepts seem to emerge and gain traction in certain times but are neglected in others.

Furthermore, although some of the very early accounts of intangible attributes as capital included most contexts now covered by the modern concepts (from skills and education to trust and reputation), there has not yet been a large scale attempt to study the histories of these concepts by focusing on the underlying postulation behind them – the connection between useful and beneficial intangible attributes and the concept of capital. How, when, and where did this connection emerge, and how did it develop during the 19th century?

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48 See section 2.2.5 on Nassau W. Senior.

And to what degree was the discussion of the long 19th century on these intangible capital concepts part of the same discussion happening in economics and social sciences since the 1960s?

The second goal of the work, which may help to answer the last question, is to understand how these 19th-century authors embedded nascent ideas of intangible capital into their theories of economic development, and growth of firms, collectives, and individuals. A focus on the theories that had intangible capital as one of their terms should direct the analysis of conventional economic conceptual history more towards some of its core fields. It could help answer questions like when a theory of endogenous growth with intangible capital as a factor emerged; or when it became clear to students reading textbooks of political economy that future earnings should compensate them for their time and effort; or the point at which politicians started to think they could increase the economic output of their country by allocating resources to educate the young. Finally, another question this might help answer is when it was possible to say that authors anticipated the resource-based view of modern management and organizational studies (i.e., entrepreneurial skills and reputation).

Setting the intangible capital theories and theorists into their proper context raises the third goal of this volume: to help to understand what factors in society and economic thought influenced the emergence of the capital connection, and why its lure seems to have waned shortly before the end of the 19th century.

1.1.2 Research Questions

The first section of this subchapter (1.1.1) presented the main goals of the study. They are: (a) to describe the emergence and evolution of the idea of intangible phenomena as capital; (b) to understand how certain 19th-century authors embedded these nascent ideas of intangible capital into their economic theories to explain the growth of firms, collectives, and individuals; and (c) to understand what factors in society and the field of economics influenced the emergence of the capital connection, and why its lure seems to have waned towards the end of the 19th century.

In order to describe the emergence and evolution of the idea of intangible capital (first goal), this study thus seeks to answer the questions which follow. Who were the authors that first started to include intangible phenomena in their concept of capital or started to use separate intangible capital concepts? When did they do this? How did they promote such an approach? What was the content of their definitions? Finally, how did subsequent authors and critics, within the scope of this work deal with the concept as it evolved?

In order to understand how the 19th-century authors embedded these nascent ideas of intangible capital into their economic theories to explain the growth of firms, collectives, and individuals (second goal), I will be asking firstly what kind of theories used intangible capital in the literature; and secondly how intangible capital was seen to promote a growth in the economic fortune or social success of various entities. Finally, in order to achieve the third goal – of

understanding the social and economic factors behind the waxing and waning of the capital connection – I will look for possible reasons, if any are to be found, in the past literature (e.g., in the sociology of science). By trying to set the literature in the context of the era, I will also try to pin down more precisely what social and economic reasons might have fostered such developments.

It is more than probable that there are many authors who may also have considered education or trust as a capital asset, and have not found their way into this work; just as many authors who were undoubtedly against these ideas will also be missing. But as the chief purpose of this volume is to show how prevalent this kind of thought was already in 19th-century political economy and the debates it was connected with, this is not a problem; since the literature covered is more than adequate for showing the general tendencies among political economists. And although this is more problematic for the historian who longs to write the definitive account of a dear subject, one must accept that such is the nature of research in history, or any other discipline for that matter, and seldom are those definitive accounts definitive for very long.

One line of discussion that comes very close to the present ideas of intellectual property and intangible capital would be the debate about intellectual property rights in the latter half of the 19th century. As any historian interested in technological development knows, the patent contests and infringements of patents were a common feature in the implementation of many major as well as minor technological breakthroughs of the past. Legislation and regulation concerning literary and artistic works was also very much in the making. The 1883 *Paris Convention for the Protection of Industrial Property*, covering inventions (patents), trademarks and industrial designs, and the 1886 *Berne Convention for the Protection of Literary and Artistic Works* covering all kinds of literary, musical, and artistic works, were major breakthroughs on an international level. However, in this work, due to limitations of space and time, these issues are discussed only as far as the authors presented here used them in their treatment of the theme of intangible capital – for example, Karl Richter (7.1.4) and Albert Schäffle (7.1.5).

A further reservation concerns the claims made about how well later scholars in different disciplines have covered or given credit to these intangible capital pioneers discussed in this volume. Here these claims concern mostly English language economics and sociology published after the 1950s. This is because, although the author tried to find relevant German and French literature on the subject, their availability and the sheer amount of this literature has meant that there is a good chance more has been written about intangible capital in 19th-century political economy in German and French than has found its way into the pages of this volume.

1.1.3 Previous Research

This section takes a glance on how others have studied the history of intangible capital. There is an abundance of literature concerning human capital, but two articles tracing the history and the foundations of the concept are worth men-

tioning here in particular, since they are excellent guides to the subject. B. F. Kiker's *The Historical Roots of the Concept of Human Capital* (1966) shows that the the idea of human beings or their abilities being a form of capital is at least as old as modern economics is (as a discipline).[49] Then there is Scott R. Sweetland's *Human Capital Theory: Foundations of a Field of Inquiry* (1996), which goes through contemporary seminal studies in the field alonside older ones.[50] In addition to this, there are specialists in the economics of education and history of economic thought, for example Mark Blaug, who have discussed the subject in depth.[51] Blaug's views on the slow development of human capital theory in classical economics have also been one the starting points for this work.

A glance at Kiker's work gives some indication of what to expect in the chapters to follow. Adam Smith had already included skills and abilities in his definition of fixed capital. Similarly Jean-Baptiste Say (1767–1832) also asserted that skills and abilities are acquired at a cost, and tend to increase worker productivity; as did John Stuart Mill (1806–73), Wilhelm Roscher (1817–94), Walter Bagehot (1826–77), Henry Sidgwick (1838–1900), and Friedrich List (1789–1846). It was common for the above to see capital as a man-made means of production, and they did not explicitly include human beings as capital in that respect. Many modern views also share J.S. Mill's idea that human beings are not wealth, but the purpose for which wealth exists; whereas acquired capacities exist as means and are obtained through labor.[52] However, Mill made it clear – as I do later on – that he did not want to consider acquired abilities as capital or wealth (5.2.1). Nevertheless, he is frequently presented as the standard-bearer of human capital theory in classical economics. Other historians of economic thought have also listed the Spaniards Jovellanos and Francisco Cabarrús, both contemporaries of Adam Smith, as having held the belief that human capital was as important in augmenting productivity as fixed capital, although it is not clear whether they made explicit the connection between the concept of capital and education.[53]

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49 Depends on where one starts counting and what is seen as "modern." Kiker sees the foundations of modern economics in Sir William Petty in the 17th century. B. F. Kiker, "The Historical Roots of the Concept of Human Capital," *Journal of Political Economy* 74, no. 5 (1966): 481-499. Kiker's 1968 book on the subject is still a great source. B. F. Kiker, *Human Capital: In Retrospect* (Columbia: University of South Carolina, Bureau of Business and Economic Research, 1968).

50 Scott R. Sweetland, "Human Capital Theory: Foundations of a Field of Inquiry," *Review of Educational Research* 66, no. 3 (1996): 341-359.

51 Mark Blaug, "The Economics of Education in English Classical Political Economy: A Re-Examination," in *Essays on Adam Smith,* ed. Andrew S. Skinner and Thomas Wilson, (Oxford: Clarendon Press, 1975); Mark Blaug, "The Empirical Status of Human Capital Theory: A Slightly Jaundiced Survey," *Journal of Economic Literature* 14, no. 3 (1976): 827-855.

52 B. F. Kiker, "The Historical Roots of the Concept of Human Capital," *Journal of Political Economy* 74, no. 5 (1966), 485-486.

53 Donald R. Street, "Jovellanos, an Antecedent to Modern Human Capital Theory," *History of Political Economy* 20, no. 2 (1988): 191-206. Robert B. Jr. Ekelund and Robert F. Hébert, *A History of Economic Theory and Method*, 5 ed. (Long Grove: Waveland, 2007), 87-88.

John Ramsay McCulloch (1789–1864), an ardent expositor of Ricardianism; Nassau William Senior (1790–1864), a critic of the above Ricardianism; Henry D. Macleod (1821–1902), again a critic of Ricardian economics; Johann Heinrich von Thünen (1780–1850), a German precursor of marginalism; and Alfred Marshal (1842–1924), who popularized supply and demand functions and was important part of marginalist revolution are all people that B. F. Kiker lists as seeing human beings as a form of capital. What was common to them, according to Kiker, was that though they included human beings or their acquired skills and abilities in their concept of capital and saw investment in people as a means of increasing productivity, they did not use the concept for any more specific purpose than this, and nor did they try to estimate the stock of human resources in any quantitative sense.[54] However, von Thünen had developed a way, for example, to calculate the value and *Erziehungskapital* of an individual. Furthermore, one author left unmentioned by Kiker was Vilfredo Pareto, whose first volume of *Cours d'économie politique professé à l'université de Lausanne* (1896) contained about a ninety page chapter on personal capital, meaning in his case people considered as capital and discussed in connection with demographics.[55] Pareto, in fact, thought that it would be just as impossible to determine which part (of a doctor's income, for example) should be attributed to innate talent and which part to education, as to determine which part of a farm's agricultural output was due to its natural capacity, and which part was due to the result of land improvements.[56] Most authors discussed in this volume would have disagreed, and actually the land improvement metaphor has often been used by them in arguments for the concept of intangible human capital. Therefore, as mentioned above, the emphasis and focus in this work is on the intangible side of human capital. What is also notable in Kiker's account is that he bypassed almost all the French economists, excluding Say, that we are going to discuss later in this volume. As we shall see, regarding the first half of the 19th century, those would have been the people to look for.

Kiker also listed the attempts at making quantitative measurements. For example, in 1891, J. Shield Nicholson capitalized the portion of national income that he assumed to be derived from what he called "living capital" to estimate the stock of human resources;[57] while in 1927, Edward A. Woods and Clarence B. Metzger developed five other different methods to do this. In addition to estimating the value of human capital stock, quantitative methods using the same human capital concept were developed to estimate the total economic losses of war, and at the beginning of the 20th century, several methods were developed to evaluate the losses caused by preventable illness and premature death, mi-

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54 Exceptions being List (to promote protectionism), von Thünen (to aid distribute social justice), and Marshall (some estimates). B. F. Kiker, "The Historical Roots of the Concept of Human Capital," *Journal of Political Economy* 74, no. 5 (1966), 485-488.

55 Vilfredo Pareto, *Cours d'économie politique professé à l'université de Lausanne. Tome premier*, vol. 1/2 (Lausanne, Paris, Leipzig: F. Rouge, Pichon, Dunker, 1896), 75-162.

56 *Ibid.*, 391.

57 J. Shield Nicholson, "The Living Capital of the United Kingdom," *The Economic Journal* 1, no. 1 (1891): 107-195.

gration, and education.[58] Especially interesting is the contribution of J. R. Walsh's *Capital Concept Applied to Man* (1935), in which Walsh examined many of the same questions as Schultz and G. S. Becker later.[59] Walsh studied whether the expenditures incurred in professional careers were made in a profit-seeking and whether they were stimulated by the same motives as investments in conventional capital. He found out that the value of a general college education exceeded the cost of its acquisition, but in the case of postgraduate degrees, cost exceeded value. In the latter case, however, he saw non-monetary returns such as travel, vacations and service to mankind.[60]

Furthermore, as human capital has become part of the canon of economics, so have more broad and general histories of the field started to discuss the past authors' views on the subject. Examples of such histories in which the role of human capital and education have been considered a factor of growth or as having an effect on wages are Mark Perlman and Charles R. McCann's two-volume *The Pillars of Economic Understanding* (1998-2000)[61] and O'Brien's *The Classical Economics Revisited* (2004). These can be compared to the treatment of the subject earlier in Karl Pribram's *History of Economic Reasoning* (1983) or Roger Backhouse's *A History of Modern Economic Analysis* (1985). The first has no index entries on human capital or education and the latter's index has no entries on education and only one on human capital (discussing Becker's 1960s contributions) in spite of the fact that Mark Blaug's classic *Economic Theory in Retrospect* (which has already discussed these matters in some length) came out in 1962.[62]

Overall, Perlman and McCann, as well as O'Brien in their general histories give a solid picture of the concept of human capital in connection to the most household classical economists and their views on economic growth; and these works have been of great help in doing the research for this book. There are, however, some caveats; as some of the authors discussed had in fact much broader views of what constituted the intangible side of capital than contemporary views of human capital. This means that they also understood the importance of social or intangible capital in a wider context, of which human capital was but a part.

Since a general view of the field is necessary here, two books discussing social capital and research of the concept have proved particularly useful. John

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58 Edward Augustus Woods and Clarence B. Metzger, *America's Human Wealth* (New York: F. S. Crofts & co., 1927).

59 J. R. Walsh, "Capital Concept Applied to Man," *The Quarterly Journal of Economics* 49, no. 2 (1935): 255-285.

60 B. F. Kiker, "The Historical Roots of the Concept of Human Capital," *Journal of Political Economy* 74, no. 5 (1966), 488-495.

61 Mark Perlman and Charles R. McCann, *The Pillars of Economic Understanding: Ideas and Traditions* (Ann Arbor: University of Michigan Press, 1998); Mark Perlman and Charles R. McCann, *The Pillars of Economic Understanding: Factors and Markets* (Ann Arbor: University of Michigan Press, 2000).

62 Mark Blaug, *Economic Theory in Retrospect* (Homewood, Ill: R. D. Irwin, 1962); Karl Pribram, *A History of Economic Reasoning* (Baltimore; London: Johns Hopkins University Press, 1983); Roger Backhouse, *A History of Modern Economic Analysis* (New York, N.Y.: Blackwell, 1985).

Field's *Social Capital* (2003) and *Social Capital: A Review and Critique* edited by Stephen Baron et al. are good general accounts of the subject. Ben Fine and James Farr have had a short debate on the history of the concept.[63] Meanwhile, Geoffrey Hodgson's *Conceptualizing Capitalism* (2015) gives a very critical view of both human and social capital, their other application, as well as the whole idea of understanding capital as a man-made means of production over the last two centuries.[64]

The history of the concept of intangible capital or assets has been mostly discussed in theoretical and empirical works discussing knowledge, research and development, patents, and (for example) software as capital. Usually this has been restricted to contemporary literature starting from the emergence of modern growth theory, but there are also works that look at the issue from a wider perspective. One is *Knowledge and the Wealth of Nations* (2006) by David Warsh.[65] Although written with larger audiences in mind, it nevertheless discusses how economics has dealt with the role of knowledge from Adam Smith to the founding of Solow Residual and the birth and development of modern growth theory; with a focus on the 20th century. A more specific article on the innovation around which Warsh's later book is based, is Zvi Griliches *The Discovery of the Residual: A Historical Note* (1996).[66]

Of those concepts discussed in this volume, human and social capital especially launched a fad when they joined the modern vocabulary of the social sciences. In both cases after the initial launch, there appeared a number of publications warning that these ideas, although still wonderful, had been presented before and so it would be hard to claim that the value of those things embedded in corresponding theories would be novel. This volume would find its place on this continuum too, as it tries to bind together the 19th century discussion on intangible forms of capital and with the way they have been discussed in social sciences since the introduction of human capital as a concept at the turn of the 1960s. One could see parallels to older publications such as Jacoby's *Der Streit um den Kapitalbegriff* (1908), Liefmann's *Kapital und Kapitalismus* (1916), Hohoff's *Zur Geschichte des Wortes und Begriffes 'Kapital'* (1918) and Brylewski's *Die verschiedenen Vorstellungsinhalte des Begriffes Kapital* (1933).[67] These were at-

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63 James Farr, "Social Capital: A Conceptual History," *Political Theory* 32, no. 1 (2004): 6-33; Ben Fine, "Eleven Hypotheses on the Conceptual History of Social Capital: A Response to James Farr," *Political Theory* 35, no. 1 (2007): 47-53; James Farr, "In Search of Social Capital: A Reply to Ben Fine," *Political Theory* 35, no. 1 (2007): 54-61.

64 Geoffrey Martin Hodgson, *Conceptualizing Capitalism: Institutions, Evolution, Future* (Chicago: The University of Chicago Press, 2015).

65 David Warsh, *Knowledge and the Wealth of Nations: A Story of Economic Discovery* (New York: W.W. Norton, 2006).

66 Zvi Griliches, "The Discovery of the Residual: A Historical Note," *Journal of Economic Literature* 34, no. 3 (1996): 1324-1330.

67 Walther Jacoby, *Der Streit um den Kapitalbegriff; Seine geschichtliche Entwicklung und Versuche zu seiner Lösung* (Jena: G. Fischer, 1908); Robert Liefmann, "Kapital und Kapitalismus," *Zeitschrift für die gesamte Staatswissenschaft,* 72, (1916): 328-366; Wilhelm Hohoff, "Zur Geschichte des Wortes und Begriffes 'Kapital'," *Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte,* 14, (1918): 554-574; Richard Passow, *Kapitalismus: Eine begrifflich-terminologische Studie* (Jena: Fischer, 1918); Wilhelm Hohoff, "Zur Geschichte des Wortes und Begriffes 'Kapital' (Fortsetzung)," *Vierteljahrschrift für*

tempts to put the long 19th century debate on what capital is in context and, in some cases, to even offer a working solution. Whereas in those works the idea of intangible capital was a side note, since it had been pushed to the margins of the field, this volume is an attempt to extract from that debate the idea that incorporeal and intangible human attributes and social and economic phenomena could be treated and accounted in similar fashion as material capital, and to place it on the same timeline, i.e., in historical context with the modern discussion. One could see it complementing works such as Boldizzoni's *Means and Ends: The Idea of Capital in the West, 1500-1970* (2008), which tracks the development of what has been understood as capital but stays almost completely clear of the streams of human and intangible capital thought covered here.[68] Boldizzoni's work is indispensable in the sense of giving an overall picture of the development of the theory of capital, as is Perlman and McCann's *The Pillars of Economic Understanding: Factors and Markets* (2000)[69].

1.1.4 Writing the History of Economics via Concepts

> It does not so greatly matter what name we select by which to call a concept. The important matter is to select for consideration those concepts which are fruitful in scientific analysis.[70]
>
> Irving Fisher in *Nature of Capital and Income* (1906)

Given the temporal and thematic scope of the present volume, a theoretical and methodological framework taking into account its challenges is perhaps necessary. This section charts the field of research in the history of economic thought and in neighboring fields – mainly the history of concepts and history of ideas – to build an applicable setting for the rest of the book. This setting should serve the volume by binding the questions, interpretations, and conclusions in it to the relevant theoretical and methodological discussions in the literature, and by explaining the choices made in the midst of theoretical and methodological abundance. The questions dealt with in this section include some major themes in recent debates on the historiography of economic thought. This means taking a stance on themes such as sociology of economics and scientific knowledge, interpretation and textuality, rational reconstruction, economic methodology, biography, the history of economic thought, the economic thought and policy process, the diffusion of economic thought, and the history of ideas in relation to economic thought.[71] Some of these issues are discussed in what follows, but

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Sozial- und Wirtschaftsgeschichte, 15, (1919): 281-310; Werner Brylewski, *Die verschiedenen Vorstellungsinhalte des Begriffes Kapital* (Stuttgart: Kohlhammer, 1933).

68 Francesco Boldizzoni, *Means and Ends: The Idea of Capital in the West, 1500-1970* (Basingstoke; New York: Palgrave Macmillan, 2008).

69 Mark Perlman and Charles R. McCann, *The Pillars of Economic Understanding: Factors and Markets* (Ann Arbor: University of Michigan Press, 2000).

70 Irving Fisher, *The Nature of Capital and Income* (London: Macmillan & Co, 1906), 65.

71 This thematic approach is partly based on discussion about historiography of economics in Warren J. Samuels, Jeff E. Biddle, and John B. Davis, *A Companion to the History of Economic Thought*, Paperback ed., Blackwell Companions to Contemporary Economics (Malden, MA: Blackwell, 2007), 491-668.

the focus is really on building the working framework behind this study rather than providing a theoretical and methodological account of the state of the field. From the start it is useful to keep in mind that for the majority of the 19th-century authors discussed here, historical and analytical conceptual analysis were among the main methods practised in political economy.

Perhaps the most important issue here is to clarify what is meant by the words *concept* and *term*, because their connection and difference are also essential for the framing and outline of this study. According to Helmut Seiffert:

> Der Begriff ist also das, was gleich bleibt, wenn die verwendeten Wörter sich ändern. Ein Begriff wird zwar durch ein Wort (oder durch einen sprachlichen Ausdruck aus mehreren Wörtern) wiedergegeben, aber *nicht* durch ein *bestimmtes* Wort.[72]

However, despite the possibility that the words and terms denoting a concept may actually change, a concept is no prelinguistic mental construct, but is always bound to a word or a term.[73] It is perhaps better to use *term,* because unlike *word*, it can also be a *phrase* denoting a concept. So a concept is a different thing than a particular word or a term, but is always expressed with a linguistic expression, because it can only occur in the form of a word or a phrase.[74]

Therefore, for example Quentin Skinner has described the craft of conceptual history as follows:

> My almost paradoxical contention is that the transformations we can hope to chart will not strictly speaking be changes in concepts at all. They will be changes in the use of the terms by which our concepts are expressed.[75]

Reinhardt Koselleck agreed, and even admitted that the term *Begriffsgeschichte*, conceptual history, was the consequence of logical sloppiness.[76] This implies that if one would like to study the conceptual history of human capital and define it as the idea that investment in education or skills pays off, the boundaries of the study will expand to incorporate much of the period we have written sources from, because that notion has actually been quite common throughout history.[77]

Instead, the concept we are interested in, let's call it the concept of intangible capital, is the idea that certain intangible phenomena are, or can function as, capital and can be called that, or with some delimiting qualifier like human, intellectual, immaterial, social, or intangible. Therefore, on the level of language

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72 "So the concept is what remains the same when the words used are changing. A concept is reproduced through a word (or a linguistic expression of several words), but *not* by a *fixed* word." Translated by the author. Helmut Seiffert, *Einführung in die Wissenschaftstheorie Bd. 1: Sprachanalyse, Deduktion, Induktion in Natur- und Sozialwissenschaften*, 13 ed., Beck'Sche Reihe, vol. 1/3 (München: C.H.Beck, 2003), 40.

73 *Ibid.*, 41.

74 *Ibid.*

75 Quentin Skinner, "Rhetoric and Conceptual Change," *Redescriptions* 3, no. 1 (1999), 63.

76 Jan-Werner Müller, "On Conceptual History," in *Rethinking Modern European Intellectual History,* ed. Darrin M. McMahon and Samuel Moyn, (Oxford: Oxford University Press, 2014), 86–87, see also footnote 47.

77 See, e.g., Plato's *Eryxias* quoted in 5.2.2.1. Plato, *Eryxias*, trans. Benjamin Jowett (Adelaide: The University of Adelaide Library, 2014).

and terminology, we are interested in the emergence of connections between productive or otherwise useful intangible human and social phenomena and the term capital. Skinner expressed this in a similar way.

> Such changes originate when an action or state of affairs is described by means of an evaluative term that would not normally be used in the given circumstances. The aim is to persuade an audience that, in spite of appearances, the term can properly be applied – in virtue of its ordinary meaning – to the case in hand.[78]

Furthermore, on the level of economic theory and concepts, we are interested in theories and definitions explaining how these intangible phenomena were thought to function as capital. This means we should also pay some attention to definitions and theories explaining 'ordinary' capital. The word ordinary is in quotes, because the concept of capital was still very much a matter of debate during the 19th century – in 1933 Brylewski counted seventeen different forms of it since Adam Smith[79] – and this fluidity of meaning also had a knock-on effect on what intangible capital was thought to be and how it was thought to work. And nor were the intangible and ordinary necessarily separate categories; as some authors defined the concept of capital so that it included intangible phenomena.

Examples of theories and definitions of capital that demarcated acquired skills outside the concept are Marx's socialist exploitation theory, which saw capital and interest as a process sucking the surplus generated by workers into the pockets of capitalists; and Hermann's theory of capital as alienable and sellable property generating income regardless of its owner.[80] Some such authors are discussed, because they show how far the definitions of central concepts can frame discussion (Marx), and because they show what type of arguments were presented *against* the concept of intangible capital. What are not the focus of this study are the alternative terms, concepts, and theories used to explain the intangible phenomena in question as production factors, resources, sources of power, or social relations.

How then, are the history of economic thought and history of concepts joined here? The historians of economic thought are often but not always economists. This presents them with a problem arising from the present mode of the discipline. As economics has moved further and further towards formalism and abstract theorizing based on the ideals of Newtonian physics, the empiricists and historically-minded have been left with less room for maneuver in the field. This is visible in how historians of economics have to talk up the usefulness of their approach to other economists and defend it against their colleagues arguing that the modern canon has distilled the best of their discipline into formal economics whether this is actually true or not. The position of both economic history and history of economic thought is thus relatively weak inside the field of economics.

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78 Quentin Skinner, "Rhetoric and Conceptual Change," *Redescriptions* 3, no. 1 (1999), 66.

79 Werner Brylewski, *Die verschiedenen Vorstellungsinhalte des Begriffes Kapital* (Stuttgart: Kohlhammer, 1933), 182.

80 On Marx, see sections 2.4 and 7.2.2, and on Hermann section 4.3.2.

However, a historian interested in the history of economics does not carry the same baggage – there is less need to prove one's usefulness to the practising economist. Although a historian would accept the the usefulness of modern economic analysis in a limited context, the idea that the axioms and assumptions needed to run the models of neoclassical economics are of a universal and timeless nature is for most historians just one more indication of the hyperbole and hubris of mankind. Economists who are receptive to history probably acknowledge that, unless they have found something remarkably profound, if their model is not flawed now, it will most likely be so if applied far enough into the future or past. A historian or an economic historian understands the economic forces shaping history and the help that economics can provide in understanding them, but also understands economics as being a historically, socially, and ideologically moulded package with a force of its own.

For a non-materialist historian or economist, one good reason to study the history of economic thought is that whether or not its analysis is correct, not to say anything about the correctness of its reception and application, it often has a tremendous impact on social policies, people's ideas about society, and even interpretations of history. The subject matter of this book is a good case in point. Even though the idea of human and other intangible forms of capital is quite old, it has at various points been kept at arms length from the core of analysis, often for the ethical reasoning that wealth should exist for humans, and not humans for wealth. Nowadays the idea of intangible capital has more of a soft humane focus to it, however, and defenders of the values of science, scholarship, education, arts, culture, and community are just happy to use the devices developed by the Chicago School if it means these values will be invested in.

Theories about the sociology of scientific knowledge (or economics) are basically propositions about what influence the normative, cultural, and institutional environment of doing research has on research outcomes. A famous example is Joseph Schumpeter's passage in his *History of Economic Analysis* (1994 [1954]).

> The professionals that devote themselves to scientific work in a particular field and even all the professionals who devote themselves to scientific work in any field tend to become a sociological group. This means that they have other things in common besides the interest in scientific work or in a particular science per se… The group accepts or refuses to accept co-workers for reasons other than their professional competence or incompetence.[81]

Schumpeter's view was that the history of economics should explore the relationship between the economy and ideas. Therefore, it would be a field in which the sociology and methodology of science converge.[82] Richard Swedberg has noted that the timing of Schumpeter's *History of Economic Analysis* was un-

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81 Joseph A. Schumpeter, *History of Economic Analysis*, ed. Elizabeth Boody Schumpeter, 12 ed. (New York: Taylor & Francis, 2006), 44.

82 Bob A.W. Coats, "The Sociology of Economics and Scientific Knowledge," in *A Companion to the History of Economic Thought,* ed. Warren J. Samuels, Jeff E. Biddle, and John B. Davis, (Malden: Blackwell Publishing, 2007), 509.

fortunate, since from at least the 1920s to the 1960s economists and sociologists practically went about their business as though the other science did not exist.[83]

In a similar way, as Ludwik Fleck has pointed out, when schools of thought operating on different axioms come within the same ring-fence, as is often the case in economic thought, the opposing system may seem alien.

> Whatever is known has always seemed systematic, proven, applicable and evident to the knower. Every alien system of knowledge has likewise seemed contradictory, unproven, inapplicable, fanciful or mystical.[84]

The purpose of these citations is not to claim that economics as a discipline is more prone to sociological bias, but to remind readers, regardless of whether they consider economics akin to science or not, that sociological and cultural factors do play a role in what kinds of research gets done and what kind of ideas get supported.

Therefore, the assumptions, based on previous research, that guide my understanding of the development of economic thought are as follows. A political economist or economic theorist builds on the following three foundations and is at the same time embedded in them.

(1) *Doctrine* covers the existing knowledge, assumptions and concepts from the literature in the field, i.e., what is inherited from the past.
(2) *Research* focuses on the economy and society via methodology, observations, data, and the current concepts and theories which allow one to perceive it, and it includes the sociology of science, i.e., who gets to do what research, and on what terms.
(3) *Reality* in terms of how society and the economy actually is. This includes both the material sphere (how things are and how they change according to what people do) and intangible sphere (how people think and how they relate to other people and things).

The order of these foundations highlights that possible ideological constructs based on assumptions may well conflict strongly with real conditions. In other words, (1) may pass the test of the current discipline (2), but not the test of reality (3) if a famine, revolution, persistent unemployment, or negative growth should render a policy or economic model unworkable. Doctrine, research, and reality are in constant mutual interaction, which over time has consequences for all. Note also that it might well be the case that both doctrine and research are

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83 Richard Swedberg, *Economics and Sociology. Redefining Their Boundaries: Conversations With Economists and Sociologists* (Princeton, N.J.: Princeton University Press, 1990), 4.

84 Ludwik Fleck, *Genesis and Development of a Scientific Fact* (Chicago: University of Chicago Press, 1979), 22. Also cited by Peter Burke: Peter Burke, *A Social History of Knowledge: From Gutenberg to Diderot, Based on the First Series of Vonhoff Lectures Given at the University of Groningen (Netherlands)* (Cambridge, UK Malden, Mass: Polity Press Blackwell Publishers, 2000), 1.

out of touch with reality. Indeed, this framework is derived from Yuichi Shionoya's two-structure approach to the mind and society and its metatheoretical framework concerning science, which he, in turn, built on Schumpeter's ideas on how economics, economic history, and the history of economic thought should be studied.[85]

In its broadest sense, and in terms of the themes of this volume, this process of constant mutual interaction is visible in the resource scarcity vs. human ingenuity debate. For example, the Cantillonian or physiocratic view that land is the defining constraining factor of human existence and the only source of real productivity still resonated strongly with Smith and Malthus. It had consequences for the whole of classical economics in terms of understanding demography and labor income. Subsequently, yet almost at the same time, emerged the idea that it was in fact human skills, knowledge and institutions that set the limits of our existence by being able to raise overall activity in manufacturing, agriculture, trade, and governance. These became quickly understood as a class of capital, since the basic idea of human or intangible capital as a positional good already existed, but now intangible capital became a lever that defined the productivity of other factors of production. Instead of land, it was now human ingenuity that defined the limits, and some early 19th century economists even thought that the possibilities were infinite. Indeed, we still live with the debate as to whether human ingenuity can solve everything. De-growth environmentalists often demand drastic measures going to the heart of what some consider the chief motor of capitalist market economies to function and produce wealth, whereas others see further investment in research, innovation, and good governance (i.e., smart incentives) as a better way to solve environmental and resource-scarcity problems.

Because much of the research on the history of economic thought has been on the history of economic analysis, one may feel that the rather qualitative or history-oriented methods of the 19th century economists will have set them completely apart from the econometrics of the present day. For a historically oriented researcher, however, the points of interest may be elsewhere than in the development of methodology and analysis. One way to evaluate whether a theory or concept of the past belongs to the same area is to look at what kind of policy prescriptions or future projections the author was drawing from them. This may also help identify claims that are based on different philosophical presuppositions than the assumed economic logic, even if it is of course possible to also draw similar conclusions from very different starting points.

What insights are there to be drawn from this discussion and how does it connect to the conceptual setting applied? It is precisely the idea that intangibles related to human faculties, skills, knowledge, and the social sphere are considered as capital that defines the boundaries of this study. Otherwise the scope

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85 Yuichi Shionoya, *Schumpeter and the Idea of Social Science: A Metatheoretical Study*, Historical Perspectives on Modern Economics (Cambridge; New York: Cambridge University Press, 1997), 7; Yuichi Shionoya, "Rational Reconstruction of the German Historical School: An Overview," in *The German Historical School: The Historical and Ethical Approach to Economics* (Routledge, 2001), 10.

would broaden out of control to include each and every writer that has ever considered trust in society as beneficial.[86] For these reasons, the expression 'intangible capital' is used lexically to denote the concept of understanding education, knowledge, trust, social norms etc. as capital whether this is by definition, or through an analogy or metaphor. All occurrences of this concept, i.e., via expressions designating it such as social capital, *unkörperliches Kapital* or *capital immatériel*, are considered as different ways of designating this fundamental idea.[87] They can, however, designate other ideas too. For example Simon de Sismondi used the term *capital immatériel* to refer to portfolio property such as debt securities, bonds, and stocks that give only a right to participation in solid property that is actually held by other people. Such capital yields interest, but only because it consists of a right to returns of material capital.[88] Similarly one can go astray by following the term 'social capital' too closely, for it was commonly used in the 19th century to denote all the assets of a company in French (*capital social*), and when Böhm-Bawerk suggested that national capital should in fact be called *Sozialkapital* in his *Positive Theory of Capital* (1891), it also came to mean the aggregate of material products destined to serve further production (in German).[89]

Although Max Weber saw that the position of the middle-class was dependent on higher education and taking entrepreneurial risks, it does not mean it was dependent on their human capital, since there is simply no room for education in Weber's concept of capital.[90] And although he emphasized the role of institutions in the economy, and explained the economic function of education (for instance), it does not make him a theorist of social capital, even though many consider these institutions as such now. Many of the 19th century writers were very conscious of how they defined capital due to the seemingly endless debate on the subject. Many of them took a clear stand in the debate, and it would therefore be unethical to interpret them against their explicit statements. However, how and why many authors rejected the idea of intangible capital is as relevant as how and why others did not.

One might ask what difference does it make whether or not education, skills, knowledge, trust etc. were considered as 'capital', if they were still considered as conducive to economic growth or another civilizational goal? Herein

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86 For example, Lindsay Paterson has sought to find social capital in the works of the Scottish Enlightenment, but the connection to the concept of capital is lost. Lindsay Paterson, "Civil Society and Democratic Renewal," in *Social Capital: Critical Perspectives,* ed. Stephen Baron, John Field, and Tom Schuller, (Oxford: Oxford University Press, 2000).

87 In German *Begriffsgeschichte* onomasiology means the study of different terms available for designating the same or a similar concept. Semasiology studies the different meanings of a given term. Iain Hampsher-Monk, Karin Tilmans, and Frank van Vree, "A Comparative Perspective on Conceptual History - an Introduction," in *History of Concepts: Comparative Perspectives,* ed. Iain Hampsher-Monk, Karin Tilmans, and Frank vanVree, (Amsterdam: Amsterdam University Press, 1998), 2.

88 J.-C.-L. Simonde de Sismondi, *De la richesse commerciale ou principes d'économie politique. Tome premier* (Genève: J. J. Paschoud, 1803), 158-159.

89 Eugen von Böhm-Bawerk, *The Positive Theory of Capital*, trans. William A. Smart (London: Macmillan, 1891), 61-66.

90 Max Weber, *The Theory of Social and Economic Organization*, trans. A. M. Henderson and Talcott Parsons (New York: Oxford University Press, 1947), 186-200, 267-268.

lies a big difference; for understanding these phenomena as capital means that they are the fruits of past labor, and therefore it is possible to invest money, time, effort, and other resources in them and accept some form of interest, so they are reachable through conscious contemplation and action. But if these same phenomena are seen as emerging from institutions, mores, and habits (e.g., religion which comprises aspects of all these), that are instead linked to a linear or teleological philosophy of history where successful institutions pass from generation to generation, they are seen to be mostly outside the realm of conscious human effort. Of course, many authors combined elements from both these frameworks, but pursued them at different levels of abstraction.

Taking the approach of capital to these phenomena also means that the level of technology is not taken as an exogenous given, but as a result of time, effort, resources and technology inherited from the past. Inventions and innovations do not just drop from the heavens, as for example J.S. Mill seems to have thought, so economists should factor them in to their analyses. Mill is mentioned here, because he thought that innovators, and those with know-how should be considered in political economic analysis only in terms of the saleable goods they might produce – e.g., books. He understood the importance of this group of people, but their contribution he understood more or less as 'gifts of Athena', and thus as a given in economic analysis (see section 5.2.1 on John Stuart Mill below).

What then is the relation of these terms and concepts to economic theory? A theory or a model works only as long as the definitions of its concepts (with their accompanying assumptions) stay the same. Furthermore, if we consider a theory of human capital stating that time and money invested in education (compared to uneducated labor) returns a higher wage or greater job satisfaction through higher productivity, we have several theoretical terms to define and operationalize – so that it can be measured. Therefore, as Alex Rosenberg has noted, the building blocks of the concept may be as abstract as the concept of human capital itself.

> […] if we could explicitly define theoretical terms by way of observable ones, there would be no more trouble understanding what they mean than there is understanding what observable terms mean. […] Unfortunately, hardly any of the terms that name unobservable properties, processes, things, states or events are explicitly definable in terms of observable properties. Indeed, the explanatory power of theories hinges on the fact that their theoretical terms are not just abbreviations for observable ones.[91]

The building blocks (terms) of human capital include education, productivity, and wages. Human capital can also be used to explain economic growth as well as individual wages, and at this point the theory of human capital itself becomes a building block of growth theory. Therefore, a mere content-based analysis of concepts is not sufficient to understand their meaning and role within a broader

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91 Alex Rosenberg, *Philosophy of Science: A Contemporary Introduction*, Routledge Contemporary Introductions to Philosophy, vol. 2 (New York; London: Routledge, 2005), 87-88.

theoretical framework. In addition to such an analysis, it would be important to explain how intangible capital works and to connect authors' conceptions of intangible capital to their broader theory. This would make it easier to analyze them in connection to the assumptions and concepts they were built on, and reveal just how important the idea of intangible capital is to each author's understanding of how an economy functions. This broader contextualization would, however, in many cases require more space for each author than is available here.

An approach which focuses on the cogency of ideas and theories, to the detriment of the sociological, cultural, or economic setting in which they were born, is called rational reconstruction. The direct opposite to this approach is comprehensive relativism which sees theories and ideas as mere reflections of the societal, cultural and economic settings of their time. Clearly, both approaches are problematic when taken to the extreme. Rational reconstruction, as it is understood here, means an approach that strives to understand a theory and to identify the fundamental axioms on which it is based. If there are gaps in the reasoning, it is still legitimate to ask what is required to fill those gaps, and to ask what can be known implicitly in the historical figure being studied.[92] Instead of judging the theory from the perspective of modern economic theory or based on a Popperian, Kuhnian or Lakatosian methodology, the aim is to understand a theory or concept on its own terms while understanding the problems that this will entail.

Thus, paying attention to conceptual continuity and change enables a comparative view on theories of intangible capital, so that we may ask what it is; how it works; and what its place in the system is. This conceptual emphasis hopefully helps to avoid falling into the trap of Skinner's "mythology of doctrine",[93] which is the tendency of absolutist historiography to find applications of present-day concepts in earlier sources; when, for instance, sharp discontinuities have been found between the economic concept of labor used in the 17th and 20th centuries.[94] Indeed, the 19th century debate over the definition and usefulness of intangible capital was part of a wider debate over physical and financial capital with as many definitions as there were debaters.[95] Furthermore, German research on the history of the concept of capital has discovered more continuity in everyday use of the concept, while the scientific interpretation of the concept saw divergence.[96]

The fruits of the last few decades since the internet revolution has made this kind of broad comparative work much easier than in the past. And as this

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92 D. P. O'Brien, *History of Economic Thought as an Intellectual Discipline* (Cheltenham, UK; Northampton, MA: Edward Elgar, 2007), 24.

93 Quentin Skinner, "Meaning and Understanding in the History of Ideas," *History and Theory* 8, no. 1 (1969), 3-8.

94 Klaes mentioning Keith Tribe's work Keith Tribe, *Land, Labour, and Economic Discourse* (London; Boston: Routledge & K. Paul, 1978). See Matthias Klaes, "Historiography," in *A Companion to the History of Economic Thought,* ed. Warren J. Samuels, Jeff E. Biddle, and John B. Davis, (Malden: Blackwell Publishing, 2007).

95 Olli Turunen, "Ideas of Social Capital in Early German Historical Economics," *Essays in Economic & Business History* 27, no. 1 (2009).

96 Marie-Elisabeth Hilger, "Kapital, Kapitalist, Kapitalismus," in *Geschichtliche Grundbegriffe: Historisches Lexikon zur politisch-sozialen Sprache in Deutschland,* ed. Otto Brunner, Werner Conze, and Reinhart Koselleck, (Stuttgart: Klett-Cotta, 1982).

book has been written, the situation has been getting better by the day as more and more of the French, German, and English language literature has been digitized and made available. In fact, the digitized literature databases and associated search tools offered by internet search companies, governments, and charities are a treasure trove for a historian interested in the intellectual efforts of past centuries. The digitization projects and libraries of Google Books, Archive.org, Gallica, Deutsche Digitale Bibliothek, DigiZeitschriften, Persée, Europeana, Econlib.org, and others have combined to give access to a library of proportions that few other physical libraries can match, perhaps not even the fabled ancient Library of Alexandria! The catch is that this trove is only open according to the various copyright laws in different countries, but historians are used to the fact that seldom is the most useful material available directly after the events of interest. Even in the best of physical libraries one seldom has access to dozens of printed editions of the same volume; and even fewer have access to them in all three languages.

Furthermore, unlike the early years of the internet when vast amounts of literature was uploaded to the internet as text or html files with the content physically extracted from the book or printed artifact, the digitization of literature by scanning actually maintains the real look and feel of the original medium, and it is much easier to thus convince oneself of the integrity of the source when multiple editions in their scanned form are available to choose from. At the same time, the full texts of the volumes are searchable, which is often impossible in a physical library, although there is still a considerable amount of previously digitized material without full text search. Nevertheless, the possibility to search term by term in a continuously growing free library in dozens of languages is such an improvement on the past for historians of ideas, concepts, literature, and any intellectual effort for that matter, that it cannot be emphasized enough. But there still remains, of course, the human toil required to give meaning to all this information.

As a further note to online methods, a special thanks must go to Google Books's Ngram Viewer.[97] The name comes from *n*-gram, a contiguous sequence of *n* items from a given sequence of text, used in computational linguistics. It is a tool with which one can trace the occurrences of words and phrases (or any parts of a text – even phonemes, letters, or syllables) in the corpus of Google Books, using language and time filters, and set them graphically in the context of the literature of the time. In 2011, Google had digitized (and appended with metadata) 15 million books, of which 5 million had been chosen for computational analysis.[98] The results, the books, and other digitized text, in which the search terms or phrases appear, are then presented as a link list by years or decades, depending on the prevalence of the terms in the corpus. The main use of the tool in terms of this study is its ability to help to find literature and authors that mention and discuss the capital connection. However, the Ngram Viewer

97 https://books.google.com/ngrams

98 Jean-Baptiste Michel and others, "Quantitative Analysis of Culture Using Millions of Digitized Books," *Science* 331, no. 6014 (2011), 177.

also allows for comparison of the prevalence of the searched items by time, in relation to the size of the corpus in a given year, which gives some indication of the relative and quantitative importance of the idea in the literature of that period, and the graphs may also reveal true cultural trends and their strength from the data.[99] Tested against the French material digitized by Gallica with the term *capital humain*, it seems that the relations between different terms correspond in both databases (see section 6.3). Although enlightening, it should be noted that such quantitative prevalence does not necessarily tell us much of the intellectual quality or the impact of the texts in which those search terms appear. In addition, not being able to limit the searched corpus by subject sets the searched terms against the whole digitized literature of the searched period, which does not tell us so much about their prevalence inside a given field, say economic or political thought, for example. As a further caveat, some authors discussed what we now understand as human or social capital simply as 'capital', which means that their views are not represented in the graphs nor can be found from the corpus this way. Nevertheless, the results offer a rough heuristic for estimating the prevalence of these concepts in the literature and for comparing the results to the importance and weight given to these ideas in the literature of political economy discussed here.

FIGURE 1 shows results from one such Ngram Viewer search with various examples of intangible capital concepts in English, French, and German. In this study bibliometric tools like this and others are used to find the relevant literature and to a lesser degree demonstrate how widely each term was used. The work should stand alone without these graphical representations, but I hope that they illustrate and substantiate the argument that the concepts examined here had a prominent place in 19th century literature.

1.1.5 Personal, Temporal, and Spatial Scope

> I shall argue, however, that classical political economy made virtually no contribution to the theory of human capital; indeed, in some respects it undermined its foundations.[100]
>
> Mark Blaug in *The Economics of Education*, 1975

This notion of Mark Blaug's about classical economics and human capital inspired me to do my master's thesis which in turn inspired this broader study.[101] According to Blaug, classical economists abandoned Adam Smith's nascent

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99 *Ibid.*

100 Mark Blaug, "The Economics of Education in English Classical Political Economy: A Re-Examination," in *Essays on Adam Smith,* ed. Andrew S. Skinner and Thomas Wilson, (Oxford: Clarendon Press, 1975). Here quoted from Mark Blaug, "The Economics of Education in English Classical Political Economy: A Re-Examination," in *Economic History and the History of Economics,* (New York: New York University Press, 1986), 150.

101 Olli Turunen, *Immaterial Capital: Ideas of Human and Social Capital in the Older Historical School of German Political Economy*, vol. Pro Gradu (Jyväskylä: University of Jyväskylä, 2007).

human capital concept, even dropping his analogy of the skilled worker as an expensive machine. This was a way to explain the wage differentials between skilled and unskilled labor, and it suggested that education and the acquisition of valuable skills might be an investment in oneself if incurring the present costs meant future benefits.[102] As the German Historical School (GHS) of economics was a foil or even a counterweight to the classical school, I was intrigued to see what elements of the modern human capital concept, if any, it might be possible to find in the writings of the older historical school of economics. Therefore, in the thesis I focused on whether Wilhelm Roscher (1817–1894), Bruno Hildebrand (1812–1878), and Karl Knies (1821–1898) developed Smith's thoughts any further and indeed had any original contributions of their own to modern thought. The results of this study are discussed in chapter 7. While doing the research, I realized that Roscher, Hildebrand, and Knies were hardly exceptional in discussing intangible capital, since at least Roscher cited older German, British, and especially French sources (as well as Roman and Greek), and one would have to broaden the scope of the study considerably to get anyway nearer the bottom of the matter. Adding to this the French economists of the time (together with a more thorough look at what the British classical economists actually said about the possibility intangible capital) was the obvious direction for my study, since these authors were not just the topic of the German authors' discussion, but also sometimes those people that they discussed their subjects with.

Therefore, the scope of this study is, as mentioned above, the long 19th century, occasionally reaching beyond to the second third of the 18th century too. Some lines of argument and authors from the mercantile and physiocratic era are discussed to provide a frame for the early 19th century discussion. The last third or quarter of the century as well as the years before the Great War are discussed more as a point of reference for the direction taken by the idea of intangible capital after its initial emergence. In the following chapters, the century is divided either side of the year 1848, a year of revolutions in Europe starting from Sicily and spreading to France, Germany, and Italy, which all ultimately ended in failure and further repression. The turmoil of this period – caused by democratic, liberalist, nationalistic, and socialist ideals – had an impact on both economics as well as the personal lives of the economists. This is illustrated by what Alexis Tocqueville wrote about Paris at that time.

> I found in the capital a hundred thousand armed workmen formed into regiments, out of work, dying of hunger, but with their minds crammed with vain theories and visionary hopes. I saw society cut into two: those who possessed nothing, united in a common greed; those who possessed something, united in a common terror. There were no bonds, no sympathy between these two great sections; everywhere the idea of an inevitable and immediate struggle seemed at hand.[103]

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102 Mark Blaug, "The Economics of Education in English Classical Political Economy: A Re-Examination," in *Economic History and the History of Economics,* (New York: New York University Press, 1986), 154–155.

103 Alexis de Tocqueville, *The Recollections of Alexis de Tocqueville*, trans. Alexander Teixeira de Mattos (London: H. Henry & co, 1896), 132.

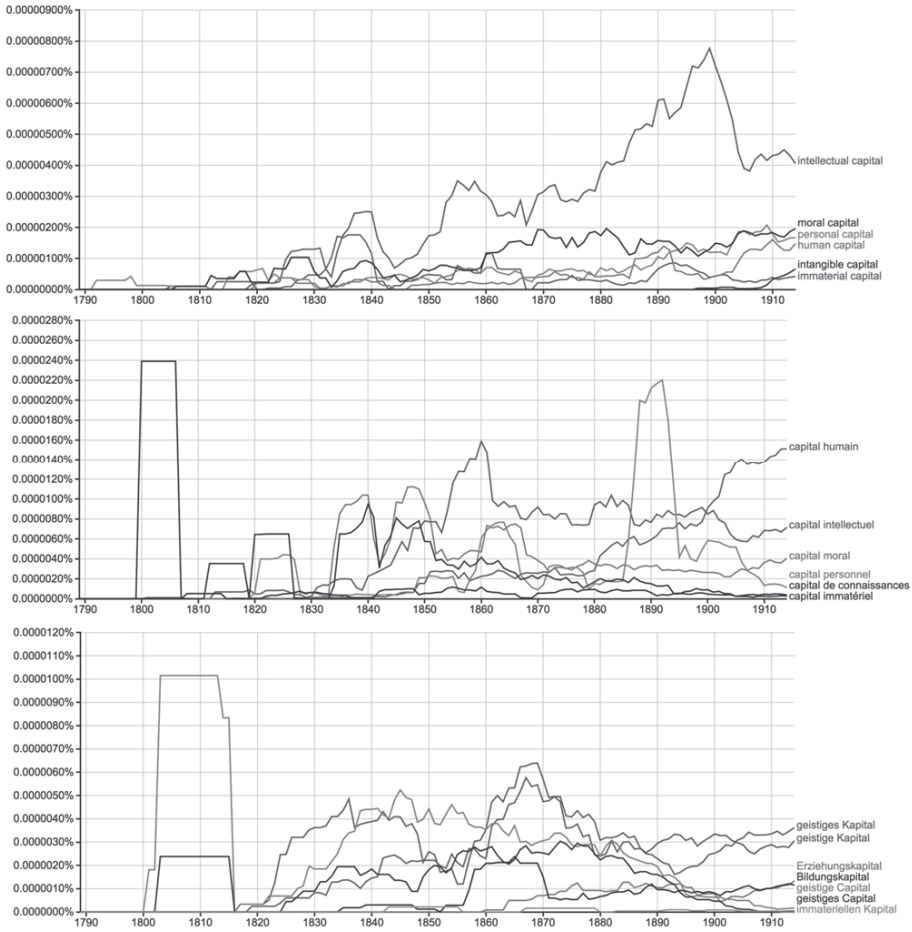

FIGURE 1 English, French, and German concepts, 1789–1914[104]

Political economists were also affected. Bruno Hildebrand, discussed in section 7.1.2, a liberal professor of economics since 1841 in Marburg, was accused for high treason in 1846 for an article published in London. In the general amnesty of March 1848 he was freed, but later after some parliamentary experiments he had to escape political persecution for Switzerland where he founded the Swiss National Bureau of statistics. Later he was professor in Jena.[105] Furthermore, the younger brother of liberal French economist Adolphe Blanqui, discussed in section 3.2.7, was the socialist Louis Auguste Blanqui, one of the major figures of the 1848 revolution. This year is significant too, in that it reflects an earlier intention to connect the lives of the authors discussed more tightly to the narrative. In the present work, however, 1848 should be understood as being roughly the mid-point of the century. Dividing the century from the middle also has the unfortunate consequence that it places the authors working around the middle

104 Source: Google Books Ngram Viewer.
105 Dieter Lindenlaub, "Hildebrand, Bruno," in *Neue Deutsche Biographie 9,* (1972).

of the century to both blocks. For example, J.S. Mill (5.2.1) was active during the first half of the century, but his work *Principles of Political Economy* we are mainly interested in was published in 1848.[106]

The focus, on the one hand, is on French, German, and English mainstream authors, who were considered to be economists of note at the time, and their application or denunciation of the idea, and on the other hand on the more marginal figures who may not have had a very prominent place at the time or subsequently, but had something interesting to say about intangible forms of capital.

Therefore, I have selected authors in three ways. The first is to follow up the authors cited in the contemporary literature on the history of intangible capital concepts. This method is perhaps the most characteristic for a historian and perhaps best suited for following the arguments through the century. For example, the German and Austrian writers of the end of the 19th century were still citing Adam Smith or J. B. Say as the source of most problems with the concept of capital. The second method has been to search the full text databases of libraries (mainly Google Books, Gallica, Archive.org, Online Library of Liberty, Econlib.org, Deutsche Digitale Bibliothek, and Gutenberg). This has enabled me to find authors who have not been cited so much, but whose use of terminology and concepts show how the ideas spread and were discussed in the broader literature. François Giordan, a French banker, who quite early in 1838, described the skills and faculties of people as *capital humain,* is one good example.[107] The third method has been to select authors who were clearly influential at the time and in subsequent literature, that were somehow not found with the other methods. Most notably, these are the authors who had a strong influence on the development of political economy during the 19th century and who were against broadening the concept of capital to include intangible phenomena, such as Ricardo, Malthus, and Marx. Their underlying theories were such that they left very little room for the ideas discussed here, but it is precisely that which makes them important. Their work, however, is discussed only when it is relevant to discussions concerning intangible capital.

The combination of these methods has produced a somewhat eclectic collection of authors that would have looked different if the method of selection had been strictly and systematically based on canonical figures in the history of economic thought. That is also one of the benefits of such an approach, because if understanding the importance of intangible capital is taken as the measure, the history of economic thought looks a bit different than if the measure had been, for instance, distribution and decision-making with scarce or fixed resources. As a further note, although Marx is briefly discussed, the criticism of private property and capital from socialist authors I have kept to a minimum, because that would have opened up a whole genre of literature that tried to undermine the very foundations on which the classical, liberal, and historical

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106 Here I will use the 1849 second edition. John Stuart Mill, *Principles of Political Economy*, 2 ed. (London: Parker, 1849).

107 See section 3.2.10 François Giordan.

mainstream operated. The problem, however, is that much of what the later authors (included in this work) wrote was explicitly or implicitly countering the arguments of the socialists. Eugen Böhm von Bawerk, an Austrian economist and finance minister, is a good example of this, since his main concern was to show the flaws inherent in a Marxist conception of capital and interest, and while doing this, he also showed the problems in classical and liberal traditions, including the ideas of intangible capital.[108] Then again, much of what the socialists wrote was in reaction to early 19th century classical and liberal literature, hence my decision to exclude them for the most part.

Similar to the personal, temporal, and spatial framing of the work, the conceptual setting goes back to my master's thesis. While studying the roots of the concepts of human and social capital in the 19th century literature, I realized that using contemporary concepts to frame the study was not perhaps the best solution if past authors had widely differing definitions of intangible capital – some of them broader than others. The common factor between authors was the willingness to cross the boundary between a material monetary understanding of capital and the world of intellectual, moral, institutional, and social attributes of individuals as well as social aggregates (from firms to nations, and even the whole of humanity). And what made this subject truly interesting, was that not all of the economists accepted the idea of intangible capital; some were downright hostile in fact. After a while spent reading the definitions and ways to apply concepts of capital from two and a half centuries, I came to the conclusion that capital usually describes a process rather than an object in the material or immaterial world. The intangible as well as the tangible things described by the word capital, as they are the man-made means of production, change according to technological, economic, and social developments, but the choice about whether to include or exclude some of the phenomena used to define humanity from the interest-bearing process of capital was (and for some still is) a fundamental issue. It is one aspect in the story of how a capitalist mindset emerged and developed in the west.[109] In other words, it deserves a history.

One consequence of such a divide is that if a scholar sees that something like education, trust, or knowledge with very clear economic and social implications should not be subordinated to analysis based on a capital framework, then one needs a corresponding set of concepts and theories to account for their observed impact on society and the economy instead. This is why the reasons for some authors excluding the concept of capital are just as interesting as the reasons other authors include it – they need a different kind of framework for their analysis. One such approach is Max Weber's protestant ethic, an institutional way to approach the subject, which has also been empirically compared to human capital explanations.[110] Institutionalism and interest in ethics is perhaps the clearest example of a way to get round the concept of capital. Another his-

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108 See section 7.2.4 on Eugen Böhm von Bawerk.

109 An issue strongly debated for example by Max Weber and Werner Sombart.

110 Sascha O. Becker and Ludger Woessmann, "Was Weber Wrong? A Human Capital Theory of Protestant Economic History," *The Quarterly Journal of Economics* 124, no. 2 (2009): 531-596.

torical option has been to simply define economics or political economy in a way that separates it from the personal attributes of individuals and the intangible attributes of social aggregates. Karl Knies' thought is an example of one such approach (see section 7.2.1). This interest in the arguments of the naysayers is also one reason why authors from the final third or quarter of the 19th century and the pre-war years are included, since the debate about capital was by then heavily saturated and perhaps there was little to gain by adding to the issue any more. In all three countries, but especially in Germany, the end of the century shows how the intellectual focus in a field can switch. In those countries adopting marginal methods of analysis, new insights eclipsed the old ideas. However, later the old ideas would again fit the new framework.

Although many figures who are marginal in the contemporary history of economic thought or were marginal in their own times emerge as having had strong and innovative views on intangible capital and what it was behind most wealth creation in the new industrializing economies, I have not included them all, since during some periods, most notably early 19th century France, the view that there was such category as intellectual or intangible capital was so common that it would be repetitive to discuss each in detail. On the other hand, some authors who had something novel to say or had a direct influence on the debate, yet were not from the German, English, or French speaking parts of Europe were included, such as Henri Storch, a Russian economist writing in French, and Henry Vethake, Henry Charles Carey, and Irving Fisher from the US.

Yet another limitation is caused by my focus on intangibles. The early literature approached human capital as being acquired abilities and talent plus the material costs of producing a human being as a material entity, and so the value of a human being was discussed from this rather material perspective. The early actuarial approaches as well as ideas about health as capital are discussed when they appear in the literature, but the focus is on the intangible side of the concept. There are a few reasons, however, why this material perspective could be worth a closer look.

The first reason is that it would seem the role of slave labor used in the southern cotton plantations in the US (just as the system we understand as global capitalism was emerging) is now being reevaluated.[111] If one accepts that the stolen capital of slave-produced cotton was the main catalyst or at least one of the main catalysts for the industrial revolution, then the early accounts discussing slavery as the ultimate form of human capital suddenly seem more pertinent. Furthermore, considering that the cotton industry was rapidly expanding at the time when the definition of the concept of capital markedly broadened, it is not that far-fetched to think that the news of fortunes made in the colonies and the US based on slave labor may have had an impact on how the early economists in the Old World, trying to approach their subject matter in a

111 Edward E. Baptist, *The Half Has Never Been Told: Slavery and the Making of American Capitalism* (New York: Basic Books, 2014); Sven Beckert, *Empire of Cotton: A Global History* (2014).

scientific fashion, had to draw an equals sign between capital and human beings being used and traded as such.

The second reason is that health, nourishment, environment, and proper nurture were considered as building blocks of a labor force quite early on. And once the dismal conditions in factories and labor tenements started to reduce the health and stature of the working classes to the dire point at which army officials became worried about the physical condition of the conscripts they were receiving, as was the case in Prussia; then more conservative circles started to sit up and pay attention. Also the idea that improvements in material well-being and mental and intellectual efforts might be mutually affect one another was discussed early on, and these were thus included in discussions of national capital.

1.1.6 Structure of the Book

The rest of this book is structured so that the next subchapter (1.2) presents the contemporary strands of intangible capital theories from economics and social sciences which will later be compared to their historical antecedents. The reasons for the emergence of the various capital concepts and their recent boom are discussed in the first section, and the following sections then deal with human, social, intangible, resource-based, and intellectual capital respectively.

In chapter 2, I will discuss the use (or non-use) of intangible capital concepts in classical economics in Britain and contrast them with opposing views from Britain and from the US. The British part is based more on existing literature than the subsequent parts dealing with France and Germany. This is because, in addition to the sheer comprehensive amount of it that already exists, much of what many authors in France and Germany wrote was to some degree accepting, modifying, or rejecting what the Smithians or the Manchester School were claiming. The British case also acts as a benchmark to determine whether the continental authors were there earlier, went further, or were more critical of the capital connection. In chapter 3 our focus is on the vibrant discussion in France during the revolutionary years and the decades immediately following when the belief in liberal economic reforms seems to have been at its height. The revolutions in France, especially 1789 and the developments leading to it, have left a considerable mark on the history of economic thought not only in France but also in the neighboring countries, in which the observers were, depending on their political and economic views, seeing very different things behind the developments and as their consequences.

Chapter 4 demonstrates the application of the intangible capital connection in German economic thought, which was seemingly built on quite different foundations than in trade-hungry Britain. How the ideas from Britain and France seeped into the German field of tightly intertwined economic and political sciences and how they attached themselves to the German traditions in many cases makes interesting reading. For example, whereas Jean-Baptiste Say (and his brother Louis) saw individual freedom, equal rights, and the removal of all vestiges of the feudal order as the minimum conditions required for in-

tangible capital to lift the economy to unseen levels of prosperity; the German political economist Adam Müller could at the same time use similar concepts of intangible and intellectual capital to promote a conservative political and economic order based on medieval feudalism applied to Germany and Austria at the beginning of the 19th century. The later chapters 5, 6, and 7 then discuss the developments after 1848 in English, French, and German economic thought respectively.

The conclusion, *Two and a Half Centuries of Intangible Capital*, discusses what kind of answers present themselves after reading such a broad sweep of literature; and the relationships between past concepts and the contemporary strands of research are also discussed.

1.2 Contemporary Theories

This subchapter takes a brief glance at the history of intangible capital concepts since the 1950s. It also discusses where the scholars using them (and writing about their history) saw their origins. This subchapter acts as a benchmark against which the concepts used in the 19th century will be compared in later chapters. These concepts thus represent the most important and cited strands of theory about intangible capital. Also the authors discussed are those who get usually most mentioned when these concepts are used. Therefore, this is not an attempt to cover the contemporary literature exhaustively but to present the views that relaunched these ideas and how research on them has developed since.

Before looking at the emergence of the contemporary concepts, a brief look into how present textbooks and dictionaries of economics present the subject is useful. Even more so, because many 19th century works we are going to look later were in fact textbooks, manuals, and dictionaries of economics of their time. In the Oxford *Dictionary of Economics* (2012), for instance, there is the following definition of capital.

> 1. Man-made material resource used or available for use in production, for example machinery. This is also referred to as physical capital. See also human capital.
>
> 2. Material or financial wealth, accumulated by an individual or a company, that can be used to generate income. See also human capital.[112]

Human capital is defined in following manner.

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112 John Black, Nigar Hashimzade, and Gareth Myles, "Capital," in *A Dictionary of Economics,* (Oxford: Oxford University Press, 2012). This entry still reflects the difference between the "old" concept of capital, i.e., the total wealth of a business or an individual in money, and the one that emerged after Smith in political economy – a man-made means of production or wealth in material or any form used to produce more wealth. Irving Fisher, *The Nature of Capital and Income* (London: Macmillan & Co, 1906), 62–63.

> The stock of knowledge, skills, and abilities that determine the labour productivity of an individual. Investment in human capital through education and training can increase the stock, and such investment is one of the sources of economic growth. See also physical capital.[113]

When reading the definition of capital, we are ultimately directed towards that of human capital; which is seen as more important than the accumulation of physical capital for the long-term economic success and growth of a country.[114] This is in short how the issue is presented in most textbooks of economics. In microeconomics, human capital is a particularly important factor in income distribution.[115] What is also notable is that in these textbooks of *economics*, human capital is still the only explicit "extension" of the idea of capital.[116] What is already discussed as intangible capital in research articles is still by and large discussed as technology, research and development, or stock of knowledge in these textbooks.[117] Furthermore, one still looks in vain for social capital from standard economics textbooks, and the Oxford dictionary of economics cited above emphasizes that it has "proved a difficult concept to define precisely and has defied direct measurement."[118] Issues often discussed in the context of social capital elsewhere in the social sciences are discussed in terms of social norms, institutions, or social infrastructure.[119] Social capital is more broadly discussed in textbooks and dictionaries of sociology, politics, and public health[120], whereas the subtler distinctions between the forms of human and in-

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113 John Black, Nigar Hashimzade, and Gareth Myles, "Human Capital," in *A Dictionary of Economics,* (Oxford: Oxford University Press, 2012).

114 David Begg, Stanley Fischer, and Rudiger Dornbusch, *Economics*, 7 ed. (London: McGraw-Hill, 2003), 423–435; N. Gregory Mankiw, *Grundzüge der Volkswirtschaftslehre*, trans. Adolf Wagner and Marco Hermann, 3 ed. (Stuttgart: Schäffer-Poeschel, 2004), 594; David. Romer, *Advanced Macroeconomics*, 4th ed. ed. (New York: McGraw-Hill/Irwin, 2012), 101–149; Paul R. Krugman and Robin Wells, *Macroeconomics*, 2 ed. (New York: Worth, cop 2009), 230–240.

115 Paul R. Krugman and Robin Wells, *Microeconomics*, 2 ed. (New York: Worth, 2008), 510–532.

116 However, we shall see later that physical capital is a metaphoric extension too.

117 In all Mankiw, Begg, Krugman, and Romer of the above mentioned. However, the level of technology is clearly a stock of knowledge, and there is a difference between stock of human capital and stock of knowledge. Paul M. Romer, "Endogenous Technological Change," *Journal of Political Economy* 98, no. 5 (1990): 71-102; Paul M. Romer, "Human Capital and Knowledge," *Paul Romer's Blog*, http://paulromer.net/human-capital-and-knowledge/ (accessed October 7, 2015).

118 John Black, Nigar Hashimzade, and Gareth Myles, "Social Capital," in *A Dictionary of Economics,* (Oxford: Oxford University Press, 2012).

119 Cited above.Ssee, e.g., Krugman for social norms, Romer for institutions and social infrastructure.

120 R. W. Jackman, "Social Capital," in *International Encyclopedia of the Social & Behavioral Sciences,* ed. Neil J. Smelser and Paul B. Baltes, (Oxford: Pergamon, 2004); Philip Keefer and Stephen Knack, "Social Capital, Social Norms and the New Institutional Economics," in *Handbook of New Institutional Economics,* ed. Claude Menard and Mary Shirley, M., (Dordrecht: Springer, 2005); Lucas Kevin and Lloyd Barbara, "Social Capital for All?," in *Health Promotion: Evidence and Experience,* (London: Sage, 2005); Janine Nahapiet, "A Social Perspective: Exploring the Links Between Human Capital and Social Capital," in *The Oxford Handbook of Human Capital,* ed. Alan Burton-Jones and J.-C. Spender, (Oxford University Press, 2011); Christopher Candland, "Social Capital," in *The Oxford Companion to Comparative Politics,* (Oxford: Oxford University Press, 2012).

tellectual capital are to be found in handbooks and dictionaries of business economics, strategic management, and business accounting.[121] One popular definition for intellectual capital is "intellectual capital = human capital + structural capital + relationship capital."[122]

FIGURE 2 below shows how research around these concepts has also generated a huge stream of publications since the 1950s. As discussed above, human capital started to garner interest during the 1960s, whereas the rapid ascendancy of social capital started in the 1990s. Partly overlapping, intangible and intellectual capital have received less prominent spots in the limelight, but research on intangible capital is now especially important, as it has prompted a change in national accounting standards and how GDP itself is calculated.

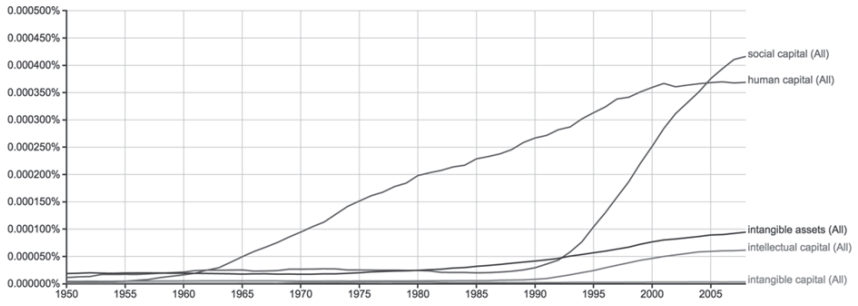

FIGURE 2 Intangible capital concepts in published research since 1950s[123]

When quoted from trade dictionaries and economics textbooks as above, it is easy to get the idea that capital would have been an uncontested and clear concept before such extensions as human capital and social capital muddied the waters at the start of the 1960s. However, the boundary and defining conditions for capital were in such a state of flux throughout the long 19th century that we should avoid restrictive assumptions based on our contemporary textbook understandings of the matter. In 1933, Werner Brylewski extracted following manifestations of capital from the economic literature of the previous century.

> "[…] Geldsumme, Geldwert, Zahlungsmacht, Sachgut, **immaterielles Gut**, Vermögen, Vermögenswert, **Recht**, **Anspruch**, **Macht**, Verfügungsgewalt, Bodenkraft, **Arbeitskraft**, Zirkulationskraft, Kaufkraft."[124]

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121 Richard Huseman, C., Jon Goodman, P., and Daniel Rabinovitch, "Intellectual Capital Accounting," in *Leading With Knowledge: The Nature of Competition in the 21st Century,* (London: SAGE, 1999); Andrew M. Pettigrew, Howard Thomas, and Richard Whittington, *Handbook of Strategy and Management* (London; Thousand Oaks, CA: Sage, 2006); Alan Burton-Jones and J.-C. Spender, eds., *The Oxford Handbook of Human Capital*, (Oxford: Oxford University Press, 2011).

122 Jonathan Law, "Intellectual Capital," in *A Dictionary of Business and Management,* (Oxford: Oxford University Press, 2009).

123 Google Books Ngram Viewer, "Human Capital, Social Capital, Intellectual Capital, Intangible Capital, Intangible Assets," https://books.google.com/ngrams (accessed June 13, 2015).

Furthermore, some saw that capital had a constant form, whereas others saw it manifest itself in different forms within the process of economic circulation.[125] Yet perhaps the clearest division in these analyses was between seeing capital as either pure economic goods or as historical-legal rights (i.e., capital as property).[126] In addition to this, there were differences in opinion as how to separate capital from wealth; how capital was thought to produce interest or profit; what the nature of this profit was (e.g., income or service); and to what degree this profit was a legitimate form of income. For example, there was a tradition going from John Locke through to Adam Smith and to Marx in which the interest of capital was based on moving the fruits of labor from the hands of laborers to the pockets of the capitalist. Other ways to describe profit were in the way capital could "abridge" or replace labor (Lauderdale); in terms of time preferences, i.e., we value goods more at a certain time, and interest is thus the price paid for postponing consumption (Böhm-Bawerk); and understanding interest as the payment for capital services in the Walrasian tradition (Auguste and Léon Walras, Fisher). In the Walrasian tradition, labor was a service provided by human capital, and the price paid for it was its market value, which was based on the rarity of the utility it provided. The various possible permutations of these variables meant that Irving Fisher counted dozens of different definitions of capital in 1904.[127] In fact, Fisher thought that he had solved the issue by defining capital as all 'material' wealth existing at any 'instant in time' (see 5.2.5 on Fisher), while many thought that they had cut the Gordian Knot by going back to define capital simply as money or a sum of money. Brylewski noted that this just moved the debate to theories about the origin and function of money, which were just as hotly contested issues at the time as the nature of capital.[128]

In the above quote from Brylewski I have put some of the forms of capital he describes in bold type. In English these would be intangible goods, rights, claims, power, and labor power. The reason for this is because they come closest to what we are focusing on in this volume. For our purposes, the concept, or to be exact the phrase, *intangible capital* represents all the ideas that connect in-

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124 Capital manifests itself as a sum of money, value of money, financial resources, material goods, intangible goods, wealth, value of wealth, rights, claims, power, rights of disposal, land fecundity, labor power, volume of circulation, and purchasing power. Adapted from: Werner Brylewski, *Die verschiedenen Vorstellungsinhalte des Begriffes Kapital* (Stuttgart: Kohlhammer, 1933), 182–183.

125 *Ibid.*, 183.

126 Richard Passow, *Kapitalismus: Eine begrifflich-terminologische Studie* (Jena: Fischer, 1918), 59.

127 Irving Fisher, "Precedents for Defining Capital," *Quarterly Journal of Economics* 17, no. 3 (1904): 386-408.

128 Werner Brylewski, *Die verschiedenen Vorstellungsinhalte des Begriffes Kapital* (Stuttgart: Kohlhammer, 1933), 182–185. For example, as it was already argued that money was born or entered the economy through credit, equating capital with money meant that capital was credit. The same factors limiting or allowing credit would then be behind capital too. See section 5.2.2 on Macleod. Modern central banks admit that money is created when commercial banks lend to their customers. Michael McLeay, Amar Radia, and Ryland Thomas, "Money Creation in the Modern Economy," *Bank fo England Quarterly Bulletin* Q1, (2014): 1-13.

corporeal or intangible attributes of individuals, companies, and societies to capital. One option would have been to use 'immaterial' or 'incorporeal' capital instead. They are other possible translations of Wilhelm Roscher's German term *unkörperliches Kapital*, literally incorporeal capital, but this could have mixed things up more than necessary. Intangible capital was also used by the World Bank in their report, *Where is the wealth of nations? Measuring capital for the 21st Century* (2006) to address the whole issue attributed to intangible factors such as institutions, and human and social capital. The caveat is that intangible capital or intangible assets are also a separate entity in literature and national accounts, which means that the term is used to describe the phenomenon globally in its various forms as well as being used for one of those particular forms itself.

TABLE 1 shows how the terms used to describe intangible capital have been variously used in the different economics and social sciences contexts. There are discussions built around yet other concepts such as intellectual capital, but on a conceptual level these discussions mesh and merge with the ideas presented in the main lines of research. As an independent research keyword or theme, intangible capital too, is used in only a small amount of literature. Why it is presented here as a subcategory is because the main thrust of this literature deals with seminal notions present in many early accounts on how intangible phenomena considered as capital should be dealt with. These are that (i) investments in education, research, and development should be seen as capital investments rather than expenses; (ii) growth theory should take intangible capital into account; and (iii) standards of national accounting should be revised so that intangible capital is factored into GDP figures.

The reason that this chapter starts from the 1950s is that a very common way to deal with the history of human and social capital concepts is to start with the influential contributions of the 1950s and '60s, because they really brought them to the fore in economics and social science. Often there are passing references to older authors too, but these are usually just a vague acknowledgement that there has been this kind of thought before.[129] One task of this book is to put flesh on the bones of those references made to the earlier authors and to show that there are also others, much less well-known, who also deserve to be mentioned.

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129 Francesco Boldizzoni, *Means and Ends: The Idea of Capital in the West, 1500-1970* (Basingstoke; New York: Palgrave Macmillan, 2008), 167-168.

TABLE 1 The main intangible capital concepts in contemporary literature

Author	Human Capital	Social Capital	Intangible Capital and Assets	Resource-based View	Intellectual Capital
major domains	economics, human resources management, economics of education	sociology, social sciences	macro economics, national accounting, business accounting	business economics, management, organizational research	business economics, management, organisational research
definitional breadth	formal education, informal education, on the job training, skills, knowledge, health, longevity	trust (generalized and particularized), access to and membership in networks, co-operative norms, reciprocity, institutions	knowledge, technology, patents, investments in research and development, software, investments in employee training, human capital	human capital resources, organisational capital resources, physical capital resources	human capital, structural capital, organisational capital, relational capital
main levels of analysis	individual, firm, education, society, nation state	society, individual, nation state, urban, municipal	nation state, national accounting, GDP, firm	firm, organization	firm, organization
functions (benefits)	individual income & labor market position, competitive advantage, technology, science, economic growth	access to resources via networks, low transaction costs	economic growth, research capability of R&D	sustained competitive advantage, strategic competencies and capabilities	competitive advantage, human capital management, effective resource use, innovativeness
foundational publications (year)	Solomon (1954), Mincer (1958), Becker (1962), Schultz (1961)	Bourdieu (1983), Coleman (1988), Putnam (1993, 2000), Lin (1999)	Solow (1957), Kuznets (1966), Hulten (1979), Corrado, Hulten & Sichel (2005, 2006, 2009)	Wernefelt (1984), Barney (1991), Foss (1997)	Teece (1981), Nahapiet and Ghoshal (1998), Stewart (1997), Subramaniam and Youndt (2005)

[1] As a superordinate concept capturing the variety in literature, see Hamilton et al. *Where is the Wealth of Nations? Measuring Capital for the 21st Century*. Washington, D.C.: World Bank, 2006.

1.2.1 The Solow Residual Resurrects Intangible Capital

One could see the post-war interest in human and intangible capital having its roots in three phenomena. First was the post-war reconstruction era itself, and the insight that the traditional factors of production could not explain all the observed growth in war-torn Europe. This unexplained growth became known as the 'Solow Residual', and came to represent the human and other intangible capital factors explaining it. Second was the return of what Hicks called Classical Fundism, meaning that capital goods represented all forms of capital rather than in just a materialist sense. This made it easier to fit intellectual properties, that materialism otherwise ignored, into the equation with heavy machinery. Third was the rigorous application of the Chicago School's newly established

microeconomic methods to everyday life. It is also very probable that those research traditions in sociology and the social sciences that were still using concepts such as social and intellectual capital were lured into this conceptual framework, partly because of the prestige of the Solow growth model and how Becker and others showed it was possible to connect individual life experiences via human capital to this macro and national accounting theory.

The principle of how Solow Residual provides a basis for estimating the degree of technical change is usually well covered in economics text-books and in popular showcases of the most important insights economists have to offer. The econometric and accounting methods behind this innovation are not relevant here, but the concept is, and it is therefore presented below. Although credit for the notion of the residual usually goes to Robert Solow, according to Zvi Griliches, the earliest calculations that suggested its existence were made by Jan Tinbergen and published in German in 1942. In the US, where most of the subsequent development happened, the paper went unnoticed until much later.[130] According to Griliches, it was then Solomon Fabricant who, in 1954, first made the point that most of the growth in output per unit of input had not as yet been adequately explained, and that the major source of economic advance was in fact innovation.[131]

The Solow model as such, however, did not yet include an explanation for the differences in output and income between countries. Its key implication was that if physical capital is used as a measure of capital's importance in production, differences in capital account for only a small share of income differences between countries. The following Ramsey-Cass-Koopmans and Diamond models had the same implication. Furthermore, a key implication of endogenous growth theory is that the lack of rivalry in technology makes it an unlikely reason for the differences in income among countries.[132] In *Advanced Macroeconomics*, Romer mentions two branches of empirically focused work studying income differences between countries which bring human and intangible capital into the analysis. The first focuses on the proximate determinants of income – factors such as the quantities of physical and human capital that clearly affect income. This line of research uses techniques similar to those of growth accounting. This means that marginal products of the factors are measured using the prices they command in the market. Then estimates of each factor's influence on income differences are obtained by combining the estimates of marginal products with estimates of differences in the quantities of the above factors. Because such work considers only immediate determinants of income, its strength lies in the fact that one can have, as Romer notes, "a fair amount of confidence in its con-

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130 Jan Tinbergen, "Zur Theorie der langfristigen Wirtschaftsentwicklung," *Weltwirtschaftliches Archiv,* 55, no. 1 (1942): 511-549; Zvi Griliches, "The Discovery of the Residual: A Historical Note," *Journal of Economic Literature* 34, no. 3 (1996), 1326.

131 Zvi Griliches, "The Discovery of the Residual: A Historical Note," *Journal of Economic Literature* 34, no. 3 (1996), 1327.

132 David Romer, *Advanced Macroeconomics*, 4th ed. (New York: McGraw-Hill/Irwin, 2012), 150.

clusions," but this focus on immediate determinants only is at the same time its Achilles heel.[133]

It is worth noting here that although Romer covers the phenomena discussed elsewhere as 'intangible' or 'social capital', he himself does not use this terminology much. "Human capital", with its well defined proxies and long research tradition (and also broad definition) certainly appears in the models and literature covered by Romer, but the conceptual framework around intangible capital and its derivatives seems to be very much in the making. Instead, the term he uses for institutions and policies that align private and social returns to activities is "social infrastructure".[134] Some of the authors Romer cites as operating with this social infrastructure have also been active with social capital[135], and both comprise similar factors.

As we shall see, a certain flexibility is required to see the recurrence of economic growth ideas between the early 19th to the 20th-first century. As Solow's major observation was that a significant part of economic growth could not be explained by simply increasing the traditional production factors of capital and labor, he attributed it instead to technological progress and innovation – to better organization of work, more efficient machines, and more economically effective production procedures. Seeing the issue like this, in terms of an emerging endogenous growth theory, it seems to follow that investing in intangible capital and its externalities would create the innovations required to augment productivity.

1.2.2 Human Capital

> Schooling, a computer training course, expenditures on medical care, and lectures on the virtues of punctuality and honesty also are capital. That is because they raise earnings, improve health, or add to a person's good habits over much of his lifetime. Therefore, economists regard expenditures on education, training, medical care, and so on as investments in human capital. They are called human capital because people cannot be separated from their knowledge, skills, health, or values in the way they can be separated from their financial and physical assets.
>
> Gary S. Becker[136]

B. F. Kiker noted in 1966 that one of the reasons for his essay on the history of human capital was the failure of his contemporaries to cite predecessors.[137] When considering the concept of human capital, Jacob Mincer, Gary S. Becker,

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133 *Ibid.*

134 *Ibid.*, 162.

135 Stephen Knack and Philip Keefer, "Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures," *Economics & Politics* 7, no. 3 (1995): 207-227; Stephen Knack and Philip Keefer, "Does Social Capital Have an Economic Payoff? A Cross-Country Investigation," *The Quarterly Journal of Economics* 112, no. 4 (1997): 1251-1288.

136 Gary S. Becker, "Human Capital," *The Concise Encyclopedia of Economics*, http://www.econlib.org/library/Enc/HumanCapital.html (accessed November 9, 2011).

137 B. F. Kiker, "The Historical Roots of the Concept of Human Capital," *Journal of Political Economy* 74, no. 5 (1966), 497.

and T. W. Schultz get credited the most, but they must be the people Kiker was referring to.[138]

Mincer introduced the concept in 1958 in his article *Investment in Human Capital and Personal Income Distribution*.[139] His model accessed the nature and causes behind income inequality. Mincer concluded that training and skills, i.e., human capital, had a significant effect on personal income. Furthermore, he saw that some industries had higher human capital ratios than others with non-human capital. Mincer's model measured two types of training, formal and informal, by incorporating years of education and years of work experience. Results indicated that years in education were compensated in higher earnings.[140]

Mincer's paper studied human capital in terms of years spent in education and years of work experience; a common procedure, since they are easy to measure and then study in relation to income. Meanwhile, Solomon Fabricant's *Basic Facts on Productivity Change* (1959) took a more wide-ranging view. He saw that methods and assumptions underlying productivity figures constantly underestimated the importance of the intangible capital investment.

> In an important sense, society's intangible capital includes all the improvements in basic science, technology, business administration, and education and training, that aid in production – whether these result from deliberate individual or collective investment for economic gain or are incidental byproducts of efforts to reach other goals.[141]

This emphasis on intangible capital followed Moses Abramovitz's observation in 1956 that traditional inputs could not completely account for the rise in national output.[142]

In his *Investment in Human Capital: A Theoretical Analysis* (1962) Gary S. Becker discussed schooling, information, and health as human capital investments, although he concentrated on in-house training, since he saw that it clearly illustrates the direct effect of human capital on earnings, employment, and other economic variables.[143] In his earlier work, *Underinvestment in College Education* (1960), he had provided an important methodology for studying human capital investments, which was then put to the test and discussed in his monograph *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education* (1964).[144] As well as pointing to the gap between physical inputs and observed growth in per capita income, by formulating a theory of human

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138 A good starting point for reviewing the human capital literature since 1950s is Scott R. Sweetland, "Human Capital Theory: Foundations of a Field of Inquiry," *Review of Educational Research* 66, no. 3 (1996): 341-359.

139 Jacob Mincer, "Investment in Human Capital and Personal Income Distribution," *The Journal of Political Economy* 66, no. 4 (1958), 281-302.

140 Scott R. Sweetland, "Human Capital Theory: Foundations of a Field of Inquiry," *Review of Educational Research* 66, no. 3 (1996), 345.

141 Sweetland's citation. *Ibid.*, 346.

142 *Ibid.*, 347.

143 Gary S. Becker, "Investment in Human Capital: A Theoretical Analysis," *The Journal of Political Economy* 70, no. 5 (1962), 10.

144 Scott R. Sweetland, "Human Capital Theory: Foundations of a Field of Inquiry," *Review of Educational Research* 66, no. 3 (1996), 347.

capital, Becker's goal was to formalize and incorporate the impact that the productive process itself has on worker productivity and to the theories of company behavior.[145]

Meanwhile, Theodore Schultz highlighted the difficulties in distinguishing between expenses (consumption) and investment. He saw education exhibiting both characteristics. His work also encompassed many other types of human capital investment: (1) health facilities and services (in fact, anything that affects the life expectancy, strength, stamina, vigor, and vitality of people); (2) in-house training; (3) formal education; (4) study programs other than those organized by firms; and (5) the migration of individuals and families.[146] Although Schultz maintained that the main reason for the sudden prominence of human capital theory was because it might well explain the gap between the inputs and observed growth, he also emphasized the failure of the post-war economists (having been one himself) to correctly ascertain the economic damage caused by the war. In his view, they had overestimated the importance of non-human capital and its destruction and underestimated or been blind to the role of entrepreneurs, the educated, and skilled labor.[147] The economy in Europe bounced back much faster from the war than their traditional estimates had suggested. In addition, Schultz discussed the reasons why mainstream economists had followed Alfred Marshall and shied away from treating human beings and their attributes as capital. Even though there was the added convenience for marginal productivity analysis to treat labor as a bundle of innate abilities free of capital, the main reasons this kind of intangible capital had been ignored rested on moral and philosophical considerations – certain values and beliefs inhibit us from seeing other people as capital goods.[148] This was an important line of argument in the earlier discussions and will be dealt with in more detail later. Indeed, some of the problems thought to be inherent in the idea of human capital were exposed early on in the debate between Harry G. Shaffer and Schultz.[149]

During the 1960s, the above economists created a stir in their study of the relationship between human abilities (not to mention skills) and economic outcomes. Although there were views that emphasized welfare on a larger scale, mainstream economists tended to opt for Gary S. Becker's model, in which education or in-house training were placed center stage and then analyzed in terms of cost-benefit. For example, Becker saw that if returns on investments in hu-

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145 When pointing to the gap Becker cites Solomon Fabricant, *Economic Progress and Economic Change*, Annual Report (New York: NBER, 1954). Gary S. Becker, "Investment in Human Capital: A Theoretical Analysis," *The Journal of Political Economy* 70, no. 5 (1962), 9-11.

146 Theodore Schultz, W., "Investment in Human Capital," *The American Economic Review* 51, no. 1 (1961), 8-9; Scott R. Sweetland, "Human Capital Theory: Foundations of a Field of Inquiry," *Review of Educational Research* 66, no. 3 (1996), 348-349.

147 Theodore Schultz, W., "Investment in Human Capital," *The American Economic Review* 51, no. 1 (1961), 7.

148 *Ibid.*, 2-3.

149 Theodore W. Schultz, "Investment in Human Capital: Reply," *The American Economic Review* 51, no. 5 (1961): 1035-1039; Harry Shaffer, "Investment in Human Capital: Comment," *The American Economic Review* 51, no. 5 (1961): 1026-1035.

man capital were lower than returns on conventional capital, this was a sign of over-investment in education and in-house training. Meanwhile, in macroeconomic research, the idea of human capital made its appearance (at the latest) in Paul Romer's work in the early 1990s, when human capital and knowledge became tightly connected to the emerging endogenous growth theory.[150]

Contemporary human capital research has thus seemed to have been more interested in the intangible side (e.g., education, skills, and innovation), than in the tangible side (e.g., health, longevity, vitality). Nevertheless, although sidelined, this tangible side is alive and well in health and population studies. Before the interest of the 1950s and '60s in human capital, statisticians and investment actuaries most commonly assessed human beings within an analytical framework of capital. These cost-of-production and capitalized earnings approaches were developed to estimate the money or capital value of a human being, or the population of a nation. Sometimes people were seen as capital goods, and there were no distinctions made between human beings and their skills, abilities, education and health. But since these views focused on measuring the value, production costs, and maintenance costs of human beings, they are treated here only as and when they appear in the relevant literature. Acquired skills as capital and the idea of investment in human beings as a means of increasing productivity are the relevant ideas here.

Michael Spence's signal theory based on the idea of asymmetric information is usually discussed in connection with human capital in economics textbooks. Spence argued that investing in the labor market was like buying lottery tickets for employers, because although potential employees might have knowledge about their own genuine attributes, the employer was more or less in the dark. Educational credentials, it was argued, thus functioned as signals of inherent capabilities to prospective employees.[151] The theory has many consequences for human capital theory, one of them being whether education systems might function merely as signaling mechanisms for employers above all else. As we shall see later, such idea comes close to the physical human capital theory that was growing popular towards the end of the 19th century especially among Léon Walras, Vilfredo Pareto, and Irving Fisher. They argued that the natural ingredient was inseparable from the value that education brought to human beings.

One concept slightly different from the standard idea of human capital, developed through a combination of education and in-house training, is the concept of 'personal capital' used by Dei Ottati (1994), Becker (1996), and Tomer

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150 Paul M. Romer, "Increasing Returns and Long-Run Growth," *Journal of Political Economy* 94, no. 5 (1986): 1002-1037; Paul M. Romer, "Human Capital and Growth: Theory and Evidence," *National Bureau of Economic Research Working Paper Series* No. 3173, (1989); Paul M. Romer, "Endogenous Technological Change," *Journal of Political Economy* 98, no. 5 (1990): 71-102.

151 Michael Spence, *Market Signaling: Informational Transfer in Hiring and Related Screening Processes*, Harvard Economic Studies Vol. 143 (Cambridge: Harvard University Press, 1974).

(1996).[152] Tomer's approach understood individual predispositions as determined by a person's basic behavior, and this depended on one's physical and psychological makeup (both inherited and acquired). Such predispositions related to one's internal biochemical balance, physical health, conditioning, and psychological tendencies.[153] Whereas the knowledge one learned about accounting, management, or other skills was ordinary job-related human capital, acquiring more self understanding and self-esteem were about personal capital, because such capital would be likely to improve one's ability to obtain the optimal satisfaction from life's activities. This change in personal qualities would also have job-related consequences, because improved interpersonal competence could lead to greater individual productivity and compensation. Tomer wrote that personal capital was therefore an antecedent to job-related human capital, because a person's capabilities were built on one's personal qualities and predispositions.[154] We will see later that the effect of individuals' various inherited attributes on their abilities was one reason why some economists, at least from Auguste Walras onwards, argued that the idea of capital as social wealth failed, because 'nature' had an important role in developing human faculties. This led some, including Irving Fisher, to argue that it was not possible to abstract human faculties from human beings, which lead to the physical idea of human capital.

Dei Ottati understood personal capital to function as a kind of reputation generated by repeated cooperative behavior greater than that prescribed by local customs. Such a reputation of trustworthiness brought returns by allowing such a reputed person to conclude advantageous transactions. [155] It is interesting that Ottati cited Alfred Marshall's *Industry and Trade* (1920), where Marshall argued that the marketing reputation and connection of a business could be "a larger property (or capital)" in proportion to its earnings than its fixed plant.[156] This is discussed further in section 5.2.4 on Marshall. Becker's argument was that the traditional approach of economics did not handle preferences well. His approach divided experiences and social forces between two stocks of capital. These were: (a) personal capital, which included the relevant past and other personal experiences of individuals affecting their current and future utility; and (b) social capital, which was based on the influence of individuals' peers (among others) and their relevant past actions within their social networks and control systems. These formed part of each individual's stock of human capital. Becker argued that the methodology developed to study the effects of invest-

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152 Gabi Dei Ottati, "Cooperation and Competition in the Industrial District as an Organization Model.," *European Planning Studies* 2, no. 4 (1994): 463; Gary S. Becker, *Accounting for Tastes* (Cambridge, Mass.: Harvard University Press, 1996); John F Tomer, "Good Habits and Bad Habits: A New Age Socio-Economic Model of Preference Formation," *The Journal of Socio-Economics* 25, no. 6 (1996): 619-638.

153 *Ibid.*, 626.

154 *Ibid.*, 636, footnote 9.

155 Gabi Dei Ottati, "Cooperation and Competition in the Industrial District as an Organization Model.," *European Planning Studies* 2, no. 4 (1994): 463.

156 Alfred Marshall, *Industry and Trade: A Study of Industrial Technique and Business Organization*, 3 ed. (London: Macmillan and co., 1920), 180–189.

ments in human capital on earnings was applicable to study investments in personal capital and social capital. The rates of return, however, could not be directly measured, because utilities could not necessarily be observed.[157]

1.2.3 Social Capital

> It would be all for the better if we returned to less glamorous but much more useful terms such as *institutions*, *culture*, *networks*, and *trust*.[158]
>
> Geoffrey Hodgson in *Conceptualizing Capitalism* (2015)

When discussing the current notion of social capital there are at least three authors who are almost universally mentioned – Pierre Bourdieu, James Coleman, and Robert Putnam. In Bourdieu's work, social capital has been a sort of sidetrack, but he is also partly behind the recent interest in the concept. During the 1960s and '70s, Bourdieu was interested in social space, and he used "social capital" initially as a metaphor to connect it to many forms of capital. In *Reproduction* (1970), the concept of capital was "the central but curiously ill-defined explanatory gambit […]"[159]; since Bourdieu used linguistic capital, cultural capital, scholastic capital, social capital, and implicitly economic capital without any thorough definition of the concepts.[160] For a long time, cultural capital was the central concept for him. It was shaped, for instance, through school tuition and family circumstances. He saw that cultural capital did not necessarily accompany financial capital, and actually could in some ways compensate for it, or at least operate independently of the pursuit of power and status.[161]

In general, Bourdieu's work concentrated on the reproduction of social hierarchies and how different forms of capital (especially cultural) were part of this process. Therefore, social and cultural capital was something that elites would try use to reproduce their relative social positions and to legitimize their dominion.[162] Social capital was thus a kind of a multiplier. Different individuals were thought to receive an unequal return on the same cultural or economic capital depending on how able they were to mobilize the capital of a group (e.g., family). The value of individuals' ties (i.e., their social capital) would depend on their number of connections and the amount of cultural, social, or economic capital each of these connections possessed.[163]

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157 Gary S. Becker, *Accounting for Tastes* (Cambridge, Mass.: Harvard University Press, 1996), 4–5.

158 Geoffrey Martin Hodgson, *Conceptualizing Capitalism: Institutions, Evolution, Future* (Chicago: The University of Chicago Press, 2015), 178.

159 Stephen Baron, Tom Schuller, and John Field, "Social Capital: A Review and Critique," in *Social Capital: Critical Perspectives,* ed. Stephen Baron, John Field, and Tom Schuller, (Oxford; New York: Oxford University Press, 2000), 3.

160 *Ibid.*

161 John Field, *Social Capital* (London: Routledge, 2003), 14.

162 *Ibid.*, 13-17; Stephen Baron, Tom Schuller, and John Field, "Social Capital: A Review and Critique," in *Social Capital: Critical Perspectives,* ed. Stephen Baron, John Field, and Tom Schuller, (Oxford; New York: Oxford University Press, 2000), 3.

163 Stephen Baron, Tom Schuller, and John Field, "Social Capital: A Review and Critique," in *Social Capital: Critical Perspectives,* ed. Stephen Baron, John Field, and Tom

Later, in his article *The Forms of Capital* (1986), originally published in German in 1983, Bourdieu presented a more unified concept of capital, which nevertheless still manifested itself in three forms – economic, cultural, and social. At this point the focus moved on to how these different forms of capital transformed themselves into other forms to maximize accumulation. Here Bourdieu defined social capital as

> […] the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition […] which provides each of its members with the backing of collectively-owned capital. […] The volume of the social capital possessed by a given agent thus depends on the size of the network of connections he can effectively mobilize and on the volume of the capital (economic, cultural or symbolic) possessed in his own right by each of those to whom he is connected, social capital is never completely independent of it because the exchanges instituting mutual acknowledgment presuppose the reacknowledgment of a minimum of objective homogeneity, and because it exerts a multiplier effect on the capital he possesses in his own right.[164]

Although it is Bourdieu who gets cited in literature on social capital, in France the discussion about the Solow residual and human capital in the early 1960s led quite early on to the notion that social institutions and norms could be understood as capital on a collective national level, as well as from an organizational point of view in economics. Thus André Micallef coined the concept of collective institutional capital (*capital institutionnel collectif*).[165]

In the English speaking world, James Coleman's work has been particularly influential. Coleman drew together insights from both sociology and economics. Gary S. Becker, who at the time was also employed the same university (Chicago), used the rational choice theory of economics to study education, health and discrimination. Rational choice theory is based on the belief that all behavior results from individuals seeking their own interests which therefore predicts that individuals will usually follow their best interests. Where cooperation takes place, the rational choice theorists have to show that it is consistent with postulates of individualism and self-interest, i.e., that it is beneficial to individuals in the long run. Coleman came up with the idea of social capital to explain why humans choose to cooperate sometimes, even when competition seems to encourage the more self-interested pursuit of immediate gains. The creation of social capital was not a conscious process, but social capital was thought to arise as an unintended consequence of self-interested pursuits. To Coleman, social capital was a resource because it involved the expectation of reciprocity and relied on wider networks governed by trust and shared values.[166]

Schuller, (Oxford; New York: Oxford University Press, 2000), 3; John Field, *Social Capital* (London: Routledge, 2003), 13-17.

164 Pierre Bourdieu, "Ökonomisches Kapital, Kulturelles Kapital, Soziales Kapital," *Soziale Welt (Soziale Ungleichheiten Sonderband 2)* (1983): 183-198; Pierre Bourdieu, "The Forms of Capital," in *Handbook of Theory and Research for the Sociology of Education,* (New York: Greenwood, 1986).

165 André Micallef, "Essai sur une théorie du capital institutionnel collectif," *Revue économique,* (1969): 117-140.

166 John Field, *Social Capital* (London: Routledge, 2003), 20-22.

Coleman was thus providing a perspective which somehow got round rational choice theory's original premises of extreme individualism.

> There are two broad intellectual streams in the description and explanation of social action. One, characteristic of the work of most sociologists, sees the actor as socialized and action as governed by social norms, rules, and obligations. The principal virtues of this intellectual stream lie in its ability to describe action in social context and to explain the way action is shaped, constrained, and redirected by the social context.
>
> The other intellectual stream, characteristic of the work of most economists, sees the actor as having goals independently arrived at, as acting independently and as wholly self-interested. Its principal virtue lies in having a principle of action, that of maximizing utility. This principle of action, together with a single empirical generalization (declining marginal utility) has generated the extensive growth of neoclassical economic theory, as well as the growth of political philosophy of several varieties: utilitarianism, contractarianism and natural rights.[167]

Another important line in Coleman's thought, perhaps also influenced by Becker, was his empirical concentration on the relationship between educational achievement and social inequality. Criticizing the then dominant human capital theory in policy thinking, Coleman emphasized the role of social capital in acquiring educational credentials which could diminish disadvantage caused by a weak economic and social footing. Indeed, unlike Bourdieu's social capital, Coleman's was for everyone across the social spectrum.[168] Coleman examined social capital in the form of obligations and expectations, information channels, and social norms.[169] In the case of school children these manifestations of social capital were:

> […] the set of resources that inhere in family relations and in community social organization and that are useful for the cognitive or social development of a child or young person. These resources differ for different persons and can constitute an important advantage for children and adolescents in the development of their human capital.[170]

Here Coleman's emphasis on education and cognitive development is clearly seen. Furthermore, he saw that by establishing obligations, expectations, and trustworthiness, and by creating channels for information and norms backed by sanctions, social relations could be seen as a capital resource.[171]

From the three authors discussed here, Robert D. Putnam has done the most perhaps to bring the concept of social capital into the wider context. Put-

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167 James S. Coleman, "Social Capital in the Creation of Human Capital," *The American Journal of Sociology* 94, no. 1 (1988), 95–96.

168 Stephen Baron, Tom Schuller, and John Field, "Social Capital: A Review and Critique," in *Social Capital: Critical Perspectives,* ed. Stephen Baron, John Field, and Tom Schuller, (Oxford; New York: Oxford University Press, 2000), 6; John Field, *Social Capital* (London: Routledge, 2003), 22-23.

169 James S. Coleman, "Social Capital in the Creation of Human Capital," *The American Journal of Sociology* 94, no. 1 (1988), 95.

170 John Field, *Social Capital* (London: Routledge, 2003), 25.

171 Stephen Baron, Tom Schuller, and John Field, "Social Capital: A Review and Critique," in *Social Capital: Critical Perspectives,* ed. Stephen Baron, John Field, and Tom Schuller, (Oxford; New York: Oxford University Press, 2000), 6.

nam's idea differs from that of Bourdieu in the sense that, for Putnam, social capital is a vital factor in the economic success of the whole community, whereas for Bourdieu the concept highlighted more one's social standing within it, and helped to illuminate the class structure within society. In his seminal study, *Making Democracy Work* (1993), Putnam studied differences between regional administrations in the north and south of Italy. Though the core of the study concentrates on institutional performance, he brought up the concept of social capital in connection with rotating credit associations, in which every participator gave a small sum to the collective fund, and this credit could then be used by every participator in turn. When explaining institutional performance, Putnam saw civic community and participation as the most important explanatory value. As markers of civic community Putnam saw civic engagement, political equality, solidarity, trust, tolerance, and social structures of cooperation.[172]

In his *Bowling Alone* (2000) Putnam turned his attention towards the US and identified a general secular decline in levels of social capital. Putnam's villain in this process was television; time spent in front of the screen was time away from sustaining networks of sociability. In *Bowling Alone* Putnam wrote that in the same way that physical and human capital had value, so did social capital, in the form of social networks. Social capital could equally increase both individual and collective productivity, especially when it resembled what others called 'civic virtue'.[173]

> Whereas physical capital refers to physical objects and human capital refers to properties of individuals, social capital refers to connections among individuals — social networks and the norms of reciprocity and trustworthiness that arise from them. In that sense social capital is closely related to what some have called 'civic virtue.' The difference is that 'social capital' calls attention to the fact that civic virtue is most powerful when embedded in a dense network of reciprocal social relations.[174]

Previously Putnam had emphasized how networks, norms, and trust enabled participants to pursue shared objectives more efficiently.[175]

It is interesting how, in Putnam, norms of reciprocity and trustworthiness seemed to arise from social connections, whereas for instance Francis Fukuyama saw it the other way round – trust, networks, and civil society arose as a result of social capital. For Fukuyama social capital in itself was an informal norm that promotes cooperation between one or more individuals.

> The norms that constitute social capital can range from a norm of reciprocity between two friends, all the way up to complex and elaborately articulated doctrines like Christianity or Confucianism."[176]

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172 Putnam's role in the discussion: *Ibid.*, 8-9. Civic community: Robert D. Putnam, Robert Leonardi, and Raffaella Nanetti, *Making Democracy Work: Civic Traditions in Modern Italy* (Princeton, N.J: Princeton University Press, 1993), 86-91.

173 Robert D. Putnam, *Bowling Alone: The Collapse and Revival of American Community* (New York: Simon & Schuster, 2000), 18-19.

174 *Ibid.*, 19.

175 Stephen Baron, Tom Schuller, and John Field, "Social Capital: A Review and Critique," in *Social Capital: Critical Perspectives,* ed. Stephen Baron, John Field, and Tom Schuller, (Oxford; New York: Oxford University Press, 2000), 9.

Although the roots of the social capital concept in its modern use are in sociology and other social sciences, and the concept often goes without mention in the text books of economics, Glaeser, Laibson, and Sacerdote, for example, showed that the concept with its core components (social skills, networks) was applicable to the same methods as those used to analyze other investments. They used a standard optimal investment model to analyze an individual's decision to accumulate social capital, and found out that social capital accumulation patterns were consistent with the standard model. Individuals would accumulate social capital when the private incentives for it were high.[177]

Glaeser et al. also pointed out the probable reason why social capital found its way so slowly under the economist's radar. Although Putnam's 1993 work was followed by a flow of empirical research[178] on the effects of social capital, which economists would have understood, the "post-Coleman (1990)" literature almost universally viewed social capital as a community-level attribute. Economists, they argued, find it difficult to think of communities as decision makers. Such aggregate definitions may have thus acted as barriers to the development of an economic framework for modeling the causes of investment in social capital.[179]

Despite concluding that the same investment analysis methods could apply to individual social capital investments as other capital investments, Glaeser et al. went on to note that there are profound differences between social capital and other types of capital mostly stemming from the interpersonal externalities that it could generate.[180] Therefore, determining the national or aggregate capital of a society by (if it was material capital) adding up the sum of individual capitals would be likely to fail here. While theorizing that aggregate social capital would measure social characteristics yielding the market and non-market returns to society, the complexity of aggregation meant that the determinants of social capital at the individual level would not be able to determine social capital at the level of society. For instance, membership in a network may have generated a positive externality, whereas individual status in a zero sum game environment a negative externality. Glaeser et al. thus noted that aggregate social capital was instead a function of these different types of individual social capital.[181]

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176 Francis Fukuyama, "Social Capital and Civil Society," *IMF Conference on Second Generation Reforms* (1999).

177 Edward L Glaeser, David Laibson, and Bruce Sacerdote, "An Economic Approach to Social Capital," *The Economic Journal* 112, no. 483 (2002), 437, 456.

178 As examples of early important empirical studies Glaeser et al. mention Knack & Keefer (1997) showing that one standard deviation increase in survey-based country level trust increases economic growth by more than one-half of a standard deviation and LaPorta et al. (1997) finding that a one standard deviation increase in country level trust increases judicial efficiency by 0.7 of a standard deviation and reduces corruption by 0.3 standard deviation.

179 *Ibid.*, 437-438.

180 *Ibid.*, 456. On measurement problems, see also Reino Hjerppe, "Social Capital and Economic Growth Revisited," *VATT-Discussion Papers* 307, (2003).

181 *Ibid.*, 438-439.

According Alex MacGillivray and Perry Walker in their *Local Social Capital: Making it Work on the Ground* (2000), the first 'modern' usage of the term 'social capital' was probably by Lyda Judson Hanifan in 1916 in her Rural School Community Center.[182] The term has been around longer, but its content has changed quite a bit. Putnam's reference to Hanifan seems more felicitous, since he emphasized that Hanifan's account anticipated virtually all the crucial elements in later versions. He also spoke of it as a concept not a term, which, if understood as depicting an idea, is clearly more pertinent. Furthermore, Putnam stated that the term social capital was invented independently at least six times over the 20th century, "each time to call attention to the ways in which our lives are made more productive by social ties."[183] However, as we shall see later, the roots of the concept go back much further than the 20th century.

1.2.4 Intangible Capital

The history of what is understood as intangible capital and its adoption by accounting on the national and business level, is on a par with explaining the connection between the Solow residual and human capital. Charles Hulten wrote in 1979 that

> Robert Solow's paper on technical change provides an economic rationale for the so-called total factor productivity "residual" – the growth rate of real product not explained by the share-weighted growth rates of the real factor inputs.[184]

Historically, accounting on both the national and business levels have treated expenditure on intangible inputs (R&D, software) as an intermediate expense, instead of investment in GDP. This exclusion of intangibles has obscured the role of many factors at the heart of the innovation process that is the motor to economic growth.[185] Solow had the honor to pinpoint this puzzle too, by stating in 1987 that "you see the computer revolution everywhere except in the productivity data." Furthermore, Alan Greenspan wondered in 1996 why the negative trends in measured productivity in many service industries were actually among the top computer-using industries.[186]

Endogenous growth theory and the methods developed to measure intangible capital start from the view that the best part of economic growth in developed high-wage economies comes from investment in knowledge creation.

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182 Alex MacGillivray and Perry Walker, "Local Social Capital: Making it Work on the Ground," in *Social Capital: Critical Perspectives,* ed. Stephen Baron, John Field, and Tom Schuller, (Oxford: Oxford University Press, 2000), 197.

183 Robert D. Putnam, *Bowling Alone: The Collapse and Revival of American Community* (New York: Simon & Schuster, 2000), 19, see also footnote 12 on the same page.

184 Charles Hulten, R., "On the "importance" of Productivity Change," *The American Economic Review* 69, no. 1 (1979 Mar.), 126.

185 Carol Corrado, Charles Hulten, and Daniel Sichel, "Intangible Capital and U.S. Economic Growth," *Review of Income and Wealth* 55, no. 3 (2009), 662.

186 Carol Corrado, Charles Hulten, and Daniel Sichel, "Measuring Capital and Technology: An Expanded Framework," in *Measuring Capital in the New Economy,* ed. Carol Corrado, John Haltiwanger, and Dan Sichel, (Cambridge: National Bureau of Economic Research, 2005), 12.

These investments include expenditure made on human capital, i.e., education and training; public and private scientific research; business expenditures as part of product research and development; market development; and organizational and managerial efficiency. Investments in such intangibles are strategic in the sense that they target the long-term growth of individual companies and the economy as a whole.[187] Whereas business expenditures on intangible assets have generally been treated as expenses in economic and financial accounting, the intangible capital framework suggests that all business outlays which are intended to increase future rather than current consumption should be treated as capital investment. Applying such a framework has shown, for instance, that by the mid-1990s business investment in intangible capital was as large as investments in tangible capital.[188] Furthermore, accounting for intangibles makes the rate in change of output per worker increase more rapidly. Thus 'capital deepening' becomes the unambiguously dominant source of growth in labor productivity.[189] In the international setting, growth accounting has indicated that between 1995 and 2007 intangibles accounted for 33.7% of productivity growth in the US and on average 19.9% for the EU.[190]

This research stream has not been only a theoretical exercise, since 2008 the United Nations System of National Accounts has included a category of intangibles. This change in standards has meant revisions of contemporary and historical GDP figures to reflect the new accounting methods. In the US the national income and product accounts (NIPA) now recognize expenditures by business, government, and nonprofit institutions for research and development as fixed investment and also recognize expenditures by business and nonprofit institutions on entertainment, literary, and other artistic originals as fixed investment.[191] The change that was already being envisioned by many 19th-century authors that investments in research and development should be treated as capital investments has therefore come about even in terms of accounting.

1.2.5 A Resource-based View of Firm and Human Capital

The resource-based view of businesses is a good example of how the idea of human capital has been applied across a number of fields in the social sciences

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187 Carol Corrado and others, "Intangible Capital and Growth in Advanced Economies: Measurement Methods and Comparative Results," *IZA Discussion Paper* No. 6733, (2012), 2.

188 Carol Corrado, Charles Hulten, and Daniel Sichel, "Measuring Capital and Technology: An Expanded Framework," in *Measuring Capital in the New Economy,* ed. Carol Corrado, John Haltiwanger, and Dan Sichel, (Cambridge: National Bureau of Economic Research, 2005).

189 Carol Corrado, Charles Hulten, and Daniel Sichel, "Intangible Capital and U.S. Economic Growth," *Review of Income and Wealth* 55, no. 3 (2009), 663.

190 Carol Corrado and others, "Intangible Capital and Growth in Advanced Economies: Measurement Methods and Comparative Results," *IZA Discussion Paper* No. 6733, (2012), 35.

191 Shelly Smith and Alyssa E. Holdren, "Preview of the 2013 Comprehensive Revision of the National Income and Product Accounts," in *2013 Comprehensive Revision of the National Income and Product Accounts,* (Washington: Bureau of Economic Analysis, 2013), 14.

– in this case management and organizational research. In 1991, the article *Firm Resources and Sustained Competitive Advantage* by Jay Barney turned the focus of competitive advantage research from the external factors of firms to their internal resources. Previous research had emphasized the external environment and what kinds of problems or opportunities it offered to the firm. According to Barney, it was assumed in these environmental models that the firms within an industry were identical in terms of the strategic resources they possessed, and were any heterogeneous competitive advantage to develop, it would be very short-lived, since the resources firms used to implement their strategies were thought to be mobile (i.e., they could be bought and sold in factor markets).[192]

The key insight of the resource-based view was to assume that the strategic resources that firms control are heterogeneous and not perfectly mobile across any given industry. This meant that any competitive advantage built on these resources could be long-lasting. Barney classified these firms' resources, based on an earlier discussion of what these resources might be, into three groups. These were physical resources, human capital resources, and organizational capital resources. With human capital Barney cited Becker's *Human Capital* from 1964.[193] Human capital resources of a firm included the training, experience, judgment, intelligence, relationships, and insights of individual managers and workers in a firm. What was included in organizational capital resources is also worth mentioning here, because the quality of management and governance was considered as a capital resource already in the 19th century. Organizational capital resources included a firm's formal reporting structure, formal and informal planning, control and coordination systems, and informal relations among groups within the firm, between firms, and with others in its environment. Here Barney cited Tomer's *Organizational Capital* (1987).[194] Such resources in physical, human, and organizational capital enabled firms to conceive and implement strategies to improve their efficiency and effectiveness while chasing competitive advantage or sustained competitive advantage.[195]

The industrial organization paradigm, the resource-based view's predecessor, focused more on an internal source of sustained competitive advantage, particularly with regard to human and intangible assets. However, the resource-based view placed human capital or the discipline of human resource management more prominently within the field of organizational studies. In the resource-based view, however, resources were defined broadly as anything that could be thought of as strengths or weaknesses. All assets, capabilities, organizational processes, attributes, information, and knowledge that may have helped a firm to gain sustained competitive advantage were to be considered

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192 Jay Barney, "Firm Resources and Sustained Competitive Advantage," *Journal of Management* 17, no. 1 (1991), 100.

193 Gary S. Becker, *Human Capital: A Theoretical and Empirical Analysis, With Special Reference to Education* (New York: Columbia University Press, 1964).

194 John F. Tomer, *Organizational Capital: The Path to Higher Productivity and Well-Being* (New York: Praeger, 1987).

195 Jay Barney, "Firm Resources and Sustained Competitive Advantage," *Journal of Management* 17, no. 1 (1991), 101.

such resources. Despite Barney dividing these into physical, human, and organizational capital, the resource-based view treats all kinds of resources in the same way. With this approach, it avoids the usual problems of theorizing about subtleties involved in demarcating and owning human capital.[196] Assuming full control and ownership of resources helps to avoid problems that have always troubled the human capital theorists from the beginning, as we shall see.

> Things become even more delicate when they concern human capital. Putting aside situations of slavery and oppression, human capital cannot be owned in the same sense as tangible assets can be owned. Rather than being owned, people work for a firm voluntarily and can decide to leave at any moment. Firms then will only be able to make use of part of the knowledge and skills of individual people in a particular time frame.[197]

Previously, people tried to solve this problem of ownership with various methods. Some saw human capital as an impossible category because of this, whereas others devised schemes to make it possible – such as Fisher's partial appropriation method, and Macleod's labor as collateral. Fisher's idea, from 1906, that employees were in fact owned to the degree that a contract limited their freedom (partial appropriation) was one of the more interesting solutions (see section 5.2.5 on Fisher). At around the same time, in 1907, Adolphe Wagner suggested that educated and skilled labor should no longer be treated as capital, because it was inseparably bound to people's intrinsic nature.[198]

1.2.6 Intellectual Capital

Intellectual capital as a concept and term has perhaps the most direct connection to 19th century equivalents because the British quite often used it, and it is also the most natural translation from the French *capital intellectuel* and the German *geistiges Kapital*. In contemporary social science, intellectual capital is most prominent in management, organizational research, and business economics, which is why the literature also contains a lot of practice-oriented work alongside the theoretical and empirical research. Furthermore, as with intangible capital in a more macroeconomic setting, dealing with phenomena understood as intellectual capital is a practical question in modern finance and business accounting.[199] Accountants often treat intellectual capital as being synonymous with intangible assets and value it in the same way by calculating the difference between the market value of a company and its book value.[200]

Already in his 1981 article, *The Market for Know-How and the Efficient International Transfer of Technology*, David Teece argued that "economic prosperity

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196 Jeroen Kraaijenbrink, "Human Capital in the Resource-Based View," in *The Oxford Handbook of Human Capital,* ed. Alan. Burton-Jones and J.-C. Spender, (Oxford: Oxford University Press, 2011).

197 *Ibid.*

198 Adolph Wagner, *Theoretische Sozialökonomik oder Allgemeine und theoretische Volkswirtschaftslehre* (Leipzig: C. F. Winter, 1907), 138.

199 See, e.g., Journal of Intellectual Capital, published by Emerald since 2000.

200 Jonathan Law, "Intellectual Capital," in *A Dictionary of Business and Management,* (Oxford: Oxford University Press, 2009).

rests upon knowledge and its useful application" and quoted Simon Kuznets stating that the "increase in the stock of useful knowledge and the extension of its application are the essence of modern economic growth."[201] Yet still in 2002 he argued that the study of innovation and knowledge transfer had been, until recently, relegated to a backwater of mainstream economics. It was only since Romer's 1989 article, that the mainstream had begun to sit up and recognize the importance of such literature.[202]

Nahapiet and Ghoshal have defined intellectual capital as "the knowledge and knowing capability of a social collectivity, such as an organization, intellectual community, or professional practice." Intellectual capital is therefore the sum of all knowledge that firms use for their competitive advantage.[203] Based on previous research, Subramaniam and Youndt argue that human, organizational, and social capital are the main aspects of intellectual capital. Human capital they define as knowledge, skills, and abilities of individuals; organizational capital as the institutionalized knowledge and codified experience of databases, patents, manuals, structures, systems, and processes; and social capital as the knowledge embedded within, available through, and used by interactions among individuals and their various social networks.[204] Both of these much-cited articles emphasize the role of social capital in creating intellectual capital assets.

Thomas Stewart, a merited business writer and management thinker, published two influential books on intellectual capital in 1997 and 2001.[205] As a term, however, it was already in quite common use in the 19th century, and became more and more used during the latter half of it (see figure 2). It was also a concept defined in trade dictionaries of the time.[206] We will later see how it was used in the literature of the era, but the focus was also on knowledge and skills as it is today.

Note here that in management and organizational research intellectual capital is often the collective concept, whereas in this context, intangible capital

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201 David J. Teece, "The Market for Know-How and the Efficient International Transfer of Technology," *Annals of the American Academy of Political and Social Science* 458, (1981), 82. Kuznets quote is from Simon Smith Kuznets, *Modern Economic Growth: Rate, Structure, and Spread*, vol. Studies in comparative economics 7 (New Haven: Yale University Press, 1966).

202 David J. Teece, *Managing Intellectual Capital: Organizational, Strategic, and Policy Dimensions* (Oxford; New York: Oxford University Press, 2002), 5.

203 Janine Nahapiet and Sumantra Ghoshal, "Social Capital, Intellectual Capital, and the Organizational Advantage," *The Academy of Management Review* 23, no. 2 (1998), 245.

204 Mohan Subramaniam and Mark A. Youndt, "The Influence of Intellectual Capital on the Types of Innovative Capabilities," *Academy of Management Journal* 48, no. 3 (2005), 451.

205 Thomas A. Stewart, *Intellectual Capital: The New Wealth of Organizations* (New York: Doubleday, 1997); Thomas A. Stewart, *The Wealth of Knowledge: Intellectual Capital and the Twenty-First Century Organization* (New York: Currency, 2001).

206 For instance, a business manager's practical knowledge, specific and general education, and skills were considered as intellectual capital. A. Leymarie, "Capital," in *Dictionnaire universel théorique et pratique du commerce et de la navigation. Tome premier, A-G,* (Paris: Guillaumin, 1859), 525-529. Defined also in the article discussing agriculture.

is used in the same way as it is in World Bank publications.[207] There is actually at least one good reason why intellectual capital might be a better option. The term *capital immatériel* translates easily from French into intangible capital; but the term 'immaterial capital' was also used in English by some 19th-century authors. The problem is that both of the adjectives intangible and immaterial were also used to describe wealth or capital in the form of bonds, stocks, securities, credit, etc., i.e., investment assets.[208] Meanwhile, intellectual capital has the benefit that it refers explicitly to human faculties and related social phenomena.

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207 Kirk Hamilton and others, *Where is the Wealth of Nations? Measuring Capital for the 21st Century* (Washington, D.C.: World Bank, 2006), xvii; Susana Ferreira and Kirk Hamilton, "Comprehensive Wealth, Intangible Capital, and Development," *World Bank Policy Research Working Paper* 5452, (2010): 1-30.

208 For example, Sismondi's table of contents shows how extensively this was discussed: J.-C.-L. Simonde de Sismondi, *De la richesse commerciale ou principes d'économie politique. Tome premier* (Genève: J. J. Paschoud, 1803), xxxviii.

2 IF WEALTH IS MATERIAL, HOW CAN SKILLS BE CAPITAL?

> As you read the letters of debate and agreement between Malthus and Ricardo, the treatises of Smith and Mill, you realize that theirs was not an age where one set out in Whitehead-Russell or even Spinoza purity the structures of their models. Their quarrels lasted because often they were quarrels over misunderstandings and definitions.[209]
>
> Paul Samuelson in *The Canonical Model of Classical Political Economy*, 1978

2.1 Classical Materialism and Progressive Immaterialism

Reinhart Koselleck has called the period from about 1750 to 1850, the "saddle period" of concepts (*Sattelzeit*). Considering how the concept of capital evolved and emerged to be one of the most debated issues of the 19th century, Koselleck's remark is indeed apt. The debate about capital coincided with the emergence and development of political economy as an independent field of inquiry, following the phenomenal success of Adam Smith's work both in Britain and on the continent. The Francophone and Germanophone reception of Smith's ideas took place in very different surroundings. In France, the most successful followers of Smith concentrated on using it to push back the agricultural emphasis of physiocracy, whereas in German lands Smith's ideas merged with the old traditions of cameralism and sciences of the state. Smith's connection of human attributes and human beings to capital produced two approaches to human freedom at almost opposite extremes. One was the emancipatory argument presented already by John Locke that, given liberty and a guarantee to the fruits of their own labor, people would become more industrious and strive to improve their own lot. By

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209 Here from Paul A. Samuelson, "The Canonical Model of Classical Political Economy," in *Paul Samuelson on the History of Economic Analysis: Selected Essays,* ed. Anthony Michael C. Waterman and Steven G. Medema, (New York: Cambridge University Press, 2015), 110.

creating value from the offerings of nature, human industry (and the consequent overall increase in industry generally) would benefit all members of society. The other view simply saw human beings as capital.

If one bears in mind what Mark Blaug had to say about classical economists' contribution to the theory of human capital, one might wonder why we should discuss their perspective at all in a study like this. But Blaug's view that they had woefully neglected the issue of human capital is actually one of the reference points of this study. Indeed, Blaug gives the impression that the classical economists 'missed the boat', as it were, when it came to contributing to British education policies. "In short, the classical economists had no impact on the history of education in the century between the publication of *The Wealth of Nations* and Forster's Education Act 1870, but the history of education certainly made an impact on them."[210] Meanwhile, his judgment regarding their impact on the theory of human capital is no less harsh.

> In fact, until Lyon Playfair wrote his famous letter to the Taunton Commission, attributing Britain's poor performance at the 1862 Paris Exhibition to inferior educational provision in Britain as compared to the continent, it never occurred to anyone to relate the quantity and quality of schooling directly to a country's economic performance. […] But as for human capital and education as investment in human beings, one can pass straight from Adam Smith to Marshall without the slightest loss.[211]

But as we are interested in whether there were economists being glossed over, we should precisely look at Smith and those classical economists who had something to say about the issue. A lot of what Smith had to say about education dealt with incentive structures for teachers, both in lower and higher education. This was connected to his view that compensation for those working in public institutions always raised difficulties, insulated as they were from normal market pressures. This meant that, even when education was subsidized or tax-funded, the pay of teachers should still be based on private fees.[212] It can be said that in Smith's case, the idea of human capital is not only explicitly stated in connection with capital, it is also an inevitable consequence of the division of labor, a concept to which Smith was ultimately devoted in *The Wealth of Nations.* According to him, division of labor operates in all four forms of capital, and the capital stock that is used to support it must, at the same time, limit its extent.

As we shall see, many of Smith's followers, including Malthus and Ricardo, had little use for the ideas of human or intangible capital; but this did not mean the idea went completely underground in English language political economy from the first half of the 19th century. Nassau William Senior, for instance, was an ardent proponent of the idea, referring to it as intellectual, imma-

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210 Originally in Mark Blaug, "The Economics of Education in English Classical Political Economy: A Re-Examination," in *Essays on Adam Smith,* ed. Andrew S. Skinner and Thomas Wilson, (Oxford: Clarendon Press, 1975). Here cited from Mark Blaug, "The Economics of Education in English Classical Political Economy: A Re-Examination," in *Economic History and the History of Economics,* (New York: New York University Press, 1986), 171.

211 *Ibid.*, 172.

212 *Ibid.*, 152–153.

terial, and moral capital. The idea also found support in the US, where Henry Charles Carey rejected Ricardo's doctrine of rent, and Thomas Malthus' doctrine of ever scarcer resources, by arguing that the application of capital and human invention would overcome these supposed limitations. Similarly Henry Vethake in the US argued that intangible products could be saved, and thus made to constitute a portion of capital and therefore admit accumulation "in the proper sense of the word."[213]

FIGURE 3 Intangible capital concepts in English language publications (1789–1914)[214]

TABLE 2 below shows selected authors from Britain and the US with the terminology they used to discuss intangible or human capital. John Ramsay McCulloch (see section 2.2.4 for more on him) went on to define human beings as capital in a manner that equated them with draft animals and machines. Senior, on the other hand, was careful not to treat people in this way, and argued that a person's income from work consists of three elements: wage, rent, and profit. Note the row in table 2 marked *human beings as capital*, since this stance usually also meant that the author saw all expenses used for the maintenance and production of individuals as capitalized on top of the costs of their education. This was how, for instance, McCulloch and many of the cost-of-production economists and actuaries saw the issue. As we shall see, the major problem with this approach was that it was difficult, and to some degree futile, to differentiate between the income for labor and the interest on invested human (or intangible) capital, which together formed wages. As classical economists were bound to the idea that labor, capital, and land (as production factors) received their respective share of income in the form of wage, interest, and rent, being unable to differentiate these created confusion.

Note also the row entitled *service providers are productive*. This indicates whether authors saw the producers of intangible goods (i.e., services) as able to increase national wealth. For example, Adam Smith thought that the services of

213 Henry Vethake, *The Principles of Political Economy* (Philadelphia: P.H. Nicklin & T. Johnson, 1838), 28.

214 Google Books Ngram Viewer, "Immaterial Capital, Intellectual Capital, Human Capital, Personal Capital, Intangible Capital, Moral Capital," https://books.google.com/ngrams (accessed June 13, 2015).

a teacher, doctor, or certain artists were consumed on the spot, and thus added nothing to national wealth because they could not be accumulated; and only the accumulation of wealth could form capital. Within this conceptual framework an intangible category of wealth was required to make the work of these professionals productive. The change that did eventually come in understanding the nature of productive labor was vital for the emergence of intangible capital as a major determining factor of the economic and productive power of a nation. The extensive 19th century debate about productive and unproductive labor is thus directly connected to the idea of intangible capital.

TABLE 2 Intangible capital concepts in English before 1848

Author*	Adam Smith (1723–1790)	James Grahame (1790–1842)	John Ramsay McCulloch (1789–1864)	Nassau W. Senior (1790-1864)	Henry Charles Carey (1793-1879)	Henry Vethake (1790–1866)
main designations	fixed capital	immaterial capital	capital	mental capital, immaterial capital, moral capital	intellectual capital	intellectual capital, immaterial capital
definitional breadth	acquired abilities, talent, education	skills, knowledge, education	human beings, skills, knowledge, physical force	skill, industry, judgment, knowledge, moral habits, intellectual habits, reputation	skills, knowledge, moral habits	education, knowledge, governance, morals
main levels of analysis	individual, society	individuals, economy	individuals, business, economy	individuals, businesses, nations	individuals, demography, nations	individuals, nations
functions (benefits)	facilitates and speeds up labor, cuts costs, profit	extension of production, access to credit	higher productivity, wages	increases the productivity of labor, profit	higher productivity	higher productivity, physical well-being
service providers are productive	no	yes	yes	yes	yes	yes
human beings as capital	no	no	yes	no (ambiguous)	no	no
foundational publications (year)	1776	1816	1825	1836, 1847	1837, 1838, 1840	1838

* Selected authors.

In subchapter 2.2, I will begin by first discussing James Steuart's notion of material and "incorporeal" goods, which is where Smith seems to have derived his classes of economic goods. In the next section, Smith's ideas and legacy are then discussed in more depth to give some kind of picture of what it was the continental authors were later reacting to. Lord Lauderdale's section provides one example of how some authors saw quite early on that Smith's capital and labor theory of value was, in fact, highly problematic. After this are John Ramsay McCulloch and Nassau William Senior respectively. These men both developed the notion of human capital further, although in quite different directions. These are then followed by the American political economists, Henry Charles Carey and Henry Vethake. After this there is a whole subchapter devoted to a discussion on David Ricardo and Thomas Malthus, to show how their views were very much against the ideas of intangible or human capital. Finally, in 2.4, I will discuss some major features of the British perspective on economics that probably undermined the development of human capital theory in classical economics.

2.2 Scope of this Enquiry in English Language Texts (Before 1848)

2.2.1 James Steuart – Intangible Goods in a Mercantile Context

James Steuart's (1713–1780) category of incorporeal goods is shown here briefly, because his definition both of economic goods and classes of labor illustrate that there certainly was a solid base on which it would have been possible for Smith and his followers to build a political economy with a broader understanding of wealth, in spite of the strong tradition pushing them the other way.

> The first species of things incorporeal, which may be purchased with money, is personal service; such as the attendance of a menial servant, the advice of a physician, of a lawyer, the assistance of skilful people in order to acquire knowledge, the service of those employed in the administration of public affairs at home and abroad, or for the defence of a kingdom by sea, or land; the residence of great men at court, who do honour to princes, and make their authority respected; and even when money is given to procure amusement, pleasure, or dissipation, when no durable and transferable value is given in return.[215]

As we shall see below, Adam Smith picked these "unproductive" (as he saw it) classes of labor or service directly from Steuart's list. However, although Steuart also saw these professions as not producing wealth, it was for different reasons, as he believed wealth could only enter a small town in mercantile terms - where

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215 James Steuart, *An Inquiry Into the Principles of Political Oeconomy: Being an Essay on the Science of Domestic Policy in Free Nations. In Which Are Particulrly Considered Population, Agriculture, Trade, Industry, Money, Coin, Interest, Circulation, Banks, Exchange, Public Credit, and Taxes.*, vol. 1/2 (London: A. Millar and T. Cadell, 1767), 369.

the balance of trade showed that the produce of labor going out was greater than that coming in.[216]

Steuart compared services to what he called the "useful value" of consumable commodities, and found that whereas consumable goods had an "intrinsic substance" that rendered them permanent and saleable, services lacked this permanent and transferable substance, which made them unsaleable for the price that they cost in spite of the advantages felt when using them. Services caused only a momentary increase in the balance of trade, not any real accumulation of wealth.

> The moment the personal service is performed, it may be said to be consumed; and although the purchaser has received a just equivalent for the money given, and in some cases may even be thereby put in a situation to indemnify himself of all his expence, by performing the like services to others, yet every body must perceive that such services cannot properly be considered as a circulation of the former.[217]

Somehow this lack of intrinsic substance made the exchange of services so different from the exchange of material goods that the next century of classical economists defined wealth based on it and deemed service providers unproductive.

Steuart's solution to both poverty and excess accumulation of riches was unlimited competition.

> If therefore such variations in the balance of wealth depend on the difference of genius among men, what scheme can be laid down for preserving equality, better than that of an unlimited industry equivalent to an universal circulation of all property, whereby dissipation may correct the effects of hoarding, and hoarding again [sic] those of dissipation? This is the most effectual remedy both against poverty and overgrown riches; because the rich and the poor are thereby perpetually made to change conditions.[218]

This, however, was a zero-sum game, which Steaurt compared to water flowing from one bucket to another.[219]

When considering the limiting factors of competition in an artisanal setting, he noted that the general wage level in professions was usually set by average productivity, which meant that a workman of extraordinary dexterity would gain more than the average. Competition among the workmen of the same profession limited the profits; profits were highest in professions requiring the most skill and exactness. The difficulty, time, and money required to acquire sufficient skills for certain professions limited competition.[220] Therefore, Steuart clearly understood how learning skills was a form of investment, but there is no indication that he would have treated them as wealth or capital.

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216 *Ibid.*, 92–93.
217 *Ibid.*, 369.
218 *Ibid.*, 368.
219 *Ibid.*
220 *Ibid.*, 317-318.

2.2.2 Adam Smith – Skills as Capital

> Business and popular usage has preserved a very consistent tradition from 1678 – when capital meant, among other things, "all goods which are possessed" – to 1883, when it still meant "the net worth of a party." The other meanings, principal loaned, stock in trade, capital stock, etc., were special applications rather than contradictions of this broader meaning. But Adam Smith turned aside from this beaten track. Following him came other economists: but as their master's trail led nowhere, each set out through trackless wilds on a path of his own. This wandering in the wilderness has now continued so long that a return to the beaten track seems itself a desertion of tradition!"[221]
>
> Irving Fisher in debate with Alfred Marshall, 1904

Although Adam Smith still very much enjoys the reputation of being the father of the modern discipline of economics with his *Wealth of Nations*, Lars Magnusson has, for example, shown that economics was a much older venture. Many of the ideas he presented had surfaced previously in the works of Galiani, Carl, Cantillon, Tucker, Mandeville, North, Gervaise and Hume. Smith wanted to separate himself from the earlier authors who represented what he called the "mercantile system", and yet he actually drew quite heavily from them. But Smith did manage to synthesize many of the ideas of the above mentioned authors, emphasizing the prevalence of a self-equilibrating economic system;[222] and it is hard to deny Smith's influence on economic thought, since *Wealth of Nations* became immensely popular. Its ideas were still being debated and intellectually attacked a hundred years after its publication, becoming also a standard work against which critical minds directed their arguments. Smith's definitions of circulating and fixed capital as well as including the acquired abilities of people in the latter were errors which, according to some authors, deserved to be labeled as so for decades after since they had caused so much confusion in the field.

Although Adam Smith targeted many of his ideas in *Wealth of Nations* against this mercantile system (or mercantilism) by painting a somewhat one-sided picture of its practice and literature, there were early 19th century French economists who went to considerable lengths to prove wrong the physiocratic ideas they were against, and many of these ideas lived on in their works; with some even having major ramifications on the debate about the feasability of intangible capital. At this point we should note that what is presented here is mostly based on authors of the 19th century who were writing after Smith, and while building their own doctrines and theories against earlier arguments, they tended to be selective in their critique of the past. Therefore their arguments directed against the mercantilists or the physiocrats are of course not, in themselves, the best guides to mercantilist or physiocratic thought.[223]

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221 Irving Fisher, "Precedents for Defining Capital," *Quarterly Journal of Economics* 17, no. 3 (1904), 15-16.

222 Lars Magnusson, *Mercantilism: The Shaping of an Economic Language* (London; New York: Routledge, 1994), 2.

223 For such guides, see for instance: *Ibid.*; Liana Vardi, *The Physiocrats and the World of the Enlightenment* (Cambridge; New York: Cambridge University Press, 2012).

2.2.2.1 Hierarchy of Sectors

The notion of sectoral hierarchies in the economy (inherited from mercantile and physiocratic thought) continued well into the 19th century. This had consequences on notions of investment and for the debate about productive and unproductive work. Whereas the mercantilists emphasized industry and trade, the physiocrats believed that these were appendages to the real source of wealth – agriculture. Meanwhile, Adam Smith's hierarchy of sectors also saw agriculture as the most productive for capital investment or financing, because it set more labor to work and augmented the annual produce. Following these in descending order of importance for him were the sectors of manufacturing, transport, and trade. George Stigler has written that Smith allowed this system of financing to conceal the actual facts of economic life; since if a consumer had paid the farmer, miller, ship's captain, and retailer each separately for their role in producing the flour from the corn that he purchases in a shop (instead of just the retailer), then everyone's capital would have gone exclusively to the direct support of production, but nothing would have essentially changed.[224] Gradually this hierarchy of sectors became more and more criticized, until finally it was abandoned as an unequivocal error dating back to the French physiocrats[225] and Stigler stated as much; had Smith really thought this error through with regard to his system, it would have had disastrous consequences for his theory – starting with private control over investment.[226] Indeed, Vivienne Brown has suggested that without the theoretical framework of analysis provided by the hierarchy of sectors and composition of revenues, the structure of *Wealth of Nations* loses much of its rationale, becoming instead a series of propositions against mercantilism or state regulation.[227]

However, Stigler was quick to point out Smith did not draw all his logical conclusions from the hierarchy of sectors, in fact he only used it once, so in effect it was just a blemish on the overall effect of the *Wealth of Nations*; and so most classical economists either overlooked it (Senior and J.S. Mill), or refuted it altogether (McCulloch). Only Malthus gave it his warm approval.[228] Meanwhile, in his introduction to the 1904 edition of *Wealth of Nations*, Edwin Cannan noted that the idea of unproductive labor was certainly of great importance to the history of economic theory but that it was fundamentally unsound, and not so universally accepted as commonly supposed.[229] But when the issue is seen from the perspective of conceptualizing intangible capital, then the notions of a hierarchy of sectors, of understanding wealth as the annual produce of material

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224 George J. Stigler, "The Successes and Failures of Professor Smith," *Journal of Political Economy* 84, no. 6 (1976), 1205-1206.

225 Vivienne. Brown, *Adam Smith's Discourse: Canonicity, Commerce, and Conscience* (London; New York: Routledge, 2002), 189-190.

226 George J. Stigler, "The Successes and Failures of Professor Smith," *Journal of Political Economy* 84, no. 6 (1976), 1205-1206.

227 Vivienne. Brown, *Adam Smith's Discourse: Canonicity, Commerce, and Conscience* (London; New York: Routledge, 2002), 190.

228 George J. Stigler, "The Successes and Failures of Professor Smith," *Journal of Political Economy* 84, no. 6 (1976), 1206.

229 Edwin Cannan, "Editor's Introduction," in *An Inquiry Into the Nature and Causes of the Wealth of Nations,* ed. Edwin Cannan, (London: Methuen & Co., 1904), I.52.

goods, and of productive work as the manufacture of material goods, forms a considerable barrier. First of all, Smith's hierarchy made no mention of services and governance, and in his accounts of productive and unproductive labor he made it clear that no matter how useful teachers or administrators were, their work was nevertheless unproductive from the standpoint of national wealth. Edwin Cannan noted that after returning from France, Smith would have had to proclaim that all the industry in Glasgow was sterile in relation to national wealth, had he dared to fully follow his physiocratic influences through. As it was, he only proclaimed as unproductive the kind of work which did not provide saleable objects or produce direct financial gains for employers.[230] As we saw above, there was a precedent for this in Steuart's work. Even J.S. Mill (in 1848 and later) thought that intangible phenomena like skills and knowledge could only be thought of as wealth if they were used in the production of material goods.

2.2.2.2 Smith's Understanding of Growth

As O'Brien has observed, Adam Smith's work gave a certain direction to the classical school's view of growth and development.[231] It is thus convenient to start with him as his work functions as a fairly easy benchmark against which other authors differentiated themselves in one way or another. The discussion of what Smith understoood as economic growth and development is based mostly on Agnar Sandmo's *Economics Evolving* (2011) and O'Brien's *The Classical Economists Revisited* (2004), followed by a discussion on how Smith's human capital worked within this frame of reference.

Sandmo argues that although the title *Wealth of Nations* suggests that Smith is concerned with the economic growth of nations, his analysis of "the economic benefits of a system of free competition and free international trade and of a well-functioning public sector do not form parts of the theory of growth in the modern sense of the term." Sandmo suggests these have to be read instead as analyses of a system that provides a framework for economic growth. In this view, Smith's metaphorical invisible hand directs resources to areas where they yield the highest return and a "system of perfect liberty" ensures the best possible use of resources. But this analysis does not quite explain how an economy might grow to a higher level of wealth. Sandmo nevertheless lists the reforms suggested by Smith that may enable this: more competitive markets; less restrictions on international trade; better institutions (especially with regard to private property rights); and more enlightened public policies. These would release productive powers that would raise living standards and the overall wealth of society.

In Smith's opinion, a growing population was the most important factor to enable this, as it would mean more workers, which would then increase a na-

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230 *Ibid.*, I.48–52.

231 Dennis Patrick O'Brien, *The Classical Economists Revisited* (Princeton, NJ: Princeton University Press, 2004), 258.

tion's productive resources and economic development.[232]. But it is Smith's idea that population growth also increases the division of labor, via growing markets that Sandmo finds more original, and the theory that the more workers have real capital to use, the more productive they become. Accumulating capital is only possible through saving, and an individual's motivation to save comes from the desire to improve one's standard of living in the future. One saves by investing in real capital for one's own use or by lending to others who then invest in real capital. This saving thus increases overall capital in the economy. Together with population growth, this accumulation of capital means greater division of labor, improved productivity, and increased prosperity. Sandmo concludes that capital accumulation was a central source of growth for Smith, but the reforms designed to improve the market mechanism's ability to direct resources to their most productive use were at least as important, if not more so.[233]

O'Brien's emphasis is a bit different, although he lists the same basic features of Smith's thought. Growth was clearly one of Smith's major concerns, and unlike the preceding mercantilist authors he was interested in per capita GNP rather than the total wealth of a nation. Although he seemed to have taken his stance on the importance of agricultural sector from the French Physiocrats, O'Brien observes that, rather than settle for a circular flow of income as they had done, Smith saw the economy as moving in an upward spiral of growth for two reasons. The first was because of basic economic phenomena whose interrelationship he believed could be approximately stated in the form of a functionally related model; and the second was due to a set of institutional requirements.[234] This set would ensure firstly security of property necessary for the supply of both effort and capital. Smith saw primogeniture and the entailing of estates as harmful to agriculture, which was why control over them was necessary. Furthermore, the *métayage* system, i.e., the landlord receiving half of the crop for providing the working capital, had to be removed and security of tenure be introduced. Secondly, internal and external freedom of trade was necessary to optimise the productive powers; and finally, the state had to provide an infrastructure for all this.[235]

Within this institutional framework two basic determinants of wealth were at work. These were the effectiveness with which labor was applied and the proportion of the workforce employed in productive work. Smith's idea that the former was more important was based on the observation that in poor societies almost everybody works. By his reasoning, the effectiveness of labor thus depended on the how developed the division of labor was. The amount of productive labor depended on the amount of capital and the different sectors in

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232 Adam Smith, *An Inquiry Into the Nature and Causes of the Wealth of Nations*, ed. Edwin Cannan, 5 ed. (London: Methuen & Co., 1904), II.2.

233 Agnar Sandmo, *Economics Evolving: A History of Economic Thought* (Princeton, N.J.: Princeton University Press, 2011), 55-57.

234 Dennis Patrick O'Brien, *The Classical Economists Revisited* (Princeton, NJ: Princeton University Press, 2004), 248–249.

235 *Ibid.*, 249.

which it was employed. Productive labor, according to Smith, was something, usually tangible, that enabled the continuity of production.[236] On this latter point, Smith was not entirely consistent , like some other classical economists.

It is from these determinants that O'Brien distills Smith's earlier mentioned economic relationships. In short, capital accumulation supports division of labor, which increases the size of total product by increasing productivity. This promotes further capital accumulation which raises wages. This, in turn, causes the population to increase, which means further demand for the final product and this again stimulates a further division of labor.[237]

2.2.2.3 Acquired Abilities as Fixed Capital

From here we get to what interests us the most – capital – although Smith used the term "stock" to refer to the accumulated wealth from society's earlier production. This stock was divided into three parts: the first of which was immediately consumed by its owners; the second of which was circulating capital (meaning money, stocks of provisions, raw materials, and finished goods); and the third, fixed capital. Fixed capital was itself divided into four kinds: (i) machinery; (ii) productive buildings; (iii) land improvements; and (iv) the acquired or innate useful abilities of people. For Smith, fixed capital was of no use without circulating capital, and according to O'Brien, Smith laid relatively little emphasis on it, perhaps because Smith was writing at an early phase of the Industrial Revolution, and capital was accumulated by not wasting one's "stock" on spendthrift consumption, but instead channeling it into the other two forms of circulating and fixed capital.[238]

Adam Smith's definition of the fourth kind of fixed capital is, of course, the most pertinent with regard to intangible capital.

> Fourthly, of the acquired and useful abilities of all the inhabitants or members of the society. The acquisition of such talents, by the maintenance of the acquirer during his education, study, or apprenticeship, always costs a real expense, which is a capital fixed and realized, as it were, in his person. Those talents, as they make a part of his fortune, so do they likewise of that of the society to which he belongs. The improved dexterity of a workman may be considered in the same light as a machine or instrument of trade which facilitates and abridges labour, and which, though it costs a certain expense, repays that expense with a profit."[239]

This analogy between the skills of a workman and a machine is worth quoting too, since so much of the subsequent literature we look at here is to some degree based on it.

> When any expensive machine is erected, the extraordinary work to be performed by it before it is worn out, it must be expected, will replace the capital laid out upon it, with at least the ordinary profits. A man educated at the expense of much labour and time to any of those employments which require extraordinary dexterity and skill, may be compared to one of those expensive machines. The work which he learns to

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236 *Ibid.*
237 *Ibid.*, 249–250.
238 *Ibid.*, 250.
239 Adam Smith, *An Inquiry Into the Nature and Causes of the Wealth of Nations*, ed. Edwin Cannan, 5 ed. (London: Methuen & Co., 1904), II.1.17.

> perform, it must be expected, over and above the usual wages of common labour, will replace to him the whole expense of his education, with at least the ordinary profits of an equally valuable capital. It must do this too in a reasonable time, regard being had to the very uncertain duration of human life, in the same manner as to the more certain duration of the machine."[240]

These notions contain the core of Adam Smith's ideas about human capital – or at least a narrower definition of it. It is also very much what Jacob Mincer empirically argued for in his 1958 article "Investment in Human Capital and Personal Income" or how Gary S. Becker compared the average return to college graduates with the average return to business capital in his "Underinvestment in College Education?" (1960).[241]

On the other hand, Smith's writings on the role of public or popular education make his legacy concerning investment in human capital rather ambivalent. He saw that the production process with a fully developed division of labor reduced workers to such ignorance of all else that they were unable to perceive their true interest.

> Though the state was to derive no advantage from the instruction of the inferior ranks of people, it would still deserve its attention that they should not be altogether uninstructed. The state, however, derives no inconsiderable advantage from their instruction. The more they are instructed the less liable they are to the delusions of enthusiasm and superstition, which, among ignorant nations, frequently occasion the most dreadful disorders.[242]

Therefore, the main function of public education was to guarantee social order, the safety of government, property rights, and the right kind of existing hierarchies, not directly to increase productivity. So Smith's first contribution to the idea of any kind of human or intangible capital was that the division of labor in fact makes the workers dull and dumb to a degree that publicly funded instruction was required to counter the adverse effects. This is quite contradictory, since elsewhere Smith saw the division of labor as naturally reflecting the interests of all members of society.[243]

2.2.2.4 Productive and Unproductive Labor

Although Smith expanded the notion of capital as described above, his views on productive and unproductive classes of labor were still very much in line with the physiocrats. He did add manufacturers and merchants to the productive lines of industry, but civil servants and in principle all producers of services (including the sovereign), Smith counted as unproductive.

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240 *Ibid.*, I.10.9.

241 Jacob Mincer, "Investment in Human Capital and Personal Income Distribution," *The Journal of Political Economy* 66, no. 4 (1958): 281-302; Gary S. Becker, "Underinvestment in College Education?," *The American Economic Review* 50, no. 2 (1960): 346-354.

242 Adam Smith, *An Inquiry Into the Nature and Causes of the Wealth of Nations*, ed. Edwin Cannan, 5 ed. (London: Methuen & Co., 1904), V.1.189.

243 Michalina Vaughan and Margaret Scotford Archer, *Social Conflict and Educational Change in England and France, 1789–1848* (Cambridge [Eng.]: University Press, 1971), 65.

> The labour of some of the most respectable orders in the society is, like that of menial servants, unproductive of any value, and does not fix or realize itself in any permanent subject; or saleable commodity, which endures after that labour is past, and for which an equal quantity of labour could afterwards be procured. The sovereign, for example, with all the officers both of justice and war who serve under him, the whole army and navy, are unproductive labourers. They are the servants of the public, and are maintained by a part of the annual produce of the industry of other people. Their service, how honourable, how useful, or how necessary soever, produces nothing for which an equal quantity of service can afterwards be procured. The protection, security, and defence of the commonwealth, the effect of their labour this year will not purchase its protection, security, and defence for the year to come. In the same class must be ranked, some both of the gravest and most important, and some of the most frivolous professions: churchmen, lawyers, physicians, men of letters of all kinds; players, buffoons, musicians, opera-singers, opera-dancers, etc. The labour of the meanest of these has a certain value, regulated by the very same principles which regulate that of every other sort of labour; and that of the noblest and most useful, 50 produces nothing which could afterwards purchase or procure an equal quantity of labour. Like the declamation of the actor, the harangue of the orator, or the tune of the musician, the work of all of them perishes in the very instant of its production.
>
> Both productive and unproductive labourers, and those who do not labour at all, are all equally maintained by the annual produce of the land and labour of the country.[244]

In Smith's discussion about services (or 'immaterial goods' as the French called them by that time), the whole issue is framed by the focus on capital, and capital formation. The outputs produced by Smith's unproductive workers could not be used to augment the stock of fixed assets or be stored in inventories; they could only be consumed.[245] Although this classical distinction between productive and unproductive labor has mostly disappeared from economics, if not from public discussions, it has nevertheless played an important part in how classical authors understood education and the acquisition of skills, and whether they considered them as capital and/or productive labor. What I mean by 'classical distinction' here, is that for Smith and many of his followers (James Mill, his son J.S. Mill, Thomas Malthus, and Ricardo), the productivity of labor was categorical, not marginal. Wealth was defined as material goods, and only those directly producing material goods were considered productive in the sense that they could increase material wealth. As capital meant, for them, the share of wealth that could be put forward to further production, such a definition of wealth made any kind of intangible capital impossible. This was to be a major bone of contention throughout the 19th century, and indeed this was still the case when Irving Fishers, Alfred Marshall and others debated the issue in the turn of the 20th century.

Even for many of Smith's continental disciples, this view was a bit difficult to swallow, and there is a fundamental difference already in Jean-Baptiste Say. For instance, Smith's logic considers a scientist who provides knowledge that revolutionizes an industry as unproductive, unless it is the scientist himself

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244 Adam Smith, *An Inquiry Into the Nature and Causes of the Wealth of Nations*, ed. Edwin Cannan, 5 ed. (London: Methuen & Co., 1904), II.3.2-3.

245 Peter Hill, "Tangibles, Intangibles and Services: A New Taxonomy for the Classification of Output," *The Canadian Journal of Economics / Revue canadienne d'Economique* 32, no. 2 (1999), 429-230.

who engages in the actual entrepreneurial activity of production. Say, on the other hand, argued that to have an industry, it required a combination of scientists, entrepreneurs, and workers for this to happen.[246] Furthermore, Charles Dunoyer wondered in 1830 how it was possible that Smith considered skills and acquired abilities to be the fixed capital of a person and the society that person belonged to, and yet still consider educators, for example, as unsusceptible to accumulation – that is, adding nothing to the collective wealth of a nation, and the goods it produced.[247] Henri Storch, too, had wondered fifteen years earlier why Smith could not see that goods such as education or some skills were actually more durable than most physical goods, and thus were not necessarily always consumed on the spot.[248] Furthermore, as Smith's views on productive and unproductive labor were reproduced in many texts of classical theory, this gave Friedrich List the chance to joke that "[t]he man who breeds pigs is, according to this school, a productive member of the community, but he who educates men is simply non-productive."[249]

According to Smith's definitions, the proportion of the population in productive work has no bearing on the actual wealth of a society, as a country of subsistence farmers where everyone grew their own food, would have only productive inhabitants; and yet if someone figured out how to make plows that would double the production of each citizen, then they would perhaps only have to make one plow a week to become rich, and still be productive by Smith's definition. Then again, was such a plow maker to go about teaching others so they could then make plows for hundreds of farmers (instead of the dozens that the original plow maker had served), he would be apparently be adding no extra productivity to the wealth of the nation. Furthermore, Smith's idea that capital was what determined the number of people employable in productive work does not seem to hold, let alone tell us much about the wealth of a nation. Compared to the aforementioned subsistence society with very little capital, the single plow maker (unproductive in a physiocratic sense) would make a considerable difference, while a teacher of plow-making (unproductive in the Smithian sense) would probably become a rich man. And were someone to write books for future teachers of plow-making, the number of 'unproductive' plow-making teachers and writers would increase, yet so would the productivity and capital of this farming society. As the French noted (see chapter 3), Smith's work was thus not the best platform on which to start building a theory of human and intangible capital. But as late as 1844 and 1848, John Stuart Mill, for instance, was still trying to preserve the Smithian language of productive and unproductive labor and its connection to the production of material goods

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246 See section 3.2.3 on Jean-Baptiste Say and Jean-Baptiste Say, *Traité d'économie politique*, vol. 1/2 (Paris: Chez Deterville, 1803), 6.

247 See section 3.2.9 on Charles Dunoyer.

248 See section 3.2.4 on Henri-Frédéric Storch.

249 Friedrich List, *The National System of Political Economy*, ed. J. Shield Nicholson, trans. Sampson S. Lloyd (London: Longmans, Green, and Co., 1909), II.XII.20. See also section 4.2.3 on List.

without letting it destroy his theory regarding the importance of education, skills, knowledge, trust, and security (see 5.2.1).

Smith's views were a springboard for an ongoing debate over the nature of intangible goods, capital, and productivity for almost the whole of the 19th century perhaps because of this clearly restrictive interpretation of what constituted productive work. Indeed, the understanding of services and intangible goods started to change quite soon after Smith, at which point he was accused of having got the concept of capital wrong from the start and thereby leading economics down the wrong path.[250] The idea of acquired and innate human abilities as fixed capital certainly fits nicely into his schema of how capital is accumulated and increases total product via division of labor. The problem was that, if one was to take seriously his sectoral hierarchy of industries, then there was little role in investing in skills and capital.

Yet, if we are to take O'Brien's analysis about the functional relationship of the above economic determinants as correct and add what Smith wrote about human abilities as fixed capital, it is possible to conclude that there was at least some kind of mechanism through which investing in acquiring skills could produce growth that, in turn, would make further investment in acquiring skills and abilities possible. As we shall see later, however, Friedrich List attacked Smith's understanding of growth and development precisely because he saw it lacked a proper mechanism for this. Overall, these human factors seem to have been of secondary importance to Smith and, if we are to concur with Mark Blaug in what follows, they were even less important to most of the classical economists.

2.2.3 Lord Lauderdale

James Maitland, 8th Earl of Lauderdale (1759–1839), was one of the first to demonstrate some of the inconsistencies in Smith's definition of wealth. For instance, at one point the annual labor of every nation is considered as a fund from which all the necessaries and conveniences of life can be derived; and yet elsewhere lands, mines, and fisheries seen to replace not only the capital invested in them but also all the capital invested elsewhere in the community. From this, Lauderdale concluded that whatever it was that replaced "all" the capital employed in the community must be the real source of wealth, and therefore Smith was arguing that mankind was deriving all its wealth from the land, very much like the French physiocrats; even though Lauderdale noted that elsewhere Smith mostly described the wealth of a country in terms of its annual produce of land and labor.[251]

2.2.3.1 Early Critiques of Smithian Productivity

Lauderdale found Smith's insistence on defining the productivity of labor in terms of the durability of a product as extraordinary and without justification.

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250 See, e.g., section 7.2.1 on Karl Knies and section 7.2.4 on Eugen Böhm von Bawerk.

251 James Maitland Lauderdale, *An Inquiry Into the Nature and Origin of Public Wealth and Into the Means and Causes of Its Increase* (London: Longman & O. Rees, 1804), 116-117.

To show how laughable this idea was, he joked that if his cook baked a tart that he was to immediately then eat, the cook was doing unproductive work, but if the same tart were made in a bakery and sold, the same work would become productive. As we have seen, Smith deemed all civil servants unproductive, as well as the judiciary, the military, people employed by the Church, and in principle all producers of services (including the sovereign).[252] Another critic of Smith's view that intangible goods and services were unproductive, was Thomas Chalmers. In his book, *On Political Economy* (1832) he argued, on the contrary, that many intangible products such as security, health, sobriety, and equity provided by the state, doctors, and clergymen served industry as well as any other goods accumulated for the support of future labor.[253]

Lauderdale went on to state that if exchangeable value was really to be considered as the basis of wealth, the errors of Smith's doctrine became instantly evident. Estimating services based on what was generally paid for them was surely testimony enough of the doctrine's inaccuracy. But Lauderdale did not stop there, because for him wealth in its truest form meant an abundance of the objects a man wants. From this perspective, it was difficult to understand why products or things that satisfied a man's immediate desires should not be considered as wealth in the same way as things stored up for later satisfaction. And here too, even Smith seemed to agree at times in the *Wealth of Nations* when, for instance, he opposed mercantilism by answering "[…] that the trade with the alehouse is not necessarily a losing trade."[254] Equally Smith thought that trading hardware for wine with the French was trade in which no productivity was lost.[255] Nevertheless, Lauderdale's point was that it was unjustifiable to claim that a manufacturer, artist, or anybody whose services perished at the moment of creation should be considered less productive of wealth than a farmer. There were, according to Lauderdale, comparative differences in how useful these transactions were in creating wealth though.[256]

2.2.3.2 Smith's Capital as a Form of Robbery

When defining capital, Lauderdale noted that Smith's explanation of how capital emerged in the form of profit made it a derivative of labor. For Smith, this explained that part of the value that the workmen added to the materials they worked with; it resolved itself partly in their wages, and partly as profit of stock, material, and income received by the employer.

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252 *Ibid.*, 150-151.

253 Thomas Chalmers, *On Political Economy, in Connexion With the Moral State and Moral Prospects of Society.* (Glasgow: W. Collins, 1832), 343.

254 Adam Smith, *An Inquiry Into the Nature and Causes of the Wealth of Nations*, ed. Edwin Cannan, 5 ed. (London: Methuen & Co., 1904), IV.3.37.

255 James Maitland Lauderdale, *An Inquiry Into the Nature and Origin of Public Wealth and Into the Means and Causes of Its Increase* (London: Longman & O. Rees, 1804), 152-153.

256 *Ibid.*, 153.

> Thus the labour of a manufacturer adds, generally, to the value of the materials which he works upon, that of his own maintenance, and of his master's profit.[257]

Therefore, it was evident that Smith considered the profit of stock to be value added by labor, which was problematic because such a view left no independent role for capital, and because Locke had stated in principle the same idea a bit more bluntly more than a hundred years previously.

> Land produces naturally something new and profitable, and of value to mankind; but money is a barren thing and produces nothing; but by compact transfers that profit that was the reward of one man's labour into another man's pocket.[258]

Therefore, Smith's explanations hinted that the profits of capital were based on a form of robbery. Capital could not be considered a legitimate source of wealth, since its profit would only be transferred from the pocket of the laborer into that of the stock's owner. Another definition of capital that Lauderdale rejected before giving his own, was that of Turgot's, who saw that the owner was entitled to compensation for what his capital would have produced had he purchased land with it. But this definition actually said nothing about profit or where it originated from.[259]

For Lauderdale, every time capital was employed to produce a profit, it was either

> […] from its supplanting a portion of labour, which would otherwise be performed by the hand of man; or – from its performing a portion of labour, which is beyond the reach of the personal exertion of man to accomplish.[260]

The idea and value of capital, for Lauderdale, was thus its ability to save labor, and it was this attribute that also explained its ability to bring forth profit.

2.2.3.3 Profit as a Service Provided by Money and Servants

After defining capital, or its capacity for earning profit, Lauderdale explained how and from where the different classes of capital actually got their profit. When explaining the value or service rendered by circulating capital, i.e., money, he compared it to the work of menial servants or any other of the service-providers that Smith had declared unproductive. Neither the labor of menial servants nor the labor supplanted by circulating capital (e.g., barter, storing of value) could be stored in a way that made them readily transferable for a defined value. Instead the profit of both services and circulating capital arose from *saving the labor* of the owner or master. Lauderdale suggested that were one to

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257 Adam Smith, *An Inquiry Into the Nature and Causes of the Wealth of Nations*, ed. Edwin Cannan, 5 ed. (London: Methuen & Co., 1904), II.3.1.

258 James Maitland Lauderdale, *An Inquiry Into the Nature and Origin of Public Wealth and Into the Means and Causes of Its Increase* (London: Longman & O. Rees, 1804), 157. From John Locke, *Some Considerations of the Consequence of the Lowering of Interest, and Raising the Value of Money.* (London: 1692), 53.

259 James Maitland Lauderdale, *An Inquiry Into the Nature and Origin of Public Wealth and Into the Means and Causes of Its Increase* (London: Longman & O. Rees, 1804), 158.

260 *Ibid.*, 161.

be declared unproductive, then the other would have to be too. [261] And indeed, as Lauderdale cited, Smith did in fact say that:

> […] the gold and silver money which circulates in any country, and by means of which the produce of its land and labour is annually circulated, and distributed to the proper consumers, is, in the same manner as the ready money of the dealer, all dead stock. It is a very valuable part of the capital of the country, which produces nothing to the country."[262]

In this way Lauderdale had shown the inconsistencies and problems arising from both the artificial demarcation between productive and unproductive labor as well as the problems caused by Smith's labor theory of value being part of his definition of capital. But as we shall see, quite a few political economists continued to insist that there were productive and unproductive classes of labor, that wealth consisted solely of material objects, and that the value of everything was down to the amount of work put into its production. This easily led to the conclusion that profits of capital were unjustifiable transfers and made it difficult to develop a theory of intangible capital.

2.2.4 John Ramsay McCulloch

> Of all the species of property a man can possess, the fruits of his mental labours seem to be most peculiarly his own.[263]
>
> John Ramsay McCulloch

The Scottish economist, John Ramsay McCulloch (1789–1864), was perhaps the most visible Ricardian after the death of David Ricardo in 1823. O'Brien has noted that McCulloch was among the first to emphasize the importance of investing in human capital through education. The stock of investment in education was part of the national capital as it was for Smith, but McCulloch took things further by stating that widespread popular education would increase innovation (or "invention"). More than his British contemporaries, he also emphasized the importance of spreading knowledge about ways to increase growth and innovation and of preventing its results from being hoarded by the few.[264] Although he cited the preceding classical economists a lot, McCulloch was much more interested than they were in the mental and intangible aspects of production and production factors. It seems reasonable to assume that one reason for this, based on who he cited, was that he had reading the French discussion of the period, where these issues were very much the order of the day. McCulloch's difference to his English contemporaries is underlined by the fact

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261 *Ibid.*, 196-197.

262 Adam Smith, *An Inquiry Into the Nature and Causes of the Wealth of Nations*, ed. Edwin Cannan, 5 ed. (London: Methuen & Co., 1904), II.2.86.

263 John Ramsay McCulloch, *A Dictionary, Practical, Theoretical, and Historical, of Commerce and Commercial Navigation*, corrected and improved ed. (London: Longman, Orme, Brown, Green and Longmans, 1838), 138.

264 Dennis Patrick O'Brien, *The Classical Economists Revisited* (Princeton, NJ: Princeton University Press, 2004), 262.

that T. R. Malthus criticized him for *not* excluding the intangible from productive activity. In fact, as we shall see, McCulloch went much further than most classical economists either before or after him to define human beings as capital.

2.2.4.1 Division of Labor

In the first edition of his *Principles*, McCulloch cites a whole page from Germain Garnier's introduction to his translation of Smith's *Wealth of Nations* to defend his view that it should make no difference to public or private productivity whether profits came from agriculture or manufacturing.[265] McCulloch's first edition of *Principles* is thus still trying very much to wriggle out of some major physiocratic ideas. For example, in the second footnote to the chapter emphasizing that labor is the only source of wealth, he jokes that to say the earth is the only source of wealth because it supplies us with all our commodities is equal to saying that earth is the source of pictures and statues because it supplies us with all the material used by painters and sculptors. This was, according to McCulloch, reproducing the old error of the *économistes* (physiocrats) just in a slightly different form.[266]

To stress the importance of labor in extracting, cultivating, and producing resources to satisfy human needs, McCulloch looked further back in time than Adam Smith or the liberal French economists that were challenging physiocratic views. He quoted both Hobbes and Locke. In *Leviathan* (1651), for instance, he noted that Hobbes had stated that the "*nutrition* of a commonwealth consisteth in the *plenty* and *distribution* of *materials* conducing to life." And that plenty "*dependeth* (next to God's favour) *on the labour and industry of man*."[267] Meanwhile Locke, in his *Essay on Civil Government* (1689) made the point that:

> […] if we will rightly consider things as they come to our use, and cast up the several expences about them, what in them is purely owing to nature, and what to labour, we shall find, that in most of them ninety-nine hundredths are wholly to be put on the account of labour.[268]

McCulloch continued by quoting several pages from Locke's analysis of the importance of labor, which shows that he had a solid starting point for discussing the importance of labor and capital and also intangible capital – as accumulated labor which could multiply the efficiency of labor. McCulloch seems to have quoted both Hobbes and Locke at length as part of a historical argument too, to show that Say in his *Discours Preliminaire* mentions Galiani in his *Trattato Della Moneta* (1750) as the first to describe labor as the only source of wealth.[269]

But McCulloch went even further than Locke by noting that even nature's bounties only had a value proportionate to how much labor was employed in

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265 John Ramsay McCulloch, *The Principles of Political Economy: With a Sketch of the Rise and Progress of the Science* (Edinburgh: Tait and Longman, 1825), 148.
266 *Ibid.*, 62.
267 Italics from McCulloch's quotations. *Ibid.*, 65-66.
268 Emphasis from McCulloch. *Ibid.*, 66.
269 McCulloch even hints that Galiani's view was propably based on Locke's *Essay on Civil Government,* since he was well acquainted at least with Locke's *Tracts in Money. Ibid.*, 70.

putting them to use. The value of water to a man on a river bank depended on the labor put in to raising the water to his lips, he argued, and its value ten or twenty miles away was equally dependent on the labor necessary to convey it there.[270] From this fundamental principle, that labor is the talisman that gives us plenty, comfort, and elegance over want, misery, and barbarism, McCulloch settled on the idea that those in political economy that want to study production must focus on where labor may be used most efficiently or where "the greatest amount of necessary, useful, and desirable products may be obtained with the least possible quantity of labor." All measures that would have a tendency to increase the power of labor or to reduce the cost of commodities produced by its agency proportionally increased the powers to obtain wealth and riches.[271] Yet although the methods of using labor in the most efficient fashion was an appropriate area of study for an agriculturalist, manufacturer, or merchant, McCulloch felt that a political economist's business was to focus on how labor in general was rendered most productive and how productivity could be "increased in all the departments of industry."[272]

For McCulloch this meant focusing on the security of property, division of labor, and the accumulation and employment of capital. His discussion of property rights was quite standard for the time, but two issues stand out with regard to our discussion. Firstly, McCulloch saw that property rights were even more important to accumulation than they were to production. The point was that functioning property rights secured the motivation for improvements and greater investment, by giving the fair prospect of greater comforts and enjoyments, or of avoiding hardship in the future. Secondly, property rights were not only violated when a man was deprived of the fruits of his industry, but also when he was prevented from using those powers endowed him by nature that were most beneficial to him (and not injurious to others). McCulloch wrote that of all the property that a man could possess, "the faculties of his mind and the powers of his body" were most particularly his.[273] The rights of property were thus infringed when one was prevented from engaging in a particular branch of business as much (if not more) as when one was forcibly stripped of property.[274] This was both a liberalist argument against all kinds of monopolies and excess regulations, but it was also an emancipatory argument against prejudice and tyranny. McCulloch's examples included the "absurd prejudices" with which the Jews had been almost universally subjected to, the decay of the Ottoman Empire due to the ultimate right of the Sultan to confiscate everything, and the riches of Sicily, which remained woefully underexploited because the locals did not have the right to reap the profits of any of their endeavors there.[275] McCulloch cited Storch, when writing that it was futile to expect any people to emerge from barbarism and to become wealthy, prosperous, and civi-

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270 *Ibid.*, 69.
271 *Ibid.*, 71.
272 *Ibid.*, 72.
273 *Ibid.*, 76.
274 *Ibid.*, 76-77.
275 *Ibid.*, 77-82.

lized unless they also had the security of property. The quote from Storch is from a passage where he explains how the opulent wealth of England is based on liberty and the industry and wealth of individuals.[276]

McCulloch's discussion of the benefits of dividing labor followed Adam Smith, and he even treated the subject under Smith's titles; the greatest benefits being the improvement of skill and dexterity among laborers, which not only avoided the time wasted when switching from one task or job to another, but also facilitated automation that could save labor. McCulloch wrote that others, such as Turgot and Harris, had presented the idea before Smith, but Smith's analysis was much more precise and furthermore, his emphasis on the functioning of a sufficiently large market as a condition for the effective development of division of labor was novel. To back up this argument, he cited Storch who had said pretty much the same thing. But McCulloch also extended the idea from the world of workers and artisans, to the world of science, as Storch had done. As society advanced, the study of particular fields of science and philosophy would become the sole occupations of the most ingenious men. Along this principle, chemistry could become separate from natural philosophy and political economy from politicians, and this would make a degree of proficiency and expertness available that the earlier general scholars seldom reached.[277]

2.2.4.2 Men as Machines and Working Animals

Although he followed Smith with regard to the division of labor, McCulloch differed when it came to defining capital, and for this he was often ridiculed by other classical economists. McCulloch defined it as

> […] that portion of the produce of industry existing in it, which can be made DIRECTLY available, either to the support of human existence, or to the facilitating of production.[278]

The point that really distinguished McCulloch from the others was the "support of human existence", as the traditional view was that the whole produce of industry in a certain country was its stock, whereas capital was only that part of it used to produce commodities. The revenue – the part of the stock used for maintaining the inhabitants – was not supposed to contribute anything to the actual wealth of the country, but McCulloch disagreed.[279] And his insistence that the distinction between revenue and capital had no proper foundations in the second edition of his book continued to attract criticism (see, for example, Friedrich von Hermann in 4.3.2 below).[280]

When reading McCulloch's treatment of the issue, it is easy to understand why he was accused of confusing rather than clarifying the issue, as he wrote that the stock used without any immediate view to production could actually

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276 *Ibid.*, 82-83.
277 *Ibid.*, 86-92.
278 *Ibid.*, 92. Capitalization from McCulloch.
279 *Ibid.*, 98.
280 Friedrich von Hermann, *Staatswirtschaftliche Untersuchungen* (München: Anton Weber, 1832), 47.

prove the most productive. As an example he took the stock Arkwright and Watt had used to live off while they were working on their steam engine. According to McCulloch, it was clear that this stock had in fact contributed infinitely more to increasing the country's wealth (as well as their own) than any equal quantity of stock used for their artisans to live off. McCulloch's point was that it was extremely difficult to know which portion of stock was being used the most productively; therefore any definitions of capital requiring determination of this point only obscured a subject that was otherwise simple. Thus, by his reasoning, if something directly contributed to either supporting a man or assisting him in owning or producing commodities, this was enough to make it capital.[281]

McCulloch diverged further from Smith when he discussed to what degree people should be considered as capital. Smith had stated that all acquired and useful talents and skills of the members of society form a portion of the nation's capital. But McCulloch went further, and claimed that Smith would have done the same had he been reasoning consistently.[282]

> Instead of understanding by capital all that portion of the produce of industry intrinsic to man, which may be made applicable to his support, and to the facilitating of production, there does not seem to be any good reason why man himself should not, and very many why he should, be considered as forming a part of the national capital. Man is as much the produce of labour as any of the machines constructed by his agency; and it appears to us that in all economical investigations he ought to be considered in precisely the same point of view. Every individual who has arrived at maturity, though he may not happen to be instructed in any particular art or profession, may, with perfect propriety, be viewed as a machine which it has cost twenty years of assiduous attention, and the expenditure of a considerable capital to construct. And if a farther sum has been laid out in educating or qualifying him for the exercise of a business or profession requiring unusual skill, his value will be proportionally increased, and he will be entitled to a greater reward for his exertions — just as a machine becomes more valuable when new powers are given to it by the expenditure of additional capital or labour in its construction."[283]

In fact, some pages earlier McCulloch was comparing draft animals to machines too.

> Consider the advantages which man has derived from the employment of the lower animals, which, in an economical point of view, are to be regarded only as machines!"[284]

People were thus deftly equaled with machines, and indirectly, to working animals. Indeed he had stated earlier that the basic necessities consumed by Arkwright and Watt while inventing their steam engine were a form of capital. Feeding people was therefore comparable to feeding working animals, or repairing and maintaining a machine. Because he saw human beings as capital in

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281 John Ramsay McCulloch, *The Principles of Political Economy: With a Sketch of the Rise and Progress of the Science* (Edinburgh: Tait and Longman, 1825), 98.

282 John Ramsay McCulloch, *Grundsätze der politischen Oekonomie*, trans. Georg Michael Weber (Stuttgart: Hallberger, 1831), 115.

283 *Ibid.*

284 *Ibid.*, 98.

the same way as draft animals were, it probably made sense for him to force the results of working animals and machines into his definition of labor, which Roscher called "the other side of the same perversity".[285]

In his haste to declare humans as capital, McCulloch also attempted to explain wages with the concept of interest. Böhm-Bawerk noted that usually among those authors who saw human beings as capital, wages were often explained like this without actually defining or explaining the term 'interest' itself, when in fact it merited one. But McCulloch was an exception; the problem was (according to Böhm-Bawerk) that his explanation explained wages in terms of interest, and interest in terms of wages.[286] As we shall see elsewhere in this book, this kind of wonderfully naïve approach stirred various reactions in the 19th century. And when the idea of human capital was making its comeback at the turn of the 1960s, many of these critical arguments were made again.[287] There were two main ways to counter his explanation: one was to heighten the difference between man and capital (N. W. Senior, Pellegrino Rossi, Leroy-Beaulier); the other was to deny the possibility, usefulness, or morality of the whole concept. Interestingly, both of these approaches held humans to be the very reason for which wealth exists, and many French authors writing after McCulloch were henceforth very specific about what capital was, and what could or could not be capitalized in human beings.

2.2.5 Nassau W. Senior – Immaterial and Personal Capital

Not all of the economists writing in England during the first half of the 19th century accepted Smith's concept of productive and unproductive labor. Along with Lord Lauderdale, Nassau William Senior (1790-1864) was one such author. Senior was a lawyer and an economist and served as a government adviser in socioeconomic policy issues, which most of his writing addresses. Advising the Whig Party of his day, he was at once a major force behind the 1834 Poor Laws, yet also an early critic of Malthusian population theory. In his *Two Lectures on Population* (1829), he pointed to empirical evidence which showed that living standards were rising despite growing population, and this therefore refuted Malthus' arguments. Another point of interest is that Senior's abstinence theory of capital (of which there is more below), was criticized by Marx as an example of apologetic bourgeois economics.[288]

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285 This was stated in an English translation made from the 13th edition of the *Grundlagen*. Wilhelm Roscher, *Principles of Political Economy*, vol. 1 (New York: Henry Holt & Co, 1877), 150-151, see footnote 1. For example, from the 1866 German 12th edition this was missing, although other Mcculloch's faults were mentioned there too. Wilhelm Roscher, *Die Grundlagen der Nationalökonomie: Ein Hand- und Lesebuch für Geschäftsmänner und Studierende*, 12 ed., System der Wolkswirtschaft, vol. 1 (Stuttgart: Cotta, 1866), 77.

286 Eugen von Böhm-Bawerk, *The Positive Theory of Capital*, trans. William A. Smart (London: Macmillan, 1891), 54, footnote 1.

287 Harry Shaffer, "Investment in Human Capital: Comment," *The American Economic Review* 51, no. 5 (1961): 1026-1035.

288 Mark Blaug, *Great Economists Before Keynes: An Introduction to the Lives & Works of One Hundred Great Economists of the Past* (Brighton: Wheatsheaf, 1986), 220-222.

2.2.5.1 On Productive and Unproductive Labor

Senior did not accept Adam Smith's division of productive and unproductive labor nor was durability of the end result relevant in determining the productivity of different tasks. In *A Lecture on the Production of Wealth* (1847), based on the lectures he had given at Oxford University, Senior wrote that the difference between material goods and "immaterial"[289] goods (or 'services' in the literature of political economy) was principally about the focus of each. With material goods, the focus was on the result; with services, it was on the act. Whether or not they were productive was determined by whether the act or result was "capable of sale."[290] The main point here was whether the act was useful, i.e., if it produced pleasure or prevented pain. The permanence of the product (as an addition to the wealth of its purchaser) was not essential, and indeed many products were of quite ephemeral duration. The services of an actor or valet, for instance, perished the moment they were performed, but no Frenchman was happy without a theatre and no English gentleman could live without a servant, and would indeed sacrifice half his income rather than perform the household drudgery himself, Senior argued. Furthermore, it was unnecessary to classify wealth in terms of material objects alone, as so many of the objects of desire were, after all, intangible by their very nature.

> Results which are necessary to the full enjoyment of wealth are themselves wealth, though from their transitory nature they are incapable of accumulation, and must be renewed from day to day or from hour to hour. They resemble a river, which is perhaps the most permanent of objects, though the water of which it is constituted is never for a second the same.[291]

Senior also noted that for the best part of history, the most common items of exchange were either services or subsistence. For instance, Abraham had used his flocks and herds to feed his servants; and at the zenith of Rome's wealth, the upkeep of servants (of which Crassus was said to have 20,000) was clearly a major expenditure for the rich; and also the not so rich. For example, during the reign of Nero, one Pedanius Secundus, who according to Senior was not particularly wealthy, had 400 servants. He then went on to point out that the situation had been similar in England during the 17th century and was still so in Russia.[292]

Another of Senior's points was about how professional knowledge was wealth. The attention paid to acquiring knowledge should not be considered unproductive. In his words, this process was "to the mind what draining,

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289 Senior had been reading about the subject in French, and the meaning of 'immaterial' in English at this time was more like the French, meaning 'intangible' (without the extra meaning of 'unimportant' as it has now). So intangible shall henceforth be used to refer to Senior and Carey's "immaterial"(Carey used it too as he had been reading Senior).

290 Nassau W. Senior, *A Lecture on the Production of Wealth* (Oxford: Oxford University, 1847), 10. This was also discussed in: Nassau W. Senior, *Political Economy*, 4 ed., Encyclopædia Metropolitana (London, Glasgow: Richard Griffin & Co, 1858), 50-52.

291 Nassau W. Senior, *A Lecture on the Production of Wealth* (Oxford: Oxford University, 1847), 11.

292 *Ibid.*, 10.

ploughing and manuring are to the soil." It produced an alteration in the mind that allowed it to produce exchangeable results.[293] From here, Senior drew a very Storch-like conclusion, emphasizing that when a lecture was permanently useful, both the pupil and professor were in fact the producers. As we will see later on, Henri Storch, a Russian political economist of German origins had written a little earlier about similar process of intangible production in teaching and learning situations.[294] Such a use for the word 'product', however, could only be used in cases where the purpose was clearly to increase or maintain the wealth-producing power of those involved.[295]

Based on such considerations, Senior divided production into two classes: the first was where producers operated solely on themselves; and the second was where producers modified some other substance. The latter he divided to those in which (a) the substance underwent a chemical change; (b) it underwent a mechanical change; or (c) changed its physical location, but we are here mostly interested with the first class, where producers operated solely on themselves. This included all the acts that consisted of uttering words and writing, so that a verbal or written order, a prescription written by a doctor, an oral lecture, and a written treatise were similar enough to Senior to be put in the same class, because they were all represented "by audible or by visible signs, by words or by characters." This included the services of a ruler, lawgiver, senator, judge, lawyer, and students, among others, so all those who aimed to gain professional knowledge or skills were included here. Senior called this class of production "personal changes" or "services".[296] This was also almost exactly the list of professions that Smith had considered unproductive.

This class of production, where the main business of the producer was to operate on himself, comprised to some degree all professions, but especially those in the service of the state. Also those professions, which only indirectly participated in production, by ordering or superintending, were classed as service producers, which meant that all the higher departments of every form of industrial production were also about providing services.[297] This was not far from J. B. Say's view that the *savant* (by providing the knowledge for business enterprises), and the *entrepreneur* (by providing the organization and management), were similar knowledge intensive professions.[298]

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293 *Ibid.*, 14. This is similar to what Paul Romer has called the micro-foundation of human capital: "Human capital is stored as neural connections in a brain. For instance, when a person reads from a book how to use a 3-4-5 triangle to construct a right angle using only a measuring rod, this information is stored in a set of neural connections in his/her brain. These neural connections increase the productivity of this person as a carpenter. To get empirical proxies for human capital, we measure the time someone spends reading or this increase in productivity, as reflected in the carpenter's higher wage." Paul M. Romer, "Human Capital and Knowledge," *Paul Romer's Blog*, http://paulromer.net/human-capital-and-knowledge/ (accessed October 7, 2015.

294 See section 3.2.4 on Henri Storch.

295 Nassau W. Senior, *A Lecture on the Production of Wealth* (Oxford: Oxford University, 1847), 14.

296 *Ibid.*, 14-15.

297 *Ibid.*, 17-18.

298 See section 3.2.3 on J. B. Say.

2.2.5.2 Senior's Immaterial, Personal, and Moral Capital

Senior's views on capital are being discussed here based on what he published in *An Outline of the Science of Political Economy* in 1836.[299] Senior understood that it was possible to indefinitely increase the powers of labor and of other wealth-producing instruments by using their products as the means of then further production.[300] But this required "abstinence", his addition to the traditional instruments of production – labor, land, and capital – although Senior called land "natural agents" so that it was less exclusive than might otherwise have seemed. However, this was not the same reason that he focused on abstinence rather than capital. Senior noted that capital had been defined in so many ways that it was clear that it had no commonly accepted meaning, and yet economists, when not reminded too precisely of their definitions, could usually agree that capital meant an "article of wealth, the result of human exertion, employed in the production or distribution of wealth."[301] But it was clear that this human exertion should exclude natural agents, which afforded not profit but rent.

Senior saw it evident that defined like this, capital was not simply a productive instrument but in most cases a result of all three productive instruments combined. Some natural agent had provided the material, some delay of enjoyment, i.e., abstinence, had preserved it from being unproductively used, and some labor had been employed to prepare and preserve it. Abstinence was thus "that agent, distinct from labour and the agency of nature, the concurrence of which is necessary to the existence of capital, and which stands in the same relation to profit as labour does to wages."[302] Although Senior admitted the word abstinence was used here more broadly than usual, it was nevertheless better than the 'providence' or 'frugality' he had tried earlier, which did not convey the sacrifice made when labor was used to ensure it, and also providence had no connection with profit, while the latter necessarily implied labor. Although some labor almost always accompanied abstinence, the instruments of production could more or less be kept separate for analysis. Senior also noted that while it was possible to see pure abstinence as a mere negation, thus not capable of producing any positive effects, as some French criticisms had suggested,[303] he countered that similarly pure liberty or extreme risk-taking had its negative consequences. Indeed, in his opinion, abstaining from enjoyment as far as it was in ones own power, or seeking distant rather than immediate results was one of the most painful exertions of the human will. Less civilized nations and the worst educated amongst all the different classes of those nations were

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299 First published in *Encyclopedia Metropolitana*. A separate book was published in 1836 as: Nassau W. Senior, *An Outline of the Science of Political Economy* (London: W. Clowes and sons, 1836). Here is also used the fourth edition: Nassau W. Senior, *Political Economy*, 4 ed., Encyclopædia Metropolitana (London, Glasgow: Richard Griffin & Co, 1858).

300 Nassau W. Senior, *An Outline of the Science of Political Economy* (London: W. Clowes and sons, 1836), 139.

301 *Ibid.*, 153.

302 *Ibid.*

303 For example Pellegrino Rossi was very critical of the abstinence school of capital, see section 3.2.12 on Rossi.

always the most improvident, after all, Senior reasoned.[304] To create capital, therefore, required a combination of labor, abstinence, and the agency of nature. The requirement of abstinence created an interesting twist in so far as it was the determining factor in making the income from an item of wealth profit as opposed to rent. Revenue from capital that was the result of person's own exertions and abstinence was profit, whereas if the same revenue was inherited it was simply rent.[305] What is particularly interesting for us here, is that Senior applied the same framework to abilities that were learned, over those that were inherited or naturally endowed talent.

Senior saw eight different modes in which capital could be employed, but there is no reason to repeat them here. In his example of a wine retailer though, Senior mentioned some of these uses of capital. One was the retailer's knowledge, which he had acquired when learning about his business,[306] another involved discussing at length the differences between Smith, Ricardo, Malthus, and Mill in their definitions of fixed and circulating capital (of limited interest to us here). But when he returned to Smith, Senior did note that it was difficult to understand why Smith had laid so much importance on the durability and perishability of goods when it had nothing to do with whether an object was capital or not. He pointed out that even the gas that lights a factory perishes the moment it burns in the lamp and yet is used productively, whereas the family jewels of the nobility, not capital in Smith's framework, were there forever.[307]

In a chapter explaining what determined the extent of the wage fund for the maintenance of labor, Senior mentioned the ways in which the productivity of labor was inextricably caught up with trade concerns. The first factors in the productivity of labor were the diligence, skill, and strength of the worker's body and mind. But these were then dependent of various other factors – some known and some unknown. Senior mentioned race, climate, religion, education, government, and even the average age as well as the duration of life of the working population.[308]

If labor was generally required to use material capital, then it was universally required to use intangible capital (consisting of appropriate knowledge, moral and intellectual habits, and reputation). This capital might be created and kept up at greater expense, but it also brought greater returns than material capital. The impossibility of perfectly transferring or implanting one man's ability to another meant that it could never be productive, as such, except through the labor of its possessor. Senior was thus separating the profit of such capital from wage and rent. "Wage" meant the part of remuneration equal to the "exertions and hardships" of an ordinary laborer, not provided with capital. Higher than average remuneration based on extraordinary natural talents or favorable accidents was "rent". The revenue or "profit" of intangible capital was the rev-

304 *Ibid.*
305 *Ibid.*, 182.
306 *Ibid.*, 154–156.
307 *Ibid.*, 156.
308 *Ibid.*, 202.

enue left after deducting ordinary interest on the capital (remuneration of the abstinence of the capitalist), ordinary wages (remuneration for one's labor), and any extraordinary advantages brought about by talent or luck.[309]

Senior's category of extraordinary natural talents or favorable accidents in fact allows us to take into account how socioeconomic background and hereditary traits can influence income formation. Above average intelligence, strength, or endurance or some other at least partly inherited traits can boost earning power and indeed a high socioeconomic background certainly gives a person a head start compared to others. It is a different matter, however, whether one should differentiate between inherited and acquired abilities when such beneficial abilities are discussed as capital. The fact that Senior even considered it possible is interesting, because as we shall see later, towards the end of the 19th century the idea that knowledge and skills should or could not be abstracted from a person possessing them became more common. This view, held for instance by Walras, Pareto, and Fisher may have been influenced by Darwinist notions of heredity and evolution. For example, Fisher dedicated *The Nature of Income and Capital* (1906) to his professor at Yale, William Graham Sumner, who was the first to run a course of sociology in the English speaking world, arguing that inherited economic wealth was justified by inherited biological traits. He argued that parents hand down to their children all which they had themselves inherited from their ancestors and ought to increasingly hand down. Inherited traits, parental affection, and ways to increase material means were not only the ways that humans kept up and advanced in the race with nature, but especially in the race with each other.[310]

When discussing transfer of capital from one use to another, Senior saw a difference between general and specific human capital, or what he often called mental capital.

> A large portion of the capital essential to production consists of buildings, machinery, and other implements, the result of much time and labour, and of little service for any except their existing purposes. A still larger portion consists of knowledge and of intellectual and bodily dexterity, applicable only to the processes in which those qualities were originally acquired. Again, the advantage derived from any given business depends so much upon the dexterity and the good fortune with which it is managed, that few capitalists can estimate, except upon an average of some years, the amount of their own profits, and still fewer can estimate those of their neighbours.[311]

However, he put this even more clearly when discussing the inequalities of wages and profits in different countries.

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309 *Ibid.*, 183.

310 Summer made a difference between the struggle of existence (against nature) and social struggle (against other people). Olli Turunen, *Prophecies for the Fittest - Social Darwinism: Herbert Spencer, William Graham Sumner and Walter Bagehot in Comparison* (Unpublished proseminar work: University of Jyväskylä, 2004), 13, 19. William Graham Sumner, *What Social Classes Owe to Each Other* (New York: Harper & brothers, 1883).

311 Nassau W. Senior, *An Outline of the Science of Political Economy* (London: W. Clowes and sons, 1836), 171.

> There is a considerable resemblance in this respect between mental and inanimate capital. Probity, industry, judgment, elementary knowledge, and other moral and intellectual habits and acquirements to which we give the general name of a "good education," are a kind of mental raw material, of which the destination can be altered at pleasure. The peculiar knowledge and habits of a given profession are like a steam-engine or a water-mill, of comparatively small value for any but their appropriate purposes.[312]

Senior saw that mental capital was in fact more transferable than material capital, and became even more so, the more abstract that it became. For instance, the professional knowledge or dexterity of a weaver was of little use in other employments, whereas if lawyers or doctors (physicians) were prevented from continuing to practice, would find their intellectual habits of considerable advantage in any new profession. Indeed, whereas bodily labor, especially if repetitive, might often end in physical injury or "distortions of the frame", mental exertion usually just trained the mind. The more work a man's mind had done, the more he was able to do and the better he became at it.[313]

The consequences of such an understanding of mental capital and of the ways that it could increase labor productivity are also evident in what Senior had to say about population whilst at the same time addressing Malthus' concerns.

> It is obvious that if capital and skill equal to those bestowed on the best parts of Flanders, or of the Scotch Lowlands, could be applied to the whole habitable world, a population ten times, perhaps one hundred times, perhaps even five hundred times as large, could be maintained, as well, perhaps far better, than the one thousand millions now supposed to exist on its surface."[314]

But Senior was not thinking like this because of any naïvety or lack of knowledge of the situation of the poor. Already in *An Introductory Lecture on Political Economy* (1827), in which he described the problematic situation of the workers, he had argued that the powers of labor and other wealth-producing instruments could be indefinitely increased by using their products as the means of further production.[315]

2.2.6 Henry Charles Carey

It was not long before the theory of intangible capital crossed the Atlantic. Henry Charles Carey (1793–1879) is often called the founder of the American School of economics, which promoted government intervention – denounced by many classical economists. Such intervention consisted of protecting industry with tariffs, government infrastructure investments, and banking policies targeted at productive enterprises promoting the self-sufficiency and economic independence of the US. Although very influential in promoting these tariff policies, it

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312 *Ibid.*, 221.
313 *Ibid.*
314 *Ibid.*, 145.
315 Nassau William Senior, *An Introductory Lecture on Political Economy, Delivered Before the University of Oxford, on the 6th of December, 1826.* (London: J. Mawman, 1827), 35.

has been argued that Carey's influence on economic analysis in the US remained limited because his emancipation from the classical English school was simply a return to the French.[316]

In his first work, *Essay on the Rate of Wages* (1835) Carey was not yet very explicit about the idea of human capital, although it was evident that he had read European authors such as Say and McCulloch on the issue. Carey noted, however, that there were daily instances of the fact that in any business, a skill was equivalent to capital. Furthermore, along the same lines, Carey rejected the wage-fund doctrine of the classical school.

> […] *where wages are highest, there capital increases most rapidly.* The most rapid increase of capital is in the US and Great Britain, where wages are highest. This is entirely in opposition to the doctrines of Messrs. Say, Malthus, Ricardo, and M'Culloch, as, if wages did not exceed "the limit of strict necessity," there could be no accumulation from that source, and as, according to them, where wages are high profits must be low, there could be little expectation from *them*.[317]

Furthermore, Carey noted that although McCulloch claimed that real wages had fallen in Great Britain within the last fifty years, the tables in McCulloch's own *Commercial Dictionary* showed that real wages, understood as the quantity and quality of commodities attainable by the laborer, had steadily increased. This had happened despite the immense increase in population and superabundance of labor.[318]

2.2.6.1 Carey and Senior's Concepts

In his three-volume *Principles of Political Economy* (1837–1840)[319] Carey showed explicitly how the works of Senior had affected his thought, quoting whole paragraphs at length in which Senior discussed intangible capital as appropriate knowledge, moral and intellectual habits, and reputation. He also followed Senior in abandoning Smith's idea that producers of services and intangible goods were unproductive.[320] He defended his lengthy quotes by noting that Senior's account of wages and profits differed so much from previous writers (Malthus, Mill, McCulloch) that the reader should see them in full to understand what could be advanced in support of them. Carey also quoted the paragraphs where Senior explained how one part of the laborer's income was wage for work done,

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316 Ernest Teilhac and E. A. J. Johnson, *Pioneers of American Economic Thought in the Nineteenth Century* (New York: The Macmillan Company, 1936), 56.

317 Henry Charles Carey, *Essay on the Rate of Wages* (Philadelphia: Carey, Lea & Blanchard, 1835), 23-24.

318 *Ibid.*, 23-25.

319 Henry Charles Carey, *Principles of Political Economy. First Part: The Laws of the Production and Distribution of Wealth*, vol. 1/3 (Philadelphia: Carey, Lea & Blanchard, 1837); Henry Charles Carey, *Principles of Political Economy. Second Part: The Causes Which Reaterd Increase in the Production of Wealth and Improvement in the Physical and Moral Condition of Man*, vol. 2/3 (Philadelphia: Carey, Lea & Blanchard, 1838); Henry Charles Carey, *Principles of Political Economy. Third and Fourth Parts: The Causes Which Reaterd Increase in the Number of Men & the Causes Which Retard Improvement in the Political Condition of Man*, vol. 3/3 (Philadelphia: Carey, Lea & Blanchard, 1840).

320 Henry Charles Carey, *Principles of Political Economy. First Part: The Laws of the Production and Distribution of Wealth*, vol. 1/3 (Philadelphia: Carey, Lea & Blanchard, 1837), 3.

one part was profit for the previous investment in intellectual capital, and a further part could be rent due to good fortune.[321]

However, despite emphasizing skill, talent, and knowledge everywhere, Carey did not endorse Senior's approach to dividing the income of a laborer in such detail, because it would produce "a degree of complication that could never be surmounted by the student." Carey also claimed that Senior classed all compensation of a laborer that was above average to his fortuitous category of rent, whereas Senior did no such thing. It is as if Carey had purposefully neglected to read the very last sentence from this paragraph of Senior.

> According to our nomenclature (and indeed according to that of Smith, if the produce of capital is to be termed profit) a very small portion of the earnings of the lawyer or of the physician can be called wages. Forty pounds a year would probably pay all the labour that either of them undergoes, in order to make, we will say, £4000 a year. Of the remaining £3960, probably £3000 may in each case be considered as rent, as the result of extra ordinary talent or good fortune. The rest is profit on their respective capitals; capitals partly consisting of knowledge, and of moral and intellectual habits acquired by much previous expense and labour, and partly of connection and reputation acquired during years of probation while their fees were inadequate to their support.[322]

Senior was saying that only about 1% of the income of a successful doctor or lawyer was due to labor, 75% was based on rent (i.e., extraordinary talent or good fortune), the final 24% was based on his definition of capital – that is, knowledge plus any moral and intellectual habits acquired. One may of course question these proportions, but Senior was writing here about quite successful people it seems, since according to Porter, common laborers made about 3s. 9d. a day (six days a week) in London during the 1860s, meaning an annual income of about £50, whereas an engineer could expect an annual income of about £110.[323] Therefore, Senior's estimate of the average wage of unskilled labor is probably not that far off the mark. Furthermore, although more liberal than many countries at the time, Senior's Britain was not yet, nor is it now, a country where everyone could just walk in to study medicine or law. Therefore the fact that one had been able to study either medicine or law can indeed be considered fortune in itself within such a class-ridden society. The share of the revenue from the last part, i.e., profit from intangible capital, Senior considered to be constantly rising in proportion to wages, because as civilization advanced, every person would receive "an education which will materially increase his power of production."[324]

Nevertheless, Carey wanted to emphasize industriousness and ordinary talent as the sources of success instead of rents brought about through luck, which he thought Senior was emphasizing. He also took Senior's nomenclature

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321 *Ibid.*, 328-333.

322 Nassau W. Senior, *An Outline of the Science of Political Economy* (London: W. Clowes and sons, 1836), 184.

323 Dale H. Porter, *The Thames Embankment: Environment, Technology, and Society in Victorian London* (Akron, Ohio: University of Akron Press, 1998), 176.

324 Nassau W. Senior, *An Outline of the Science of Political Economy* (London: W. Clowes and sons, 1836), 184.

quite seriously in the sense that he thought that if such strokes of luck could be called rent, then it would make "the science still more complicated than it has heretofore been, which is certainly greatly to be deprecated."[325] As we saw above, he thought that the division of a laborer or professional's income into wage, profit, and rent complicated things too much, and thus the income received from skill, knowledge, and industriousness combined should still be called a wage.

> The bill-broker is possessed of knowledge, industry, and skill, and the compensation he receives is the reward of those qualities, aided by a certain amount of capital. The revenue that that capital would produce him without personal attention is the profit upon it, while the remainder constitutes his wages, or the reward of his services in its management.[326]

Therefore, Carey accepted and endorsed the importance Senior had laid on knowledge, industry, and skill and their effect on wages, but he thought that Senior's novel use of terms to analyze the components of wages would complicate matters, quadrupling "the difficulty of mastering the science." Profits were thus more straightforwardly the compensation received for the use of capital, the accumulated labor of the past; while wages were obtained by present labor, and were the reward of time, attention, talent, and often of the sacrifice of convenience, and even of health. Profit was paid for the aid of things, and wages for the services of men.[327] Carey was also critical of Senior's abstinence theory, because capital was still a different thing from abstinence even if abstinence was one of the ways to accumulate capital. In fact, Carey argued that since temperance of the laborer played a big role in making labor possible, then Senior's logic would similarly require us to call labor 'temperance', even though it was just one part of it.[328]

Carey also abandoned Smith's division of capital into fixed and circulating capital, and followed Jean-Baptiste Say in stating that what was important was the amount of disposable capital available and that only disposable capital influenced the rate of interest; but then he went on to say that in fact *all* capital was disposable if the price was right, so the debate of classical authors about whether houses or machines or tools were fixed or circulating was futile. All capital was subject to the same laws, and it was unimportant in what form it was accumulated, because we could trust that every man would strive to have it in the form best able to help him to improve his condition.[329]

Carey handled his discussion of how capital helped labor in production, i.e., through use of implements and division of labor, mostly by quoting Senior at length, as it was "so well stated", although Carey commented on the places where he disagreed. The thrust of Senior's argument was that the use of tools

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325 Henry Charles Carey, *Principles of Political Economy. First Part: The Laws of the Production and Distribution of Wealth*, vol. 1/3 (Philadelphia: Carey, Lea & Blanchard, 1837), 333–334.
326 *Ibid.*, 334.
327 *Ibid.*, 336.
328 *Ibid.*, 302.
329 *Ibid.*, 302–306.

and the division of labor acted and reacted to each other in a way that made separation of their effects difficult in practice, but the consequence nevertheless was that:

> [e]very great mechanical invention is followed by an increased division of labour, and every increased division of labour produces new inventions in mechanism.[330]

One place where Carey disagreed was when Senior argued that in addition to climate, China had the advantage of low wages in tea production. The wages of labor were so low in China that they added little to the cost of the tea, whereas in England the expenses would be intolerable. Senior claimed that when a nation, in which the powers of production, and consequently the wages of labor, are high, employs its own members in work that could be as effectively performed by the less valuable labor of "less civilized" nations, it was guilty of the same mistake as a farmer plowing with a race-horse. Carey, a future proponent of tariffs and government intervention to promote domestic production and national self-sufficiency, argued that the *only* advantage China had in tea production was climate, and that the low wages were just a sign that labor unassisted by capital was unproductive or of inferior quality. Were the Britons to have the climate of China, they would produce tea just as efficiently as they now produced cotton goods.[331]

Later, in perhaps his best-known work *The Harmony of Interests* (1851), a tract defending tariffs and protectionist policies for the US, he harnessed his interest towards the intellectual and moral development of his countrymen for the cause of protectionism.

> The English school of political economy treats man as a mere machine, placed on the earth for the purpose of producing food, cloth, iron, pins, or needles, and takes no account of him as a being capable of intellectual and moral improvement. It looks for physical power in connection with ignorance and immorality, and the result is disappointment. The workman of this country is infinitely the superior of the workman of Manchester, and the reason is, that he is not treated as a mere machine. The object of what is called free trade is to degrade the one to the level of the other.[332]

The point of protectionism in this respect was to enable the poor artisans of Manchester, Leeds, Birmingham, or Sheffield to emigrate to a country where they were not treated like machines, where they could get newspapers and books, and where they could get their children educated.[333]

2.2.6.2 Intellectual Capital and Population

When writing about the efficiency and quality of labor, Carey mostly used the term "intellectual capital" for investments in education, skill, and health that

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330 Senior quoted by Carey: *Ibid.*, 311.
331 *Ibid.*, 315.
332 Henry Charles Carey, *The Harmony of Interests, Agricultural, Manufacturing, and Commercial* (Philadelphia: J. S. Skinner, 1851), 210–211.
333 *Ibid.*, 211.

enhanced productivity.[334] In many sections, Carey emphasized the importance of a growing and youthful population. He wrote that although an increase in intellectual capital diminished the need for severe bodily labor, and therefore the aged could still contribute to production, the same intellectual capital, or "high moral, physical, and intellectual condition," also had the consequence of rapidly increasing the population, which further increased the productive power of a nation as the ratio of young to old increased. He then compared the US, England, the Netherlands, and France in terms of eight variables that could influence population. These were security, duration of life, population growth, marriages, fecundity, morality, emigration, and efficiency of labor. In this table, the US was number one in all eight. These were also at the heart of Carey's argument against Malthus' population mechanism. Instead of focusing on policies limiting population, increasing the level of all the said variables were the goal of proper economic policies.

> Where person and property are most secure, production will be greatest, and the physical and moral condition of man will be highest; there will he be most disposed to contract matrimony, and there will the fecundity of marriages be greatest; there the unmarried adults will be in smallest ratio to the married, and the proportion of illegitimate children will be smallest; and there will the duration of life be longest.[335]

Instead of being a sign of impending doom, the increasing population was for Carey a measure of production and of the power of improving moral and physical conditions.[336]

Carey saw that the rewards of intellectual capital followed similar patterns as those of capital in general. As material capital increased, the *proportion* taken by the capitalist was constantly diminishing, yet his absolute reward kept growing. Similarly a mechanic, carpenter, bricklayer, or an author with intellectual capital in skills and knowledge had a hard time in a small market to obtain the required means of subsistence, but were the mechanic to move to a large town or city, he could use his skill and knowledge to employ 30 or 50 workmen under him, and make a fortune by taking only a small percentage of the proceeds. A small slice of the proceeds of a work of art published in a large market like London would pay the author much better than a large share of the proceeds in Boston or an even larger share in Cincinnati.[337]

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334 Henry Charles Carey, *Principles of Political Economy. Second Part: The Causes Which Reaterd Increase in the Production of Wealth and Improvement in the Physical and Moral Condition of Man*, vol. 2/3 (Philadelphia: Carey, Lea & Blanchard, 1838), 266-268; Henry Charles Carey, *Principles of Political Economy. Third and Fourth Parts: The Causes Which Reaterd Increase in the Number of Men & the Causes Which Retard Improvement in the Political Condition of Man*, vol. 3/3 (Philadelphia: Carey, Lea & Blanchard, 1840), 46, 106.

335 *Ibid.*, 47.

336 *Ibid.*, 50.

337 Henry Charles Carey, *Principles of Political Economy. Second Part: The Causes Which Reaterd Increase in the Production of Wealth and Improvement in the Physical and Moral Condition of Man*, vol. 2/3 (Philadelphia: Carey, Lea & Blanchard, 1838), 268-269.

Also in his three-volume *Principles of Social Science* (1858–1859)[338] Carey kept challenging Malthus and Ricardo's doctrine, and one of his lines of argument rested on the creative power of human faculties and intellectual capital. Similarly, like many French authors of the time, Carey showed how productivity growth would benefit both the capitalist and laborer. The logic of this argument, presented in an agricultural context, was as follows. In an early farming society where land was abundant and labor unproductive, the capitalist or landowner took a large proportion of the small product; but even this larger proportion yielded so little that both were poor, and the laborer was so poor as to be considered a mere slave to the landowner. As labor productivity increased, the landowner's share diminished in proportion but increased in amount, while the laborer's share increased both in proportion *and* amount. The laborer's share of the increased quantity also increased faster the more rapid the increase in productivity was. Thereby the interests of both were in "perfect harmony", and there was thus a constant tendency towards an equilibrium in conditions – it also conveniently explained the slave of the early period becoming the free man of the later one.[339] This perfect harmony argument had also featured earlier in *Principles of Political Economy*,[340] but the harmony of interests did not mean that prosperity would automatically follow. It required freedom, good governance, and the taming of self-interest through government intervention where necessary.

Carey considered his argument to be in direct opposition to what Malthus and Ricardo had presented, and that it showed the

> […] distinct expression of a mathematical relation between the concomitant variations of power of man and matter — of the man representing only his own faculties, and of the man representing the accumulated results of human faculties upon matter and its forces.[341]

The problem of social science and also the one Malthus and Ricardo attempted to solve was to find out exactly how mankind related to the outside material world. Carey's point was that these *relations change*. In some countries the men were becoming more and more the masters and in others the slaves of nature. How these changes produced further changes within and influenced changes outside was a question requiring a mathematical answer. Although Carey thought the answer to reside in productivity and the harmony of interests, before that mathematical answer could be provided, political economy had the same relation to social science that the observations of the Chaldean shepherds bore to modern astronomy. Until then, he argued, "[s]ocial science can scarcely be said to have an existence." Physical, chemical, and physiological knowledge

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338 Henry Charles Carey, *Principles of Social Science. Vol. I.*, vol. 1/3 (Philadelphia: J. B. Lippincott & co., 1858).

339 *Ibid.*, 34.

340 Henry Charles Carey, *Principles of Political Economy. First Part: The Laws of the Production and Distribution of Wealth*, vol. 1/3 (Philadelphia: Carey, Lea & Blanchard, 1837), 142.

341 Henry Charles Carey, *Principles of Social Science. Vol. I.*, vol. 1/3 (Philadelphia: J. B. Lippincott & co., 1858), 34.

were required to learn how man could become better equipped to obtain command over the various forces provided for his use, and for social science to be a science, universal rules governing the interplay of men and nature were to be established.[342] Carey's political economy as a social science was thus very much about increasing the overall productive capability of human society in general and with the help of intellectual and moral improvement.

2.2.7 Henry Vethake

Another early American proponent of intangible human capital theory was Henry Vethake (1790–1866). He was a graduate of Columbia University (1808) and served as professor of mathematics and later as provost and professor of moral philosophy at the University of Pennsylvania. What makes his contribution in *The Principles of Political Economy* (1838) interesting, is that he presented what he felt was the "bold innovation" to comprehend intangible or intellectual products similarly as a form of material wealth and as capital in its own right,[343] although we have seen that this was not altogether a foreign idea to English language authors, and will see later had actually been around for about three to four decades earlier in French tracts of political economy. In *The Principles* he opposed limits to working times and established his concept of diminishing returns to production. He was also among the editors of *Encyclopedia Americana.*

2.2.7.1 Vethake's "Bold Innovation"

Vethake defined wealth based on its utility, although as its exchange value was based on utility, and exchange value was usually estimated in money, it was possible to see it as all material or intangible things that had an exchange value. He excluded human labor from this definition when it was understood as strictly labor; but the services and products of labor were wealth. Wealth thus had to be of utility, which meant it could be appropriated, and its supply could not be limitless.[344] Wealth became capital when it was saved to produce further wealth. Yet, the speed or slowness of its consumption bore no relation on whether or not it was capital; its appropriation to create further wealth was the crux.[345] In this way, intangible products could be saved just like material products and become a portion of capital. Therefore, producing intangible goods could mean accumulating capital "in the proper sense of the word."[346]

Vethake argued that the only way in which the productive and unproductive labor dichotomy made sense was when wealth was defined as material objects. However, even those who held such view had to admit that those in "unproductive" professions often made good money and that the tasks they filled were important, even if they had an indirect impact on production. The whole

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342 *Ibid.*, 34–35.
343 Henry Vethake, *The Principles of Political Economy* (Philadelphia: P.H. Nicklin & T. Johnson, 1838), vii.
344 *Ibid.*, 22.
345 *Ibid.*, 27.
346 *Ibid.*, 28.

issue of having to point to people earning a good income, of having important tasks to fulfill, and having a clear if indirect role in the production process of material goods followed simply because wealth had been defined as material objects.[347]

If the definition of wealth was instead based on the utility of objects in question and the artificial requirement of materiality was removed, the whole problem disappeared altogether. Productivity would then be an issue only when too much labor was used than required to produce certain commodities or services, or when production exceeded demand of the product on the market. In this framework part of the labor which, in the abstract, was employed could now be seen as unproductive, but Vethake understood enough about marginal costs to argue that professions were not categorically productive or unproductive.[348]

2.2.7.2 Education as Intellectual Product

Vethake thus considered intangible or intellectual products as both wealth and capital, emphasizing the importance of education and the diffusion of knowledge. In his discussion of wages he presented the usual argument that the costs of education and training would be compensated for by future wages. But he also discussed the way education should be able to raise productivity and, in line with his contemporaries, how moral and religious aspects had a major role to play in this. Vethake argued that unlike with material wealth, people did not themselves understand what intellectual goods they needed. This meant that people or students in general are not very good judges of precisely what they should be learning and internalizing. Therefore, there was a necessary top-down direction from the more enlightened portion of society to diffuse the blessings of education, morals, and religion, and this was particularly pressing in countries where nearly every adult male could now vote.[349]

Although Vethake left it to the reader to decide how government could improve public morals; when it came to education he argued for public investment in schools as well as expanding the college and seminar system so that also able people but from modest backgrounds could attend.

> Other circumstances being the same, the people generally will be benefited by the existence in a country of a greater number of highly educated men, than would exist in it were education of the higher order to be left to be taken care of by the wealthier portion of the community merely. A taste for knowledge will then be more surely, as well as more rapidly, diffused through the successive gradations of society, down to the most ignorant; and the consequence cannot fail to be to elevate the character of the labourer, and thereby to augment his command over the necessaries and luxuries of life. This last effect, moreover, will result from the influence of an augmented degree of knowledge in accelerating the progress of improvement in the various arts."[350]

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347 *Ibid.*, 36-37.
348 *Ibid.*, 37.
349 *Ibid.*, 317-318.
350 *Ibid.*, 320.

With arts Vethake meant *useful* arts, which actually meant useful professions, although he did not like that name because he also found the *fine arts* useful. Promotion of science and literature were also to be encouraged with "higher seminaries" of learning.[351]

All in all, Vethake argued that from the principles of political economy, there was no better method to promote the physical well-being of a people than to diffuse the blessings of education, morals, and religion among them as extensively as possible. By adopting the intangible capital framework presented much earlier, for example, by J.-B. Say and Storch, in which goods were evaluated based on their utility not materiality, he was able to argue that service producers and producers of intellectual goods, such as education or governance, were also productive, and that the whole dichotomy of productive and unproductive labor derived from Smith should be scrapped.

2.3 Intangible Capital Sidelined

2.3.1 David Ricardo

Ricardo's (1772–1823) 'labor theory of value' not only stifled classical economic thinking and led Marx astray in his analysis; but it was also already used during Ricardo's lifetime by English socialists as an ideological weapon against landlords. But during the decades after Ricardo's death, historians of economic thought from socialist countries could see more than mere intellectual and scholarly reasons for abandoning the Ricardian labour theory of value, since because it considered labor as the sole basis and source of value, the theory was becoming more dangerous to the bourgeoisie. In this kind of interpretation, the emergence of subjective economics "was the logical consequence of the development of a trend of ideas reflecting the sharpening of class struggle."[352]

In addition to the problems that his labor theory of value caused for his own analysis, the following quote from Ricardo also shows how it detached the concept of value from what we usually understand it to mean.

> Value, then, essentially differs from riches, for value depends not on abundance, but on the difficulty or facility of production. The labour of a million of men in manufactures, will always produce the same value, but will not always produce the same riches. By the invention of machinery, by improvements in skill, by a better division of labour, or by the discovery of new markets, where more advantageous exchanges may be made, a million of men may produce double, or treble the amount of riches, of "necessaries, conveniences, and amusements," in one state of society, that they could produce in another, but they will not on that account add any thing to value; for every thing rises or falls in value, in proportion to the facility or difficulty of pro-

351 *Ibid.*

352 Antal Mátyás, *History of Modern Non-Marxian Economics* (Budapest: Akadémiai Kiadó, 1980), 18.

> ducing it, or, in other words, in proportion to the quantity of labour employed on its production.[353]

Ricardo was saying then that the value of the labor input of two groups (of a million men each) was the same, even if one of the groups produced three times the amount of "necessaries, conveniences, and amusements". Therefore, as he saw labor in these bulk terms, he deemed it unimportant and unnecessary to estimate the comparative productivity and value of different kinds of labor.

> As the inquiry to which I wish to draw the reader's attention, relates to the effect of the variations in the relative value of commodities, and not in their absolute value, it will be of little importance to examine into the comparative degree of estimation in which the different kinds of human labour are held. We may fairly conclude, that whatever inequality there might originally have been in them, whatever the ingenuity, skill, or time necessary for the acquirement of one species of manual dexterity more than another, it continues nearly the same from one generation to another; or at least, that the variation is very inconsiderable from year to year, and therefore, can have little effect, for short periods, on the relative value of commodities.[354]

In Ricardian terms then, the value of agricultural production had plummeted during the last two centuries, even though productivity had been continuously rising. He was not interested in the qualities of labor (skill, ingenuity, time required to acquire them) that were enabling this increased production with less labor input than before. Ricardo judged that the political economy should only be concerned with material products and was followed in this by Thomas Malthus and James Mill.[355]

Perhaps one of the best put-downs of the labor theory of value – which must also illustrate why human capital and its derivatives proved impossible to incorporate within a Marxist framework – was written by Joan Robinson in her *Economic Philosophy* (1962). She claims that Smith's simple invented story quoted below (Robinson calls it a myth), of two hunters living in a rude state of society, without division of labor, actually became the focus of a lifelong project for Ricardo and then, in turn, the basis of Marx's theory of value.

> If among a nation of hunters, for example, it usually costs twice the labour to kill a beaver which it does to kill a deer, one beaver should naturally exchange for or be worth two deer. It is natural that what is usually the produce of two days' or two hours' labour, should be worth double of what is usually the produce of one day's or one hour's labour […][356]

Robinson noted that Smith's story had no historical or analytical basis; it was derived from moral preconceptions, i.e., how things ought to have been. Furthermore, Smith contradicted himself by writing in a later chapter that there

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353 David Ricardo, *On the Principles of Political Economy and Taxation*, 3 ed. (London: John Murray, 1821), 20.2.

354 *Ibid.*, 1.27.

355 Henry Dunning Macleod, *A Dictionary of Political Economy* (London: Longman, 1863), 332.

356 Adam Smith, *An Inquiry Into the Nature and Causes of the Wealth of Nations*, ed. Edwin Cannan, 5 ed. (London: Methuen & Co., 1904), Book I, Chapter VI. Also cited by Robinson Joan Robinson, *Economic Philosophy* (Chicago: Aldine Pub. Co., 1962), 29-30.

was no trade in such a society without specialization, so there was no need for normal price ratio.[357] As for Ricardo, he was originally interested in the distribution of the produce of the earth between classes within the community (land owners, capitalists, laborers), but was held up by the need to measure the total of what was to be distributed as the fruits of production. He tried to use labor time but was never satisfied with it. Robinson noted that if one cannot get an answer, there might be something wrong with the question. For Ricardo the problem was that he tried to achieve a universal measure in the same way as length or weight, but unlike the social and economic value of goods, these refer to the physical non-human world. Robinson argued that there could never be a universal measure of income that had the same meaning for everyone, that could mean same thing in different times, or even within different economic systems.[358] Later both J. K. Rodbertus and Karl Marx claimed Ricardo's authority for the argument that the natural value of things consisted solely of the labor spent on them.[359] This led to them treating labor as a bulk entity, which was in stark contrast to those who saw individuals and their social organization as indefinitely perfectible.

2.3.2 Thomas Malthus

Malthus, in his *Definitions of Political Economy* (1827), while knocking McCulloch's definitions, made it clear what he thought of any attempts to include the intangible in the concepts of wealth or capital. He stated that any science required definite and appropriate terms, which was why the main object of scientists was to look for characteristic differences, not partial resemblances. Malthus thought that McCulloch was only looking for the latter and was thus confounding material with intangible objects, productive with unproductive labor, capital with revenue, the nutrition of a laborer with the laborer himself, production with consumption, and labor with profits.[360] Malthus claimed that if one were to agree with McCulloch's earlier argument that good health, civil liberty, or the availability of theater performances were forms of wealth, then the science of wealth would have to comprehend the sciences of medicine, politics, and histrionic art.[361] But it did not seem to occur to him that with the same logic, political economy would just as equally have to comprehend all the sciences required in the production of material goods. It seems it was McCulloch's material definition that had particularly got him into trouble, because he had excluded the productive labor for some gratifications from wealth, and so later he had to change his definition of wealth to include services.[362]

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357 *Ibid.*, 30-32.
358 *Ibid.*, 34.
359 Alfred Marshall, *Principles of Economics*, 8th ed. (London and New York: Macmillan and co., 1920), 816.
360 Thomas Robert Malthus, *Definitions in Political Economy* (London: John Murray, 1827), 67-70.
361 *Ibid.*, 70-72.
362 *Ibid.*, 73.

Malthus ended up with a wholly material definition of wealth, and therefore had to present the usual detours. Because other things than material objects could be necessary, useful, or agreeable to man, he stated in his definition of utility "all that is useful is not necessarily wealth." Value he divided into value in use, which was synonymous to utility, and value in exchange. The latter was not confined to material objects, and was more dependent on scarcity and difficulty of production. As production was about production of material goods and capital was the proportion of the material goods forming the stock of wealth that was destined to further production or distribution, Malthus had terminology in place according to which production of services and intangible products that are of utility and have exchange value does not produce wealth, and in fact cannot even be called production.[363]

Earlier, in the *Principles of Political Economy* (1821), he wrote that the definitions of *wealth* and *productive labor* were so important that the merits of the systems of "the Economists" (meaning the French physiocrats) and Adam Smith depended mainly on their different definitions of these two concepts. If Adam Smith had given the correct definition of wealth and productive labor, his system would certainly be superior. In Malthus' opinion, the physiocrats had defined wealth too narrowly in terms of land-derived produce, whereas others, like Lauderdale, had defined it too broadly – if all that man desired as useful and delightful was wealth, then the object of wealth could be tangible or intangible. Note that Malthus saw definitions of wealth and the demarcation point between productive and unproductive labor as crucial questions for economic theory. More than eighty years later, Irving Fisher expressed his frustration over the fact that the profession had spent 150 years getting nowhere trying to define capital and wealth and various kinds of profession in terms of productive and unproductive labor.[364]

Malthus' exclusion of intangible capital and goods did not go unchallenged among economists, and on the pages of *The New Monthly Magazine* in 1820 none other than J. B. Say (see 3.2.3 below) showed just how restrictive Malthus' concepts were. To his assertion that there is no such thing as intangible produce, Say answered that originally there had been no other. Say saw that the services rendered by industry and capital were almost always intangible. And even a field left nothing material of itself in its produce. A workman came out of the factory at night "with as many fingers as he had carried into it in the morning"; and the worker left nothing material in the workshop, so surely it was an intangible service that he had contributed towards the productive operation. This service was what Say saw as the daily or annual produce of workers' "industrious faculties", and it constituted the worker's wealth. Following Sismondi, Say asserted that instead of consuming part of his master's capital in the form of wage, the master's capital was consumed at the workshop when the workman exchanged the value of his labor for the value of his wage. The source

363 *Ibid.*, 234–237.
364 See Fisher's quote at the end of subsection 5.2.5.5.

of the value of the workman's wage was therefore not the master's capital, but what his industrious faculties could produce.[365]

James Grahame had also directly challenged Malthus in 1816 in his *An Inquiry Into the Principle of Population*, arguing that skill and knowledge were "immaterial"[366] (intangible) capital. In an advanced society the rearing and education of people, especially those who would provide employment, was a serious undertaking. The kind of capital that was sunk into often more than 20 years of education (including learning the necessary skills and knowledge of business, and other indispensable qualities) was frequently more important than actual money, and "judicious parents" were well aware of this. On the level of community, this species of intangible capital enabled the extension of production in magnitude as well as in products that might otherwise never have originated. The further advantage of such capital, in addition to skill was that it gave better access to credit, which supposed competence and reliance in qualifications of the person borrowing.[367] Grahame also argued that in an "ordinary state of society" population increase did not directly increase the difficulties brought about by competition over scarce resources, because the same relative means of employment, or diversity of pursuits, remained. The ratio of increase could be very high, but the pursuits increased in the same proportion.[368] Furthermore, were the population to grow by 10%, they would become either masters or workers in the same proportion as the rest of the population, and with their intangible capital (i.e., skills and knowledge), the masters would manage to employ the whole of this population increase. This new class of producer did not interfere with the rest of the community, because they created demand themselves, produced articles for their own immediate consumption, and if they also produced new articles, would even add to the goods available in general, so increasing the total sum of national wealth. Furthermore, such conversion of paupers to productive laborers meant taxes could be lowered and would stimulate industry overall.[369]

Although Malthus admitted there was a small chance that moral restraint might check the pressure of population growth, he remained convinced of the strong probability that every increase in food would bring a corresponding population increase, which meant that wages, understood as food of the laborers, would remain "at one dead level", as F.W. Taussig put it. But small chance left for moral restraint was to offer Malthus an excuse, when Senior challenged him in the 1820s – maintaining that it was a historical fact that food production had grown faster than population. Malthus admitted that this might be true, but argued that he had only ever said that there was a *tendency* towards popula-

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365 Jean-Baptiste Say, "Letters to Mr. Malthus, on Several Subjects of Political Economy, and Particularly on the General Stagnation of Commerce. Letter I," *The New Monthly Magazine* 14, no. 78 (July 1, 1820), 273-274.

366 In 1816 'immaterial' did not have the overtones of irrelevant or unimportant that it does today but meant 'intangible'.

367 James Grahame, *An Inquiry Into the Principle of Population* (Edinburgh: A. Constable and company, 1816), 33.

368 *Ibid.*, 43.

369 *Ibid.*, 51.

tion pressure, so this did not question his theory as such. Nevertheless, he had managed to convince his contemporaries and a host of subsequent classical economists, including J.S. Mill right up until the 1860s that this tendency was so strong that any increase in subsistence would mean an increase in numbers. Taussig argued that this made Adam Smith's inquiry into the immediate causes determining wages seem redundant for many classical economists, because it was enough that wages were regulated by the principle of population.[370] The idea that laborers were competing for a fixed resource, in the form of the wage-fund doctrine, held sway in classical economics well into the second half of the 19th century.

2.4 Britain as a Benchmark

As we have seen, the most influential classical economists after Smith, namely Malthus and Ricardo, had no real interest in working with or developing Smith's idea of acquired abilities as capital. Instead, they came up with theories, partly built on Smith's and Cantillon's views, that hindered or at least slowed the development and reception of human or intangible capital theories. McCulloch, on the other hand, with his hasty definitions may have done more harm than good for his cause to promote the understanding of the importance of human capabilities and knowledge. Of those discussed here, Lord Lauderdale tried to show what kind of interpretations one could draw from Smith's words about the origins of the profit of capital, but that did not stop Ricardo from using much of his career in political economy trying to solve his particular puzzle concerning the labor theory of value. Lauderdale also showed how Smith's definitions of productive and unproductive labor led to absurd statements where one had to call something very important but unproductive, and claim that some of the highest-earning professionals were also unproductive. Senior also tried to show the unjustifiability of such language, and yet all this did not stop these ideas holding sway in the works of classical economists such as J.S. Mill, for instance.

At this point, a summary of the ideas from Smith, Ricardo, and Malthus that hindered the development of intangible capital theories is required.

(1) When applied in its most extreme form, as efficiency required, Smith's notion of the division of labor made workers so "stupid and ignorant",[371] that there was no point in educating them except to keep them socially well-behaved. The role of education was thus simply to ameliorate the discontent caused by the necessities of production, and to make the underprivileged understand that the redistribution of wealth would worsen rather than improve

370 F. W. Taussig, *Wages and Capital: An Examination of the Wages Fund Doctrine* (London; New York: Macmillan, 1896), 160–163.

371 Adam Smith, *An Inquiry Into the Nature and Causes of the Wealth of Nations*, ed. Edwin Cannan, 5 ed. (London: Methuen & Co., 1904), V.1.178.

their situation.[372] Educating them would not, according to Smith, bring economic benefits, but would simply make them more malleable and also give them some self-worth. Within this kind of framework, it is clear then that investments in public education with an eye to stimulating higher productivity or future gains are not really possible.

(2) Smith's materialistic definition of wealth led him to think that only an increase in the production of material goods could increase wealth. Another aspect of this was his insistence on the importance of the durability of goods. Because all kinds of intangible goods and services disappeared, according to Smith, at the point of consumption, they could not increase the national wealth. From here, he differentiated between productive and unproductive labor, and put in the latter all those professions responsible for functioning institutions of governance, security, education, science, the judiciary and religion. In Smith's language and framework, we thus have to call all investments and research in science unproductive. Furthermore, all kinds of service providers are unproductive and do not add to the wealth of a nation. This material definition of wealth was by no means the only way to think of the issue at the time and, as we shall see, Say, Storch, and Hermann (to name a few) continued to see this more broadly. In a narrower understanding of classical economics, however, Smith's definition became the accepted one.

(3) Malthusian population theory, of which the main ideas were expressed already by Cantillon in terms of land use, meant that all material improvements for the poor would only increase the population which would then lead to all the benefits of the initial improvements being used up.[373] The only way workers could improve their lot was thus by reducing their numbers, and the role of education was to enlighten workers about this, to preach restraint and order, and to thus solve social conflict through education, not simply improving productivity and wealth. Malthusian population theory, together with Ricardo's contribution discussed below, also had the unintentional effect of freeing other sections of society of having any responsibility for the fate of the industrial worker, except to provide limited educational provision supposed to make them understand the laws that were in motion, change their behavior accord-

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372 Michalina Vaughan and Margaret Scotford Archer, *Social Conflict and Educational Change in England and France, 1789–1848* (Cambridge [Eng.]: University Press, 1971), 65.

373 Malthus himself said that he derived the theory from following sources: "*The only authors from whose writings I had deduced the principle [of population], which formed the main argument of the* Essay*, were Hume, Wallace, Adam Smith and Dr. Price.*" Cited in: Joseph J. Spengler, "Adam Smith on Population Growth and Economic Development," *Population and Development Review* 2, no. 2 (1976), 167. Steaurt wrote in 1767: "It has been said, that numbers are in proportion to food; consequently, poor are in proportion to charity." James Steuart, *An Inquiry Into the Principles of Political Oeconomy: Being an Essay on the Science of Domestic Policy in Free Nations. In Which Are Particulrly Considered Population, Agriculture, Trade, Industry, Money, Coin, Interest, Circulation, Banks, Exchange, Public Credit, and Taxes.*, vol. 1/2 (London: A. Millar and T. Cadell, 1767), 93.

ingly, and to spread further the idea of moral restraint.[374] Interestingly, later economic historians have shown that the population of northwestern Europe grew only gradually between about 1500 to 1750 while the standard of living was growing at a greater rate. After that, however, the population growth accelerated, which may well have prompted Malthus to write his somewhat fearful treatise, although another reason must also have been the violent upheavals of the revolution in France. But the steady population growth for the rest of the 19th century was fueled by the technological innovations of the industrial revolution, so the economy grew in line with the population, and this clearly contradicted Malthus' pessimistic argument. Another interesting point is that by the 1870s, families in Western Europe's most advanced economic regions began to have fewer and fewer children.[375]

As we can see below, from what he wrote in his *Principles of Political Economy* (1821), Malthus was clearly against spending money on improving the lot of the working class any more than was strictly necessary.

> It is clear therefore that, with the single exception of the increased degree of prudence to be expected among the labouring classes of society from the progress of education and general improvement, which may occasion a greater consumption among the working producers, all the other tendencies are precisely in an opposite direction; and that, generally, all such increased consumption, whether desirable or not on other grounds, must always have the specific effect of preventing the wealth and population of a country under a system of private property, from being pushed so far, as it might have been, if the costs of production had not been so increased.[376]

(4) The Ricardian "iron law of wages", and the wage-fund theory that followed, certainly hindered intangible theories of capital. It emerged from the seasonal nature of agricultural production and was based on a theory of subsistence (i.e., Malthusian population theory). It posited that equilibrium exists, when the wages allow the workforce the bare essentials of food and shelter to subsist or to adjust its growth to the growth of the national economy. This meant that wages would go down, which would then limit the population growth. In the wage-fund theory, a fixed fund of previously accumulated capital replaced the idea of a stored harvest, and the size of any enterprise depended upon the invested capital plus the fund reserved for wages. This idea was aggregated to concern the whole economy, which had the same consequence, i.e., subsistence wages, as the previous agriculture-based application. The theory had numerous problems. It posited that employers advanced the workers

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374 Michalina Vaughan and Margaret Scotford Archer, *Social Conflict and Educational Change in England and France, 1789–1848* (Cambridge [Eng.]: University Press, 1971), 68.

375 Tomas Kögel and Alexia Prskawetz, "Agricultural Productivity Growth and Escape From the Malthusian Trap," *Journal of Economic Growth* 6, no. 4 (2001): 337-357; Gerard M. Koot, "Escaping From the Malthusian Population Trap in Northwestern Europe," in *The Dutch Republic and Britain: The Making of a European World Economy,* (University of Massachusetts, 2013); Nico Voigtlaender and Hans-Joachim Voth, "How the West "invented Fertility Restriction," *American Economic Review* 103, no. 6 (2013): 2227-2264.

376 T. R. Malthus, *Principles of Political Economy Considered With a View to Their Practical Application.* (Boston: Wells and Lilly, 1821), 367.

before remuneration at the end of the cycle, but similarly one could argue that the workers provided their effort before the product was ready. The second problem was that industrial production is a continuous flow rather than a series of sowings and harvests. Thirdly, it was static, because it relied on the idea of fixed capital stock rather than the continuous flow of production.[377] Despite these obvious problems, the idea of the wage-fund remained part of economic analysis for almost a century. J.S. Mill capitulated in 1869 after refutations of the theory by Longe and Thornton,[378] but the final blow to the theory came only in 1896 when Frederick Taussig's *Wages and Capital: An Examination of the Wages Fund Doctrine* was published.[379] These theories had the consequence that all expenses or wage increases to improve the situation of workers were thought to cut directly into profits or the investable capital, and (via the assumed population mechanism) into wages too – because it was thought there were more wage earners competing for a fixed resource.

(5) The "labor theory of value" based on the works of Smith, Ricardo, and James Mill were not only very problematic for the authors themselves, but it was clear that they might shake the very foundations of bourgeois order and capitalist production. Indeed, it became the basis for Marx's theory of "labor power". Marx recognized labor as the key input, and abstracted from it labor power as the source of additional value. Social corruption meant that workers no longer recognized the primacy of their labor as justification enough to have property rights. The origins of wealth in an industrial economy was the exploitation of labor on the factory floor. Marx's equivalent to Malthusian population pressure was the existence of a reserve army of unemployed that kept wages at a subsistence level, and made efforts to collectively bargain for higher wages futile. For Marx, the mental and physical abilities that some discussed as human capital were embodied in labor power, which workers sold on the labor market. As all value was derived from this labor, and all goods were some kind of human labor in the abstract, Marx saw capital as a form of dead labor, or a demon feeding off the living labor.[380] That the concept of capital turned into such a symbol of exploitation and became the basis for a whole comprehensive social theory very probably motivated economists to go back to more traditional definitions of capital in an attempt to counter these dangerous theories. Gustav von Schmoller is a good example of this (7.2.3) as is Böhm-Bawerk (7.2.4). Furthermore, since the attributes defining the force of labor were understood to be part of labor power itself (which produced the added value, and from which capital sucked its unfair share), there was no room for any separate theory of human or intabngible capital within the Marxist framework.

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377 Mark Perlman and Charles R. McCann, *The Pillars of Economic Understanding: Factors and Markets* (Ann Arbor: University of Michigan Press, 2000), 32–34, 76-80.

378 John Stuart Mill, "Thornton on Labour and Its Claims, Part I," *Fortnightly Review* 5, no. 29 (1869): 505-518. See also section 5.2.1 John Stuart Mill.

379 Mark Perlman and Charles R. McCann, *The Pillars of Economic Understanding: Factors and Markets* (Ann Arbor: University of Michigan Press, 2000), 79.

380 *Ibid.*, 35–39.

(6) The world view, or at least the chosen method of analysis for classical economics was atomistic to such an extent that it made analogies between capital and broad social aggregates or attributes much more unlikely than for instance in Germany. Smith's idea of national wealth was the sum of the private fortunes of all the members of society, and it increased when people minded their own business. Yet he chose to use the concept of capital both when writing about individual and national wealth, and according to later critics the difference between these two uses later became a curse for the whole discipline.[381] This was especially so in Germanophone lands, where organic thought had already manifested itself as a deeply entrenched reaction to the mechanism of the Enlightenment when Hegel developed his *Naturphilosophie*.[382] Many German economists were influenced by Fichte, Müller, Schelling, and Hegel, and the idea that via division of labor the national economy could form an independent integrated organism, in which the individuals were dependent and obedient members was common. In this framework, concepts such as Rodbertus' national capital, a stable form (*Gestalt*) in which things belonged to all, were possible. In 1908 Jacoby called such applications "*Sozialkapitals*"[383] and Passow's description in 1918 was "*[d]ie sogenannten volkswirtschaftlichen Kapitalbegriffe*."[384] That the chairs of national economy in Germany were usually located in the faculties of political science may also have strengthened such influences. Of course, neither the British nor the German economists were fully responsible for these currents within philosophy and science – it was more the case that they were embedded in them. Organicism, however, is probably one reason why the Germans were more keen to proclaim the state, its institutions, good governance, shared knowledge, shared mores, or world views as capital.

In addition to the factors above which might have hindered or slowed the development of human capital and intangible capital theories in British classical economics, there were of course many themes that stimulated the development of the field elsewhere, as we shall see later. One development was that Smith and his followers wriggled out of the mercantile idea of population as being national wealth, although it still lingered on during the 19th century, and made a forceful comeback in the work of Vilfredo Pareto, who wrote about population as "*capital personnel*" and the cost of producing people.[385] But another, perhaps more important development is that the idea of skills and knowledge as capital was quite fresh. It was not that common before Smith, judging from the dictionaries of the 18th century (with the notable exception of Cantillon as we saw above in 1.1). In his article *The Economics of Education in English Classical*

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381 Richard Passow, *Kapitalismus: Eine begrifflich-terminologische Studie* (Jena: Fischer, 1918), 55-57.

382 Frederick Beiser, *Hegel* (New York; London: Routledge, 2005), 82-83.

383 Walther Jacoby, *Der Streit um den Kapitalbegriff; Seine geschichtliche Entwicklung und Versuche zu seiner Lösung* (Jena: G. Fischer, 1908), 32–33.

384 "The so called national economic concepts of capital." Richard Passow, *Kapitalismus: Eine begrifflich-terminologische Studie* (Jena: Fischer, 1918), 55.

385 Vilfredo Pareto, *Cours d'économie politique professé à l'université de Lausanne. Tome premier*, vol. 1/2 (Lausanne, Paris, Leipzig: F. Rouge, Pichon, Dunker, 1896), whole first chapter.

Political Economy: A Re-Examination[386] Mark Blaug mentioned many of the views mentioned above, when explaining why classical economists failed to develop the idea of human capital that Smith had so promisingly opened up. Blaug also discussed the educational views of the classical authors in more detail than has been possible here. The core of his argument is worth restating here, however, since it gives us yet further criteria for studying what the French and Germans said about the issue.

Blaug saw that in addition to the 'social control' argument for state-subsidized education, which the classical authors did seem to hold to, Smith discussed the role of fee-paying as an incentive for teachers; the harmful effect of educational endowments for schools and universities; of creating more practical syllabi for elementary schools; and of a system of occupational licensing for manual trades. These, however, were soon forgotten, and even the issues they raised simply dropped out of English classical political economy. Similarly, although Smith hints at the concept of human capital in his chapter on relative wages (see 2.2.2.3) and this was reproduced in almost every classical text, it was never developed in any substantial way by any of Smith's disciples. Smith's hint was to suggest that the salary received for any occupation should be "in equilibrium" with "the costs of any education and training they have acquired."[387] This was not, according to Blaug, a finished piece of analysis, but just an invitation to look at the problem of skill differentials from a new angle. Fruitful theorizing would have required that the effect of such diverse phenomena as formal schooling, in-house training, medical care, migrating, and the general process of job hunting would have been understood as investments in oneself "by incurring present costs for the sake of future benefits." These purely personal investments by people in people could in some circumstances become social investments if it improved the overall quality of the labor force. One necessary condition for such a coincidence of private and social returns was an openly competitive labor market. Blaug argued that without an investigation of the economic value of education, the analysis of wage differentials remained incomplete in classical economics. In Blaug's opinion, the classical economists failed to explore the implications of a human capital view of labor supply: Smith made a start, J.S. Mill carried it on a little further, but only Marshall started to do justice to the subject. Relatively speaking, however, this was nothing more than opening the door for Becker's *Human Capital* (1964).[388] As we shall see in following chapters, many of the requirements that Blaug specified were necessary effective theorizing about human capital had actually emerged al-

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386 Here cited from Mark Blaug, "The Economics of Education in English Classical Political Economy: A Re-Examination," in *Economic History and the History of Economics,* (New York: New York University Press, 1986). First published in Mark Blaug, "The Economics of Education in English Classical Political Economy: A Re-Examination," in *Essays on Adam Smith,* ed. Andrew S. Skinner and Thomas Wilson, (Oxford: Clarendon Press, 1975).

387 Mark Blaug, "The Economics of Education in English Classical Political Economy: A Re-Examination," in *Economic History and the History of Economics,* (New York: New York University Press, 1986), 154–155.

388 *Ibid.*, 155.

ready in French and German language publications over the course of the 19th century, so much so that investments in education, and in improving the quality of the workforce were beginning to be seen as a way of actually solving the social problem presented by the wage-fund theory of classical economics, rather than worsening it.

Therefore, one can conclude that real or imagined Malthusian checks, the iron law of wages, and the labor theory of value denied the British classical economics model the means for coming up with a proper theory of endogenous and intensive growth. In this framework, a concept of intangible capital as a crucial factor in the rising tide of intensive growth that could lift all boats was not meaningful. One could argue that it was not until the 1960s that the very old idea of intangible forms of capital could show its face again. Many of the ingredients, however, were available for almost the whole of the 19th century, even if this excludes the formal methods to account for and model factors of growth, for example, in the works of Jean-Baptiste Say (1803, 1828), Henri Storch, and Adolphe Blanqui.[389]

[389] Jean-Baptiste Say, *Traité d'économie politique*, vol. 2/2 (Paris: Chez Deterveille, 1803); Jean-Baptiste Say, *Cours complet d'économie politique pratique*, vol. 1 (Paris: Rapilly, 1828); Friedrich List, *Das nationale System der Politischen Oekonomie* (Stuttgart: J.G. Cotta'scher, 1841). See section 3.2.4 on Storch and section 3.2.7 on Blanqui.

3 INTANGIBLE CAPITAL IMPROVES PRODUCTIVITY OF LABOR AND LEVEL OF TECHNOLOGY: THE FRENCH BEFORE 1848

> La plupart des hommes qui ont peu de richesses ou une accumulation de travail superflu peu considérable, l'emploient à acquérir la connaissance d'un art ou d'un métier quelconque, qui devient pour eux une propriété de même nature qu'une propriété foncière.[390]
>
> Nicolas-François Canard, *Principes d'économie politique*, 1801

> […] il existait une liaison intime entre l'accroissement de la puissance productive des sociétés et l'élévation non-seulement physique, mais intellectuelle et morale de toutes les classes. […] L'idée que j'ai émise est simplement l'expression de la solidarité qui unit les divers modes de la perfectibilité humaine; solidarité qui au surplus est *évidente à priori*, puisque l'homme est un être en même temps qu'il est un être multiple par ses facultés.[391]
>
> Michel Chevalier in *Cours d'économie politique*, 1842

3.1 Political Economy in France

In France the political economists had been an important part of the intellectual establishment in the 18th century. Quesnay and Turgot had, for instance, participated in Diderot's grand project *Encyclopédie*, which subordinated politics to

390 "Most people with little wealth or any significant accumulated surplus labor use it to acquire knowledge of some art or trade, which becomes for them property of the same kind as landed property." Nicolas-François Canard, *Principes d'économie politique* (Paris: Chez F. Buisson, 1801), 9.

391 Michel Chevalier, *Cours d'économie politique fait au Collège de France*, vol. 1/3 (Paris: Capelle, 1842), 80-81. "[…] there exists an intimate connection between the increase in productive power of societies and not only the physical but intellectual and moral rise of all classes. […] The idea that I have is simply an expression of solidarity which unites the various modes of human perfectibility; a solidarity, which moreover is obviously *a priori*, since man is a being at the same time that he is a being multiplied by his faculties."

the dominance of economics. According to Jean Touchard, *Encyclopédie* presented a French version of utilitarianism and at the same time was a paean to the technical progress of the era. D'Alembert, a co-editor for the project, pondered the contempt with which the establishment held engineers and inventors in his preliminary essay, and how little appreciated these benefactors of mankind were to the public. The concept of liberty in *Encyclopédie* illustrates how fundamental the subordination of politics to economics was, and how at the same time, according to Touchard, it included all the seeds for the utilitarianism to come. For the encyclopedists, freedom (*liberté*) was fundamentally economic freedom; political freedom was also good, but superfluous in comparison. It was in the state's interest to remove as many obstacles to industry and the consumption of its products as was possible.[392]

Furthermore, *Encyclopédie* synthesized some important insights from contemporary scholarship. Its article on "Political Man" (*Homme politique*), written by Diderot, emphasized that there was no true richness in land without the people, nor was there richness in people without the land. This rehashes the physiocratic view of the symbiotic relationship between primary production (agriculture) and the economy as a whole, and the fundamental role of agriculture behind all wealth. In addition, the article presented Voltaire's idea (and that of the *populationnistes*) that people, in a political sense, had a value related to their political power, and proportional to the size of the population. However, these people had to also be robust and industrious with proper customs and practices. Touchard stated that *Encyclopédie* marked a break with the past, in that its main political goal was to remove the barriers obstructing the breakthrough of liberal bourgeoisie.[393] Indeed, it was one of the ways the Enlightenment changed the way industry, trade, and science were viewed.

As the Enlightenment had already subordinated politics to economics, the 18th century French discourse on commerce and economic policy was much more varied than is usually indicated in histories of political economy and economic thought. The idea that it was somehow opposed to what came after Adam Smith, and that mercantile ideas had some kind of monopoly on the agenda, does not hold. Jochen Hoock has demonstrated that the scope of discourse was in fact very broad and often contradictory, especially when all kinds of merchant and management manuals and dictionaries are taken into account.[394] Turgot saw these kind of detailed factual studies in the fields of commerce, industry, wealth, and population as the other forms of knowledge (besides "physiology") that were used in the search for causalities. Commerce was also considered a branch of political economy from quite early on (e.g., Turgot in 1759).[395] Yet, when physiocratic and later Smithian discourse became the domi-

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392 Jean Touchard and others, *Histoire des idées politiques: Tome 2, Du XVIIIe siècle à nos jours* (Paris: Quadrige/Puf, 2005), 405–407.

393 *Ibid.*, 707–409.

394 Jochen Hoock, "Discours commercial et économie politique en France au XVIIIe siècle: L'échec d'une synthèse," *Revue de synthèse* 108, no. 1 (1987), 57-64.

395 *Ibid.*, 66-67.

nant forms, these practical issues of commerce, trade, and profession were pushed into the domain of technical discourse.[396]

The reception and reaction to Adam Smith's *Wealth of Nations* in France as well as elsewhere in continental Europe was strongly connected to the success of the French translation by Germain Garnier (1754-1821) first published in 1802. It was not the first[397] but was quickly accepted as the authoritative translation. Jean-Baptiste Say praised it as the only one worthy of the original, and Garnier's lengthy preface and notes set Smith's work in the context of preceding economic thought already showing his connection to the physiocrats and especially Quesnay. *La richesse des nations,* Garnier's translation, thus quickly became a canonical text, and by the 1843 edition, it was being edited by Adolphe Blanqui, the successor to Say as chair of political economy at the *Conservatoire des arts et métiers.* Blanqui added notes and comments from all the principal economists including Say, Bentham, Malthus, Buchanan, Sismondi, and Storch among others.[398] In this way the edition also became a collaborative showcase of the reception and reaction to Smith's work. Furthermore, *Wealth of Nations,* or Smith's ideas in general, became known through translators and commentators of whom Jean-Baptiste Say was perhaps the most important because, as Keith Tribe puts it, "[...] Say wrote in a language that educated Europeans could read, and wrote in a style that was considered more accessible than that of Smith."[399] Say's *Traité d'économie politique* (1803) was published in numerous subsequent editions as were the *Catéchisme d'économie politique* (1815) and the six-volume *Cours complet d'économie politique pratique* (1828-29).[400] Between 1807-1836, in fact, 53 translations of his works were published, the first being *Traité,* published in Germany. Although Say's British contemporaries saw him as a mere popularizer of Smith, Tribe maintains that he did not adhere to the cost-of-production model of classical economics, and instead emphasized that in production and consumption it depended on the "utilities" not quantities of matter that were created and destructed. This opened up a perspective "in which the prices of goods and services could fluctuate independent of their cost of production." Furthermore, Say's emphasis on effective demand shifted attention away from production and onto the role of consumption in determining prices and their

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396 *Ibid.*, 73.

397 Morellet's translation in 1776 and then three others during following four years. All in all, sixteen editions from six translations had been published before Garnier. Gilbert Faccarello and Philippe Steiner, "The Diffusion of the Work of Adam Smith in the French Language: An Outline History," in *A Critical Bibliography of Adam Smith,* (London: Pickering and Chatto, 2002).

398 Pierre Force and Benoît Mely, "First Principles in Translation: The Axiom of Self-Interest From Adam Smith to Jean-Baptiste Say," *History of Political Economy* 38, no. 2 (2006), 319-320.

399 Keith Tribe, "Continental Political Economy From the Physiocrats to the Marginal Revolution," in *The Cambridge History of Science: The Modern Social Sciences,* ed. Theodore M. Porter and Dorothy Ross, (Cambridge: Cambridge University Press, 2003), 162.

400 Jean-Baptiste Say, *Traité d'économie politique*, vol. 1/2 (Paris: Chez Deterville, 1803); Jean-Baptiste Say, *Catéchisme d'économie politique* (Paris: Crapelet, 1815); Jean-Baptiste Say, *Cours complet d'économie politique pratique*, vol. 1 (Paris: Rapilly, 1828).

fluctuations. These two ideas proved decisive in the 1870s.[401] However, the shift in focus from the exchange of material goods to that of utilities was a big semantic step to make, and it paved the way for the emergence of intangible capital as a concept, and thus also somewhat earlier than 'marginal analysis' (see 4.1.4 on von Thünen below).

Many of the French classical economists discussed below (such as Jean-Baptiste Say and Hippolyte Dussard) also played important political roles in their time. This was also the case for many British authors, as Ricardo, John Stuart Mill, Torrens, Fawcett, Henry Thornton, Overstone, Horner, and Lauder who all became MPs (Members of Parliament). Therefore it is not surprising that the concrete everyday economic problems they encountered in their public lives also featured in their writing, and they operated within the framework of economic thought already existing.[402] And yet Schumpeter thought that this preoccupation with praxis was visible in a negative way in the works of the French authors. Although the publication of Say's *Traité* in 1803 gave him a following among men of admirable character, strong intelligence, and experience in practical affairs, their practical turn of mind and concentration upon economic policy and consequent lack of interest towards purely scientific questions made them almost wholly sterile regarding any analytic achievement in economics. Schumpeter wrote that for a modern radical their very existence seemed to bar progress, especially since his own interests lay in economic analysis.[403]

But reading, for example, Charles Dunoyer and Adolphe Blanqui, obsessed with knowledge and its application, from the early 21st century perspective, the development of economic thought from the late 18th century ideas of fixed zero-sum game of land and population into an understanding of the intangible factors of production and productivity during the first half of the 19th century seems essential. This led to Dunoyer's statement in 1852 that the intangible capital of a nation is even more important than material accumulation of the physical means of production[404], and it indicates a quantum leap in our understanding of the topic. The related issues of productive and unproductive labor, intangible goods, the importance of public education and science in the creation of intangible capital, and understanding capital as a key to rising productivity show that some grand ideas still resonate almost two centuries later, and that the liberal economists were clearly onto something in understanding the emerging industrial world. Indeed, their emphasis on the funda-

401 Keith Tribe, "Continental Political Economy From the Physiocrats to the Marginal Revolution," in *The Cambridge History of Science: The Modern Social Sciences,* ed. Theodore M. Porter and Dorothy Ross, (Cambridge: Cambridge University Press, 2003), 162.

402 Alain Béraud, "Introduction. IV. Les économies classiques," in *Nouvelle histoire de la pensée économique: Des scolastiques aux classique,* ed. Alain Béraud and Gilbert Faccarello, (Paris: La Découverte, 1992), 308.

403 Joseph A. Schumpeter, *History of Economic Analysis*, ed. Elizabeth Boody Schumpeter, 12 ed. (New York: Taylor & Francis, 2006), 472-473.

404 Gilbert Faccarello, "Bold Ideas. French Liberal Economists and the State: Say to Leroy-Beaulieu," *The European Journal of the History of Economic Thought* 17, no. 4 (2010), 740.

mental role of knowledge and human abilities also fit quite well into the post-industrial knowledge economy.

The early 18th-century French accounts of capital made no mention of intangible capital though. Capital was simply a sum of money that merchants or bankers brought to a new company or used to operate their business, stated the *Dictionnaire universel de commerce* (1723) by Jaques and Philemon Savary.[405] Going back even further in time, *Le parfait négociant* (1675), one of the first business economics textbooks by the father of the two mentioned Savary brothers, also discussed capital as a sum of money or the value of a merchant's stock. There is a chapter on what kind of characteristics the young men aspiring to become merchants should have, but the explicit connection that connects capital with these required skills of honesty, diligence and such are missing.[406] This is in line with Marie-Elisabeth Hilger's argument that the definition and concept of capital became a bone of contention only after the emergence of political economy as a separate discipline.[407] This can be seen in a dictionary of commerce published in 1841. Not only was capital now considered one of the most important concepts in the whole field of economics but it included creative force and intelligence among all the other things that were used to help or facilitate production. Furthermore, whereas in 1723 one paragraph was enough to define the concept, in the 1841 dictionary the entry on capital spanned seven pages.[408] Another point about terms and definitions is that, whereas intangible capital (*capital immatériel*) came to include intellectual qualities or property, its meaning in Simon de Sismondi's *De la richesse commerciale* (1803) was that of capital in credit and securities.[409] Later he expressed it like this:

> I think that the true definition of capital is, the accumulation of the time and the trouble which have created useful things, and immaterial capital is a mortgage on the time and labour which will create them in future.[410]

FIGURE 4 illustrates the prevalence and use of some of the terms and their accompanying concepts that were used to discuss the contemporary idea of capital in French. Note that concepts emphasizing the intellectual side of human capital became more common during the first two thirds of the century (*immatériel*, *intellectuel*, and *moral*). As stated above, *capital immatériel* is somewhat more problematic though, because authors like Sismondi used it to describe

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405 See, e.g., Jacques Savary des Bruslons and Philemon Louis Savary, *Dictionnaire universel de commerce. Tome premier. A–E* (Paris: Jacques Estienne, 1723), 551.

406 Jaques Savary, *Le parfait negociant ou instruction generale pour ce qui regarde le commerce* (Paris: Guignard, 1675).

407 Marie-Elisabeth Hilger, "Kapital, Kapitalist, Kapitalismus," in *Geschichtliche Grundbegriffe: Historisches Lexikon zur politisch-sozialen Sprache in Deutschland,* ed. Otto Brunner, Werner Conze, and Reinhart Koselleck, (Stuttgart: Klett-Cotta, 1982).

408 Hippolyte Dussard, "Capital," in *Encyclopédie du commerçant: Dictionnaire du commerce et des marchandises. Tome premier. A-F,* (Paris: Guillaumin, 1841), 464-470.

409 J.-C.-L. Simonde de Sismondi, *De la richesse commerciale ou principes d'économie politique. Tome premier* (Genève: J. J. Paschoud, 1803), 158.

410 J.-C.-L. Simonde de Sismondi, "Extracts from M. de Sismondi's Private Journals and Letters," in *Political Economy and the Philosophy of Government: A Series of Essays Selected from the Works of M. de Sismondi,* (London: Chapham, 1847), 449.

many kinds of portfolio assets and their value. Intangible capital and assets in this sense might be close to our theme, but they are not the focus of this study. Furthermore, intangible capital in this sense – as rights to material capital or its revenue – was not as hotly contested as the ideas surrounding human, intellectual, and social capital. Sismondi discussed it in the early 19th century[411], Friedrich von Hermann in the 1830s (4.3.2), Albert Schäffle (7.1.5) in the 1860s, and Thorstein Veblen (5.2.5.3) in the early 20th century. But even in 1815 *capital immatériel* was being used by Storch in connection with skills, knowledge, and habits (3.2.4). The lower peaks after the first emergence reflect the publications of Storch and J.-B. Say and their commentaries. *Capital moral* was prominent in the 1840s and 1850s, whereas *capital intellectual* had its peak around the turn of the 1860s. Meanwhile, *capital humain* started to emerge in the 1880s, reflecting more tangible health-based and demographic views, and was clearly used to discuss members of the population and productive people (e.g., Walras, Pareto). Gustave de Molinari's *capital personnel,* peaking around 1890s, was also part of this development.

FIGURE 4 Intangible concepts in French language publications (1789–1914) [412]

In the following subchapter I will be examining how during the French Revolution(s) – in an era of liberalism, free trade, and political experimentation – the idea of investing in oneself, or in people in general, through education at last became a plausible idea, or at least plausible on large scale; since before the Revolution the remnants of feudal institutions were still in place in many parts of Europe. Large parts of the populace were bound to their master if not the land that they cultivated via seignorial duties, and corporatist systems where, for example, guilds limited entry and competition in trade, manufacturing, and

411 "[…] le capital immatériel n'étant autre chose qu'un droit en participation au revenu du capital matériel; c'est donc uniquement dans l'accroissement du capital matériel et circulant que doit se trouver tout le revenu de la société." Sismondi saw that all revenue of society was based on growth of material and circulating capital. Immaterial capital was about rights to the revenue of material capital. J.-C.-L. Simonde de Sismondi, *De la richesse commerciale ou principes d'économie politique. Tome premier* (Genève: J. J. Paschoud, 1803).

412 Google Books Ngram Viewer, "capital humain, capital intellectuel, capital moral, capital personnel, capital immatériel, capital de connaissances, fonds de facultés," https://books.google.com/ngrams (accessed June 13, 2015).

the artisanal professions. The ideas that were generally thought to dominate economic thought at that time were mercantilism which, as we touched on earlier, meant maximizing the bullion a country gained from trade; and physiocracy, which saw agriculture as the only productive sector of the economy. Mercantilism was pro-trade in principle, but if the balance of trade was negative for a certain country, a customs barrier was an accepted way to fight it, protecting the old methods and sectors of production and making it very hard for those with initiative and drive to come up with other kinds of trade that might improve the economy. Meanwhile, physiocratic thought, as well as having driven France into famine, had the theoretical consequence that it saw all other sectors of the economy except for agriculture as unproductive, as mentioned already earlier (see 2.2.2.1).

This was the background against which some mercantilist and many liberal economists tried to rehabilitate what had become the 'unproductive' if not 'parasitic' image of administrators, manufacturers, priests, artists, and artisans. The reforms of the revolutionary era went hand-in-hand with this development, and the freedom of trade opened up unprecedented possibilities for entrepreneurship so that the bourgeoisie could finally match the nobility in social standing. With the end of feudal duties, market forces and wages also held sway over agricultural production, which in the long run meant that ordinary farmers and laborers could improve their lot without all the benefits flowing to their masters. Thus one could argue that the time was ripe for an economics that defined the core concept of the 19th century – capital – in terms of talent, skill, education, knowledge, trust, and human relationships.

In the following subchapter, I will start with Richard Cantillon's views on investing in education; then go on to Nicolas-François Canard's views on skills as capital being comparable to having property in land. After this, J.-B. Say's role in enlarging the understanding of what is productive in an economy is discussed and the role he gave to intangible goods and their producers follows. His ideas on industrial processes as a whole are also very close to our theme. In connection to him three other authors are then discussed: Louis Say, Jean-Baptiste's brother; Henri Storch, a Russian who developed J.-B. Say's ideas about intangible goods further; and Friedrich List. By criticizing Say's views, all three of these men actually furthered the idea that intangible capital (i.e., the capacity to produce) was vital to industrial economies. Louis Say and Storch are discussed directly here after J.-B. Say, while List is covered in the next chapter devoted to authors who published in the German language. So many of the French liberal economists wrote about intangible and human capital that only a choice fraction could be discussed here. For example Michel Chevalier (1806–1879) could have been included, and also Joseph Garnier (1813–1881). For Garnier, the utility, satisfaction of needs, and trade associated with intangible products was perfectly analogous in an economic sense to material ones as they also produced wealth.[413]

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413 Joseph Garnier, *Éléments de l'économie politique*, 2. éd. ed. (Paris: Guillaumin et cie, 1846), 43.

TABLE 3 Intangible capital concepts in French before 1848

Author*	Nicolas-François Canard (1750–1833)	Jean-Baptiste Say (1767–1832)	Charles Ganilh (1758–1836)	Henri Storch (1766–1835)	Louis Say (1774-1832)	Adolphe Blanqui (1798-1854)
main designations	stock of learned faculties and skills	industrial property, stock of industrial faculties, industrial capitals, capital	capital, unknown capital	intangible capital	intangible capital, industrial capital	moral capital
in French	fonds des facultés & habiléte	propriétés d'industrie, fonds de facultés industrielles, capitaux industriels, capital	capital, capital inconnue	capital immatériel	capital immatériel, capitaux industriels	capital moral
definitional breadth	skills, knowledge, education	talent, skills, education, knowledge, entrepreneurial spirit, production skills	enlightenment, talents, probity, reputation	health, skills, knowledge, taste, mores and religious sentiment	physical and intellectual faculties	intelligence, skills, education, habits
main levels of analysis	individual	individuals, producers of intangible products, production	trade, commerce, national wealth	individual, nations	individual, firm, society, whole production process	individual, firm, nation
functions (benefits)	personal stock of knowledge allows learned work, which produces industrial rent	industry, revenue from industrial property, intangible products producing utility and leisure, industrial scale production, efficiency	unknown capital residual explains differences of profit	allows production of annual intangible goods; economic growth, emancipatory effect, civilization	wage premium, production of wealth is applying intangible capital to material capital	economic growth and development, innovations, health, management, consulting
service producers can be productive	yes	yes	yes	yes	yes	yes
human beings as capital	no	no	no	no	no	no
foundational publications (year)	1801	1803, 1814, 1826, 1827, 1828	1815, 1826	1815, 1823, 1824	1836	1826, 1837, 1838

*Selected authors.

3.2 Scope of this Enquiry in French Language Texts (Before 1848)

3.2.1 Richard Cantillon

Although writing already in the early 18th century and having been born in Ireland in the 1680s, it is still reasonable to discuss Cantillon in connection with French political economy, because his only surviving work was published in 1755 in French and only translated into English in 1932. In the opinion of W. S. Jevons, Cantillon's *Essai sur la Nature du Commerce en Général* (actually written at the turn of the 1730s) represents the "cradle of political economy". Indeed, Cantillon has also been called the father of political economy. *Essai* was written much earlier than it was first published due to strong censorship in France, but it circulated as an unpublished manuscript among the French physiocrats. Cantillon's work was also among the very few books cited by Adam Smith.[414] Cantillon's work, in a similar way to Adam Smith's, was a reference point for many subsequent works in political economy, especially regarding the evolution of the concept of capital, since at this point its significnce was minimal. For Cantillon, all wealth flowed from the land; and labor was simply the form that produces the agriculture on it. Capital thus did not yet have such a fundamental role and definition as it would do in later classical political economy.

3.2.1.1 Wage Differentials

Giuseppe Folloni has said that Cantillon was more interested in defining the costs of keeping slaves and their offspring than in understanding the real reasons for wage differentials[415], but Cantillon nevertheless did talk about wage variations based on a difference in people's skills, their propensity to take risks, and their honesty. He did this from the perspective of a father contemplating the career choices of his offspring, in terms of the money and time that would need to be invested to expect certain returns, so this theme of education as investment had been an argument already going on for some time earlier. But Cantillon's view also highlights the subsequent conceptual change, since he was not conceptualizing skills or honesty as capital, but rather, from his physiocrat's perspective, in terms of how they served the landowner, on whom all others were dependent. Only those who owned true capital (land) were truly independent, for entrepreneurs, just as much as their hired hands were at the mercy of how much the land could produce. In Cantillon's language, what we under-

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414 Friedrich A. Hayek, "Richard Cantillon (C. 1680–1734)," in *The Trend of Economic Thinking: Essays on Political Economists and Economic History*, ed. W.W. Bartley III and Stephen Kresge, The Collected Works of F. A. Hayek (London: Routledge, 1991), 247-248. The first 1755 edition states incorrectly that "traduit de l'anglois", and also the place of publication is wrong, "A Londrez, chez Fletcher Gyles, dans Holborn."

415 Giuseppe Folloni and Giorgio Vittadini, "Human Capital Measurement: A Survey," *Journal of Economic Surveys* 24, no. 2 (2010), 249. Folloni and Vittadini cite Alfred E. Hofflander, "The Human Life Value: An Historical Perspective," *The Journal of Risk and Insurance* 33, no. 3 (1966): 381-391.

stand as capital was still subsumed by labor and land; the intrinsic value of a thing was thus determined by the amount of labor and land involved in its production.[416]

Cantillon started his discussion about wage differentials with a chapter entitled "*Le travail d'un Laboureur vaut moins que celui d'un Artisan*",[417] in which he describes how a seven to twelve year-old son of a laborer could start helping his father with farming tasks that did not require any great skills, like herding or tilling the land. If, however, the father wanted his son to learn a trade, he would lose his son's labor for the duration of the learning or apprenticeship period and would also have to pay for his maintenance and education for several years. So the son becomes a financial burden on his father and he can only reap the rewards after the training period. As Cantillon calculated the active life of a man to be only ten to twelve years, and as most apprenticeships lasted roughly seven years, he concluded that a laborer would never acquire education for his son unless, with this profession, the son would be able to earn considerably more than a laborer. Because of this, Cantillon argued, those who employed craftsmen and artisans were obliged to pay more for their work than for that of a common laborer or husbandmen. After all, the work of such professionals needed to be more expensive in proportion to the time and money spent (or lost) in learning the trade and the risks involved in perfecting the required skills. However, even the professionals could not educate all of their children, since there was hardly enough demand for their services in cities or states as it was; nevertheless, the work of professionals was by nature more expensive than that of laborers.[418] So it was clear to Cantillon that an investment-like approach to education was needed – similar to later human capital approaches – to take into account the foregone income, time, and maintenance that would be required.

But in addition to the basic "natural" mechanism described above, the circumstances that altered the wages of laborers and craftsmen were various. Two tailors might have had a different kind (or size) of clientele because of their ability to attract business, or because they were more efficient, or reliable, or up-to-date with the latest trends. Also, if one died, then the other got to reap the benefits of more work and could probably set higher prices. Rising prices might push some customers to get their clothes made elsewhere, taking into account the time they spent to travel there to get this done, or it could cause a tailor from a neighboring village to move closer. Furthermore, professions that took longer to master more specific business skills, like a cabinet maker compared to

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416 Richard Cantillon, *Essai sur la nature du commerce en général* (Londres: Fletcher Gyles, 1755), 33.

417 *Ibid.*, 23. "The Labour of the Husbandman is of less Value than that of the Handicrafts-Man" in English translation. Richard Cantillon, *Essay on the Nature of Trade in General*, trans. Henry Higgs (London: Frank Cass and Co., 1959), I.VII.

418 Richard Cantillon, *Essai sur la nature du commerce en général* (Londres: Fletcher Gyles, 1755), 23-25.

a simple carpenter; or professions that were more risky, like moulders, seamen, or miners, had to be proportionally better paid too.[419]

3.2.1.2 Cantillonian Checks to Population

In connection with wage differences, Cantillon wrote about how the number of laborers, artisans, and other workers in a nation would stay in a "natural" proportion to the demand that existed for them. Hence, if every farmer in a village paid for several sons to learn the same profession, then the sons would have to earn a living somewhere else (usually in a city), as the land would not be able to support them. Cantillon's precursor of the Malthusian check was that if several sons stayed in the village after their father, they would not be able to find enough work there and thus live in great poverty. They would either remain unmarried or fail to raise children, or if they did marry and have children, then the children would fall into poverty along with their parents – "[…] as we see happening on a daily basis in France",[420] Cantillon added. If the village continued like this and tilled the same amount of land, its population level would not increase even in a thousand years. The women and girls of a village could use the time not spent working in the fields to spin, knit, or do other such tasks; and then they could sell their products in towns nearby, but this could seldom provide for extra children, who would have to search their fortunes elsewhere, according to Cantillon.[421]

To illustrate the workings of this natural demand framework, Cantillon went to quite absurd lengths to point out the static nature of society. Cantillon saw no point in the King of France, for instance, sending ten thousand subjects to learn seafaring in Holland, because it would be useless to bring them back if there were not enough French ships on the sea for them to work on. Equally it would be useful to learn how to make products that were usually imported and bought from other countries, but this would benefit only the state in relation to itself. It is a bit curious that this "natural" demand was partially determined by the "prince" and landowners, since they had a big impact on how and to what use the surplus resources of the countryside was put. They too, of course, were susceptible to fads and fashions and what was generally considered a lifestyle consistent with one's station, but when it came to economic circumstances, they were not consuming wealth in the same sense as the rest of the economy. For Cantillon, decisions made by landowners on how the surplus was to be used also affected the level of the population.

It is after these wage differential issues that Cantillon moved on to discuss the relationship between land and labor. Here he draws a framework in which slaves, as well as free peasants and farmworkers are discussed from the perspective of cost of production and return on investment. He seemed to have no problem discussing people in these simple terms as physical entities. In this respect, one could accuse Cantillon of treating people as a means rather than ends in themselves, but perhaps one has to bear in mind the economic landscape of

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419 *Ibid.*, 25-27.
420 *Ibid.*, 28-29. "[…] comme nous le voïons journellement en France."
421 *Ibid.*, 29.

the time, which very much depended on slavery. Any economic analysis that would not have taken this into account would have been very wishful thinking indeed, or required a degree of blindness. But Cantillon did not have to equate slaves or free farmers to capital in order to discuss them as production factors; he explained wage differentials in terms of risk-taking, skills, and trustworthiness.

In Cantillon's work the amount of cultivated land required for the upkeep of people or purchase of manufactured things is the "measure". He gives credit to William Petty for stating in his *Political Anatomy of Ireland* (1685) that the equation between land and labor is the most important idea in political arithmetic. But then again, he quipped, Petty's research on the subject was bizarre and quite removed from the rules of nature, being concerned as he was only with effects, rather than causes, or any greater principle. The same applied to Locke, Avenant, and all other English authors who had written on the subject after Petty, Cantillon maintained.[422] Because land was the ultimate measure of all things for him, and capital mainly a sum of money, the quantity and quality of land was the ultimate constraint upon a population.[423] This idea became such a strong part of physiocratic thought, that it ultimately started to hamper not only economic theory but, even more importantly, economic policy, for it was one thing to simply note that all wealth flows from farming, and another to ensure that it actually takes precedence over trade and industry. Another interesting detail is that, compared to William Petty's works, Cantillon's *Essai* is also almost absent of references to technical change[424]; and this further underlines the static nature of its worldview.

Cantillon's discussion of the economics of slave-keeping and other accounts of the issue from that time are also pertinent to the emergence of human capital as an idea. Cantillon, however, did not specifically connect these to the term capital, although of course he discussed slaves as property. At the time the phrase commonly used in English was "stock of slaves," and an Ngram search shows that the phrase was quite common from around 1750 to the 1860s. The word 'stock', as mentioned in the introduction, was an English synonym for capital, and some 18th century accountants' guides did not even mention the word capital, but used stock throughout.[425] In Roger North's guide from 1715, capital was used in the phrase 'capital stock' more or less as an adjective describing the part of stock that hopefully survived the incomings and outgoings

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422 *Ibid.*, 54-55.

423 Tony Aspromourgos, *On the Origins of Classical Economics: Distribution and Value From William Petty to Adam Smith*, vol. Routledge studies in the history of economics, 6 (London; New York: Routledge, 1996), 76.

424 *Ibid.*, 81, note 8 on page 195.

425 Charles Snell, *Merchants Accompts, in the True Italian Method, Containing Rules Founded Upon Rational Principles, and Approved of by Practice, for the Stating All Sorts of Accompts. Also Examples for the Exercise of Those Rules; Design'd for the Imployment of the Author's Scholars at Their Leisure Hours* (London: Printed for J. Place at Furnivals Inn-Gate in Holborn, 1701).

of everyday trade, but then stock was used throughout the rest of the volume.[426] In *Political Discourses*, David Hume noted that in the West Indies the stock of slaves grew 5% annually if no new slaves were brought in.[427] Ned and Constance Sublette have recently shown that methods of capital accounting were very much in use in the southern plantations of the US, and it was acknowledged in the 1830s that the value of the stock of slaves regulated the prices of nearly all other property in the region.[428] Also Thomas Piketty included the value of human capital in slaves to his estimations of wealth distribution in the early 19th century.[429] But as we shall see, the intangible side of the concept of human capital that emerged in France during the early 19th century was very different to this in the sense that J.-B. Say, for instance, was arguing that forced labor was an infringement of the right over one's own industrial property, which was capital in skill and acquired knowledge.

3.2.2 Nicolas-François Canard – Skill is Land

Canard was a precursor of applying mathematics to economic problems, and for Antoine Augustin Cournot (who was actually renowned for doing so), Canard's *Principes d'économie politique* (1801) was a point of departure for his own work (although a discouraging one). Cournot thought that such works would actually deter economists such as Say and Ricardo from using algebra; and indeed, the way Canard used algebra in economics was ridiculed by Jean-Baptiste Say, Auguste Blanqui, and also Schumpeter, who wrote that it deserved to be forgotten. Nevertheless, the French Academy honored Canard's work, which may have had some bearing on the scathing comments from Cournot (and Walras) who, though both true olympians in this field, had not received such an accolade.[430] An earlier version of Canard's *Principes d'économie politique* was written for the French Institute (*Institut de France*), and its general thesis (whether true or not) – that in an agricultural country all kinds of taxes were ultimately the responsibility of the owners of land – also happened to be the one held by the Institute. This was relevant to us because agriculture was of paramount importance to the physiocrats. In *Principes* Canard then extended his thesis from taxes to the sources of wealth in general.[431]

Interestingly, in this work Canard drew an analogy between acquired faculties and landed property, rather than capital, precisely to illustrate how ridic-

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426 Roger North, *The Gentleman Accomptant: Or, an Essay to Unfold the Mystery of Accompts. By Way of Debitor and Creditor, Commonly Called Merchants Accompts*, 2d ed. ed. (London: Printed for E. Curll, 1715), 12, 15, 214.

427 David Hume, *Political Discourses* (Edinburgh: Printed by R. Fleming, for A. Kincaid and A. Donaldson, 1752), 170.

428 Ned Sublette and Constance. Sublette, *The American Slave Coast: A History of the Slave-Breeding Industry* (Chicago: Lawrence Hill Books, 2016), ch. 4.

429 Thomas Piketty, *Capital in the Twenty-First Century*, trans. Arthur Goldhammer (Cambridge (Mass.): The Belknap Press of Harvard University Press, 2014), 159.

430 Joseph A. Schumpeter, *History of Economic Analysis*, ed. Elizabeth Boody Schumpeter, 12 ed. (New York: Taylor & Francis, 2006), 474.

431 Nicolas-François Canard, *Principes d'économie politique* (Paris: Chez F. Buisson, 1801), 1-2.

ulous it was for the physiocrats to consider landed property as the only true form of capital.[432] But before this, he had already equated landed property with capital by explaining at some length that both its rent and value are based on accumulated or current labor (plus location, supply, and demand). Thus farmland was seen as a form of man-made means of production.[433] Furthermore, he equated the process of converting surplus labor to rent charged in agriculture and other trades. In other words, before people could say that skills and knowledge are like capital, they should first say that they are like landed property, because landed property was the thing everybody was talking about. Capital was not yet understood as a man-made means of production. The roots and history of this analogy between the income derived from land and the income derived from skilled professions clearly merits further study.

Instead of seeing agriculture and the landowners as the sole source of real productivity, Canard argued that there were two kinds of work applied in three different spheres, which produced three kinds of rent. Skills and knowledge were at work in all three spheres. Canard's description of how labor was accumulated and rents derived from the "stock" (fonds) thus created was at the same time his version of the story of how man had evolved from a state of savagery.

Canard's two kinds of work were (1) that which provided for human subsistence, and (2) all that was done additionally. Were all people of the same inclinations and faculties, their work and pleasure would be the same. But people were clearly not, he argued: an economic and active man spent more time working than on pleasures, and thus accumulated excess labor. The activity of some and weakness of others meant that "riches" would accumulate in the hands of the former. If all men strove to work only enough to secure subsistence, no one would do any extra work which would mean no one could do the work of others (division of labor), no one would have the incentive to be ahead in work, and therefore no one could amass any amount of exigible labor. Only this amassing of "excess labor" made it possible to create the arts, machines, and the means to multiply the productivity of labor and simplify work.[434]

After making this principle clear, Canard then explained how superfluous extra labor was accumulated and turned into "rents" (*rente*), which in today's language would probably translate as annuity or capital income, in the fields of agriculture, industry, and commerce. All are worth discussing here, but most interesting was the case of industry, since it was here that he explained his theory of human capital. Nevertheless, let us first look at agriculture. Canard's view was that most arable land in use was the result of previous labor, i.e., it was capital. Whether this really was so, would become a recurrent theme in accounts about capital written during the first two-thirds of the 19th century. Canard wrote that land was cultivated because, not only could it compensate the

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432 *Ibid.*, 9.
433 *Ibid.*, 1-9.
434 *Ibid.*, 2-5. Canard occasionally called accumulated labor *le travail exigible.* The idea is that the saved or accumulated labor can put forth equal amount of labor when called for. Other authors usually called it capital.

owner for the annual labor applied to it, but also because it could compensate for the advances that needed to be made to clear and prepare the land for cultivation. This surplus was the "ground rent" (*produit net*) of the land in question. Therefore, ground rent was nothing else than the sum of extra work that was needed to acquire and clear the land.[435] Such land in which no work had been applied was in principle worthless. This concerned also what Canard called the spontaneous product of land (i.e., as a source of raw materials). Canard could think like this, because he equated land with all other kinds of property – its value was the value of surplus work applied to it, so what really determined the value of different kinds of land and their values, was the contemporary level of technology and development that had been invested in them. It was this dedication of the accumulation of surplus labor in thousands of different enterprises that had made possible the invention of all machines and all the ways to simplify work and multiply the enjoyments available to humankind. As a whole, the rents from these enterprises compensated the advances of work invested in them and any losses incurred from risks taken.[436]

To elaborate on this idea, Canard used a watch and a loaf of bread as examples. If all successive phases of work applied to one's timepiece were subtracted, all that would be left would be some minerals underground in another part of the world without any value to man. Similarly, if our daily bread was decomposed in our imaginations and every step and development in its making retraced, all that would be left would be some wild grasses, differing from wheat as much as a thistle differs from an artichoke, in some uncultivated wilderness. A field of wheat was thus full of the results of past work on it, above and beyond its annual cultivation. From these instances Canard concluded that if everything given a value was retraced in this way, all that there would be left would be uncultivated land with savages and wild animals fighting over the spontaneous products of the land. There would be no law, no property, and nothing would have value. All capital had value only because of the accumulation of work that it contained, and its rent was nothing less than the product of this work.[437]

Canard's theory very strongly indicated that all capital resulted from past work (or a surplus of labor), and the level of this past surplus of labor then very much determined the value of various goods. Capital here included the level of technology, starting from the unintentional or deliberate crossbreeding of plants over the past millennia, to the latest designed machines; and it also covered beneficial institutions and laws developed by human societies. But Canard's theory was not so simplistic as to assume that the past work invested in items was the only thing that defined prices in a contemporary society regardless of where this was and a thousand other factors. He wrote that all sources of rent, created through accumulation of work, had values that varied over the

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435 Wilhelm Roscher later used an analogy between soil improvements and investing in *unkörperliches Kapital*, i.e., intangible capital, see section 7.1.1.

436 *Ibid.*, 5-6.

437 *Ibid.*, 6-7. Canard used the term *propriété foncière,* meaning landownership, but as we have seen above, he equated fixed capital with it.

course of time due to various circumstances. There were rents whose value grew due to accidental causes; there were others whose value collapsed close to zero due to other factors. For the value of all things was determined by need and competition,[438] which meant that accidental or random factors affected the prices of properties.[439]

The second way to convert a provision of superfluous exigible labor into rent was industry. According to Canard, most people with only a little wealth or accumulated surplus labor used it to acquire the necessary knowledge and skills of an art or profession. Those skills then became their property in the same sense as land was the property of a landowner, whether they had cleared it themselves or bought it ready. The stock (*les fonds*) of people who possessed an art or a profession was part of their very person.[440]

To allow for this property of skills and knowledge, Canard distinguished between natural work (*travail naturel*) and learned work (*travail appris*). The first was what people could do without any kind of learning or apprenticeship, i.e., unskilled labor; while the other, in addition to the natural work it contained, produced a rent on the stock sacrificed to acquire the required skills and knowledge of the art or profession. This surplus produced by the work learned was not entirely based on the abovementioned stock but was also consequence of the natural talents of professionals and their competitors. Also the risk they ran of not succeeding in the art they wanted to acquire influenced the surplus and compensation. Furthermore, Canard saw that when in a certain profession many competitors failed, this loss often became profit for those who were successful.[441]

Independent from these factors contributing to a higher rent received for work learned, Canard noted that rent for landed property was comparatively of a much longer duration. This was because the premium from acquired skills and knowledge was affected every time their possessor was ill, and when they eventually got old, these diminished and finally disappeared with their death. These reasons meant the rent from learned work had to be incomparably larger than the rent from a field relative to the quantity of surplus work sacrificed to acquire one or the other.[442] Canard called this "industrial rent" (*rente industrielle*). As was then common, the rent derived from surplus work which was then applied to land he called "ground rent" (*rente foncière*), but he added to this category all investments made in fixed establishments and things.

A third type of ownership for Canard involved commerce – those whose business was to distribute goods from the two previously discussed groups to satisfy the diverse needs of the market. This "circulating rent" (*rente mobilière*), like ground and industrial rent had its core an accumulation of surplus work on demand that produced an income stream. Independent from the work accumu-

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438 Canard's terms were *besoin et la concurrence,* i.e., need and competition (or demand and supply).
439 *Ibid.*, 9.
440 *Ibid.*, 9-10.
441 *Ibid.*, 10.
442 *Ibid.*, 11.

lated (in other words the capital spent on buying the products to sell on), commerce depended on (i) natural work, (ii) learned work (the skills, contacts and knowledge of a merchant), and (iii) the risks of the market. Canard's analogy here is quite interesting. He equated a merchant operating with credit capital to a tenant farmer (*fermier*).

For Canard, all work that could create an income source, or increase one, was productive work.[443] Therefore, he was not stuck with physiocratic ideas of the primacy agriculture that was still visible in Adam Smith's hierarchy of sectors. Nor was he stuck with the debate about productive and unproductive labor that had left the classical economists in so much trouble. Canard's theory was actually a far from simplistic labor theory of value, since it did not deny the importance of existing capital and technology, and was based on innovation and the diffusion of knowledge, which also partially determined the values.

3.2.3 Jean-Baptiste Say

Jean-Baptiste Say (1767-1832), perhaps the main follower of Adam Smith on the continent, was one of the first to start rehabilitating the work of merchants, craftsmen, doctors, administrators, and other professionals in economic theory. Say was so in line with Smith's thoughts that Friedrich List was inclined to note that "[n]othing new or original is to be found in his writings, save only that he asserted the productiveness of mental labours, which Adam Smith denied."[444] But that exception proved to be quite a big one from the perspective of intangibe capital. Furthermore, Say was a great systematizer and popularizer of classical economics in France, and he rose to a pope-like position to become the high priest of liberal free trade, against whom protectionists, utopians, socialists, and List (in particular) targeted many of their attacks later. While List himself had a lot to say about mental labors and their productive role, he was of the opinion that Say was contradicting himself on the matter, because he understood mental workers as a productive class only in so far as they were paid in "exchangeable values". But List argued that these values had already been produced, and thus the only way to properly describe mental workers as productive was to regard the productive powers of a nation as wealth, not just the possession of exchangeable values.[445] Yet, although Say was an exponent of classical economics in France, he disagreed with Smith's British followers on many issues, ranging from intangible wealth to the use of abstraction in political economy. He also later turned against Ricardo and his 'school'.[446]

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443 *Ibid.*, 16.

444 Henry William Spiegel, *The Development of Economic Thought: Great Economists in Perspective* (New York: J. Wiley, 1952), 242.

445 *Ibid.*

446 Simonde de Sismondi wrote in his journal in September 26, 1826: "I had this morning a visit from Say, who said to me that his friendship for M. Ricardo, and his school, has very often cramped him, but that in truth he finds that they have injured the science by the abstractions into which they have thrown it, and that he shall be obliged, in the new edition he is preparing, absolutely to oppose them." J.-C.-L. Simonde de Sismondi, "Extracts from M. de Sismondi's Private Journals and Letters," in *Political*

3.2.3.1 Le monde va tout seul!

In order to understand Say and many of his liberal and liberalist followers, it is good to have some grasp of his views towards the state and political decision-making. Bernardo Faccarello has concluded from Say's unpublished and published works, that he was of the opinion that: (i) a government, while useful, was not a necessary institution; (ii) the activities of the government had to be understood within the context of a general theory of the division of labor; and (iii) no reflection on public economics could avoid investigating and taking into account the real decision-making process at the level of political power and administration. Say quoted the Italian motto, "*il mondo va se*" (the world runs by itself), and in French, "*le monde va tout seul*," and emphasized that the bond between citizens was not political but economic, because the main link in society was the mutual need between all productive classes. The government was thus not essential, yet nor was it necessarily useless either.[447]

3.2.3.2 Economic Goods and Productive Labor

According to Friedrich List, Adam Smith needed to enlarge upon the idea of what constitutes wealth in order to include manufacturers among the productive class. This left Say with either the option to adopt the view that mental laborers are not productive (like Smith) or to enlarge the idea of wealth in opposition to the physiocrats. Say chose the latter path.[448] Say saw that the service rendered by capital in any commercial, agricultural, or factory undertaking was an intangible product. Those who consumed material capital, consumed the capital and the service it rendered, which was an intangible product. Similarly the services rendered by workers in a production process was an intangible product; after all, they usually walked out of the factory with all their body parts still intact. The value of this service was thus based on the worker's "stock of industrious faculties",[449] and the business of the human economy was about combining and reorganizing services and matter, so what was produced rendered a service and received value, so that then these values could then be exchanged on the market for other desired values.

> These services, of industry, capital, and land, which are products independent of all matter, form all our revenues, whosoever we may be. What! are all our revenues intangible? Yes sir, all; otherwise the mass of matter which makes up the globe must increase every year, because every year we should have new material revenues. We neither create nor destroy a single atom: all that we do is to change the combinations of things; and all that we contribute to it is intangible. It is VALUE; and it is this val-

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Economy and the Philosophy of Government: A Series of Essays Selected from the Works of M. de Sismondi, (London: Chapham, 1847), 449.

447 Gilbert Faccarello, "Bold Ideas. French Liberal Economists and the State: Say to Leroy-Beaulieu," *The European Journal of the History of Economic Thought* 17, no. 4 (2010), 734.

448 Henry William Spiegel, *The Development of Economic Thought: Great Economists in Perspective* (New York: J. Wiley, 1952), 242.

449 Jean-Baptiste Say, "Letters to Mr. Malthus, on Several Subjects of Political Economy, and Particularly on the General Stagnation of Commerce. Letter I," *The New Monthly Magazine* 14, no. 78 (July 1, 1820), 273.

> ue which is intangible that we daily, annually consume, and upon which we live […][450]

In Say's view, the material man-made part of the world was thus more or less just a proxy for the quality of each worker's "stock of industrious faculties" and the exchange of values that it enabled.

Yet, although Say was promoting Adam Smith's ideas in *Traité* and building on Smithian foundations, he nevertheless disagreed with him on some core points as already mentioned. He admired how Smith could deduce numerous important conclusions from his labor theory of value, but he thought that the principle was incomplete and erroneous, and argued for a more utilitarian theory of value. It was the reformulation (and not the creation) of matter in the production process that made things useful, and production was to be estimated solely by this usefulness or utility. This perceived utility was determined by individual wants or desires, which in turn were conditioned by society. Value was therefore determined through social interactions, and relative not absolute values were important.[451] Setting out on a different path from Smith, Say was also strikingly different from Ricardo here in both the value theory itself, and the method of political economy. He was objecting most of all to abstraction for abstraction's sake that was plainly out of touch with empirical data.[452]

In their *Pillars of Economic Understanding*, Perlman and McCann Jr. give a solid account of Say's understanding of capital, but when discussing whether Say saw producers of intangible products as productive, they perhaps emphasized some points too much.

> By contrast, unproductive capital consists of capital withdrawn from the production process. Included in this category are "inert capital", such as precious metals used for ornamentation and otherwise conspicuous consumption, and "intangible products", including the services of a professional or the performance of an artist, which are consumed immediately as they are produced.[453]

But Say's point was not to put labor or intangible capital in a category of unproductive capital but to emphasize that, for example, excess regulation, superfluous offices in public administration, or overly complicated legislation could be harmful to the level of public prosperity. Furthermore, he seems to have understood that various professions and lines of work could not be categorized wholesale as either productive or unproductive. The issue depended on whether the extra labor actaully added utility and thus increased the value of the product.

> Wherefore it is impossible to admit the inference of M. Garnier, that because the labour of physicians, lawyers, and the like, is productive, therefore a nation gains as much by the multiplication of the class of labour as of any other. This would be the same as bestowing upon a material product more manual labour than is necessary

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450 *Ibid.*
451 Mark Perlman and Charles R. McCann, *The Pillars of Economic Understanding: Ideas and Traditions* (Ann Arbor: University of Michigan Press, 1998), 468-470.
452 *Ibid.*, 468.
453 *Ibid.*

> for its completion. The labour productive of immaterial products, like every other labour, is productive so far only as it augments the utility, and there- by the value of a product: beyond this point it is a purely unproductive exertion. To render the laws intricate purposely to give lawyers full business in expound- ing them, would be equally absurd, as to spread a disease that doctors may find practice.[454]

What Say clearly meant in *Traité*, contrary to Smith, was that producers of intangible goods should not all be tarred with the same brush as "unproductive". Some of their products had an exchange value just as any material, durable good did. Say found it absurd why Smith was stuck with only material goods in his definition of productive labor, when he was capable of abstraction about so much else. Yet Say himself was partially stuck with Smithian (and indeed physiocratic) ideas, and thought that producers of intangible goods (*produits immatériel*) did not directly add anything to national wealth. All the same, it was to a large degree through Say that, in the 19th century, most classical economists had a negative view of physiocratic ideas. Physiocrats were considered dogmatic, their theory blinkered by agriculture, and it was wrong anyway. Despite this approach, physiocracy and mercantilism managed to deliver an insurmountable handicap for these same classical economists who looked up to Smith, because Adam Smith had himself been so clearly influenced by them. [455]

At the beginning of his *Traité d'économique politique* (1803), Say lists the groups of people that are involved in production, as seldom this is performed by one person. The learned (or *savants*) study the course of nature; the agriculturalists, manufacturers or traders use this knowledge to create useful products; and the workers follow the directions of the other two groups to actually make the products. Say described the procurement of imported colonial wares (indigo in his instance) through this framework, to illustrate his point. Travellers, astronomers, and geographers are the learned ones that first make the journey possible; the traders provide the ships and send them to sea; and the sailors and workers provide the mechanical toil involved in getting the indigo all the way to France. Say's conclusion from this was that all industry is composed of theory, application, and execution, and were a nation clumsy in any one of these, then it would not be able to manufacture more advanced products. Furthermore, he thought his example showed how the scientific pursuit of knowledge is thus not just a question vain curiosity.[456] However, industriousness and

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454 Jean-Baptiste Say, *A Treatise on Political Economy*, 6 ed. (Philadelphia: Lippincott, Grambo & Co, 18551803), I.XIII.11. Original: "Il est donc impossible d'admettre l'opinion de Garnier qui conclut de ce que le travail des médecins, des gens de loi et autres personnes semblables, est productif, qu'il est aussi avantageux à une nation de le multiplier que tout autre. Il en est de cela comme de la main-d'œuvre qu'on répandrait sur un produit, par-delà ce qui est nécessaire pour l'exécuter. Le travail productif de produits immatériels n'est productif que jusqu'au point où le produit est utile. Au-delà de ce point, c'est un travail purement improductif. Compliquer les lois pour les faire dé brouiller par des légistes, c'est se donner une maladie pour avoir besoin du médecin." Jean-Baptiste Say, *Traité d'économie politique*, vol. 1/2 (Paris: Chez Deterville, 1803), 364–365.

455 François Etner, *Histoire de la pensée économique* (Paris: Economica, 2006), 69-70.

456 His instance continues by explaining how the chemist understands how the substance works and how it should be used to dye fabrics. And the manufacturer builds

knowledge were not enough to create industries alone, for prejudice and ignorance in other matters could equally stop progress, e.g., when the cause for an epidemic or other scourge caused by easily fixable circumstances was instead thought to be a supernatural consequence, or a nation's workers were particualrly difficult.[457]

In *Traité*, Say listed the following as capital: (i) tools and instruments; (ii) the products necessary for the subsistence of the industrious; and (iii) raw materials. The sum of these formed productive capital.[458] Thus, in this work, Say's understanding of capital was mostly along the lines of Smith, though he made the difference between productive and unproductive (dead) capital in order to promote a view that most of a nation's wealth should be in productive use rather than being left idle or used to display wealth. [459] Adam Smith made a difference between productive and unproductive labor by claiming that whereas a manufacture worker costs nothing to his employer in the sense that worker's cost is paid back with a profit through the value that work adds to the value of the materials worked upon, the work of a manual servant adds to the value of nothing and maintenance is never restored.[460] Although making these distinctions in different places, their goal was the same: to direct resources (capital and labor) to what they considered its most productive use. Henry Vethake, one of the first professors of political economy in the US, echoed this discussion, without giving direct references, in his *Principles of Political Economy* (1838), making the point that intangible goods can be accumulated in the same manner as material goods, and so they should be considered as capital, and that the worker producing intangible goods is as productive as the one making material goods.[461]

In *Traité d'économique politique*[462] (1803) Say came up with a class of products he actually called "intangible goods" (*produit immateriél*). It was evidently a reaction to Smith's physiocratic views of certain industries being sterile or unproductive.

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the machines etc. Jean-Baptiste Say, *Traité d'économie politique*, vol. 1/2 (Paris: Chez Deterville, 1803), 6-8.

457 *Ibid.*, 9.

458 *Ibid.*, 13.

459 *Ibid.*, 12-18.

460 Adam Smith, *An Inquiry Into the Nature and Causes of the Wealth of Nations*, ed. Edwin Cannan, 5 ed. (London: Methuen & Co., 1904), II.3.1. Smith saw employment of numerous servants as a sign of vanity and wasted display of wealth. As Smith is considered the champion of distribution of labour, this categorical example is puzzling, since it would be easy to argue that a servant frees an entrepreneur or a craftsman from menial chores to engage in business or trade. Smith's view had consequences on what he thought of the productivity of administrators and civil servants (and was in line with the physiocrats). See section 2.2.2 here and Book II, Chapter III in *Wealth of Nations*.

461 Henry Vethake, *The Principles of Political Economy* (Philadelphia: P.H. Nicklin & T. Johnson, 1838), 26-39. Vethake saw the idea that intangible goods can be accumulated and considered as capital so much his own that there was no need to name previous authors. Although his textbook is on purpose written without references and heavy notation, here he was either dishonest or did not know the literature. However, he did give the subject a very prominent place in his work. *Ibid.*, 30.

462 Jean-Baptiste Say, *Traité d'économie politique*, vol. 1/2 (Paris: Chez Deterville, 1803).

> Le célèbre *Adam Smith* refuse aux résultats de ces industries le nom de *produits*. Il donne au travail auquel elles se livrent le nom d'improductif, et c'est une conséquence du sens qu'il attache au mot *richesse* ; au lieu de donner ce nom à toutes les choses qui ont une valeur échangeable, il ne le donne qu'aux choses qui ont une valeur échangeable *susceptible de se conserver*, et par conséquent il le refuse aux produits dont la consommation a lieu à l'instant même de leur création. Cependant l'industrie d'un médecin, et si l'on veut multiplier les exemples, d'un administrateur de la chose publique, d'un avocat, d'un juge, qui sont du même genre, satisfont à des besoins tellement nécessaires, que sans leurs travaux nulle société ne pourrait subsister. Les fruits de ces travaux ne sont-ils pas réels ? Ils sont tellement réels qu'on se les procure au prix d'un autre produit matériel auquel *Smith* accorde le nom de richesse, et que par ces échanges répétés, les producteurs de produits immatériels, acquièrent des fortunes.[463]

Say then went on to say there were goods of "pure pleasure". For instance, it was evident that the show of a good comedian provided as much real pleasure as a pound of candy or a fireworks display (considered products even within Smith's framework). He also pointed out that whereas a painter was a productive artist for Smith, a musician was seen as unproductive and this did not add up.[464] Say was clearly implying here that the definition of goods must therefore be broadened.

But if we look closer at Say's description of what constitutes *produits immatériels* in his 1803 publication, he describes in detail how one invests previously accumulated capital in developing talents and acquiring the education behind intangible (and material) products, such as the song performed by a musician or the treatment given by a medical doctor, and yet fails to describe the skills and knowledge directly as capital. This is in spite of the fact that they may have produced interest (or health) enough to compensate for the capital, time, and effort invested in them.[465] He was later drawn into a debate about this with Henri Storch.[466]

Another puzzling feature in J.-B. Say's framework for intangible goods and services, is the contradiction between, on the one hand, his celebration of learned people and entrepreneurs in industry and, on the other, his inability to see producers of services or public administrators as productive in a broader national sense. This becomes clear if one uses the same example as Say himself used: all the doctors in a town, in spite of their high incomes, are of very little

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463 *Ibid.*, 361. "Smith refuses to call the results of these branches of industry "products". He calls labour of this kind unproductive, largely because of the way he defines the word "wealth"; instead of using it to denote anything of exchangeable value, he uses it to describe only those objects whose "value can be preserved"; and as a consequence this ignores those products that are consumed at the same moment they are created. Nevertheless, the work of a doctor, and likewise a civil servant, a lawyer, and a judge, are just such products and they fulfil such pressing needs, that without these professions no society could survive. Are not the fruits of their labour then real? They are so real that they are purchased at the price of a product to which Smith accords wealth; and by the repetition of such exchanges, the producers of intangible products acquire fortunes." Jean-Baptiste Say, *A Treatise on Political Economy*, 6 ed. (Philadelphia: Lippincott, Grambo & Co, 18551803), I.XIII.5.

464 Jean-Baptiste Say, *Traité d'économie politique*, vol. 1/2 (Paris: Chez Deterville, 1803), 362.

465 *Ibid.*, 366.

466 See the following section.

use for the general economy of that town if taken as an isolated group on their own; but the same surely goes for entrepreneurs and the learned. From an economic perspective, there is no use understanding the principles of electricity without being capable to apply them. And even a group of willing entrepreneurs are of little use without the workers, capital, and the demand of the economy around them. Based on Say's reasoning, one can conlude that he was still partly stuck with the sectoral hierarchy of the economy that had been handed down from the physiocrats and Smith, although he had clearly made some progress with his idea of intangible goods and, later, intangible capital. The nature of an entrepreneur's actual work (a service) was not what defined productivity, but it was the industry of which that service was a part.

3.2.3.3 Capital in the Stock of Industrial Faculties

In 1803, when discussing the distribution of wealth and income in the second volume of *Traité*, Say explicitly stated that investments in acquiring skills and education were capital investments. At the same time, he noted how, when there was no real threat to public safety, the conscription of troops was harmful to the "industrial property" (*la propriété industrielle*) of those drafted. He saw this property as consisting of the capacities and talents of industrious people, and it was as sacred as any other property; being the result of past labors and accumulated capital. When this property was combined with labor, man acquired the means of production known as "industry". If industrial property was not protected to the same degree as landed property, then there was no justification for any other property rights. Furthermore, Say argued – albeit not for any humanitarian or moral reasons, which he considered to be beyond the scope of his analysis – that in any kind of forced labor (such as the army) the industrial faculties of people were seldom taken into account. This meant that the capital inherent in talent, which was often the result of many years of effort and expenditure, went unused.[467] Conscription as an infringement against a person or family's right to the accumulated *Erziehungskapital* was later discussed in detail by von Thünen in the 1840s (see 4.2.4). In this same context, Say also discussed what he called literary property. He argued that producing good books required education, effort, economic sacrifices, and talent, and argued for copyright legislation to protect the rights of authors to such property and its possible revenue.[468]

In a later publication – *Cours complet d'économie politique pratique* (1828) – Say went further and directly stated that talents and acquired faculties were capital, even with the same examples that he had used earlier (of a doctor and musician).[469] Also his discussion about public (or national) capital and income shows clearly how much emphasis he laid on the talents and skills of industry and entrepreneurship. He divided "national capital" (*fonds général*) into "indus-

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467 Jean-Baptiste Say, *Traité d'économie politique*, vol. 2/2 (Paris: Chez Deterveille, 1803), 148–149.

468 *Ibid.*, 149-156.

469 Jean-Baptiste Say, *Cours complet d'économie politique pratique*, vol. 1 (Paris: Rapilly, 1828), 296.

trial faculties" (*fonds de facultés industrielles*) and "industrial instruments" (*fonds d'instrumens de l'industrie*). Industrial faculties, or the aptitude for participating and competing productively could be found: (a) among the learned (*dans les savans*) and repositories of useful knowledge; (b) among entrepreneurs in charge of production factors that satisfy people's needs; and (c) in workers and those who allow their industrial capacities to be put to use by entrepreneurs.[470] At this point it's worthwhile noting that Say's intangible capital, or "industrial faculties" (*fonds de facultés industrielles*), came first in in his list of classifications, not as a special type of capital mentioned as an afterthought among many other classes of capital (e.g., Wilhelm Roscher).[471] All these stocks or classes of capital he called productive, because they worked towards the creation of goods.[472]

One might conclude that the core elements of J.-B. Say's thoughts on human or intangible capital were: (i) seeing knowledge as fundamental to almost any economic activity; (ii) understanding the expenses of education and acquiring talents as the kind of investments that produce interest; (iii) making a clear distinction between what part of the wage is salary, and what part is interest for the previously invested capital in skills and education; and (iv) to argue that the whole of industry itself was the product of labor and "industrial property" – the latter being accumulated capital in skill and knowledge.

3.2.4 Henri Storch

Henri Storch (1766–1835)[473], or Heinrich Friedrich von Storch, in German editions of his works, was a Russian economist of German origins yet born in Riga, in modern Latvia. Storch was influenced by the writings of Adam Smith and Jean-Baptiste Say, and with the latter he was in contact. Indeed, the second edition of Storch's *Cours d'économie politique* (1823) was published in France with explanatory and critical notes by Say.[474] The first edition was published in 1815, and consisted of lectures of political economy presented to the grand dukes Nicolas and Michael of Russia.[475] It is probable that Storch thus had an influence on how Say eventually defined capital, since it was only after debating the issue

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470 *Ibid.*, 235.

471 See section 7.1.1 on Wilhelm Roscher.

472 *Ibid.*, 236.

473 In French language editions: Henri Storch; in German editions: Heinrich Friedrich von Storch.

474 First edition in six vols.: Henri Storch, *Cours d'économie politique, ou exposition des principes qui déterminent la prospérité des nations* (St. Petersburg: Pluchart et comp., 1815). The first edition was printed with inscription "*Ouvrage qui a servi à l'instruction de Leurs Altesses Impériales, les Grand-Ducs NICOLAS & MICHEL*". The second ed., in 4 vols., edited by Say and published in Paris: Henri Storch and Jean-Baptiste Say, *Cours d'économie politique* (Paris: Aillaud, Bossange, Rey et Gravier, 1823). The German edition, in 2 vols.: Heinrich Friedrich von Storch, *Handbuch der National-Wirthschaftslehre*, vol. 2/2 (Hamburg: Perthes und Besser, 1819).

475 He was also a tutor for the daughters of Tsar Paul I from 1799, and was later appointed to teach political economy for the grand dukes. David Hart, "Class Analysis, Slavery and the Industrialist Theory of History in French Liberal Thought, 1814-1830: The Radical Liberalism of Charles Comte and Charles Dunoyer," http://davidmhart.com/liberty/Papers/CCCD-PhD/CCCD-Book-2010.pdf (accessed October 30, 2014), 92.

with him, that Say started to specifically talk about acquired abilities as "capital".[476] Storch is known, or actually not so well-known, for his work on serfdom – his emphasis being on the importance of moral capital for national wealth; his subjective theory of value; his comparison of banking systems; the evolution of money from the commodity trade of gold and silver; and his emphasis on the high productivity of trade and industry compared to agriculture.

Although Russian, Storch is placed here, because his work highlights the connection of the idea of intangible and human capital to freedom and the economic and social price a country pays for rigid hierarchies, or social castes. Storch was well placed in Russia to observe and contribute to the French discussion on the situation of slaves and serfs in Russia, and how the state could actually hinder the development of industry and individual prosperity by favoring one class over another.[477] The matter was also very pertinent elsewhere in Europe too. France had ended serfdom *de facto* already in the 14th century, but this only happend formally in 1789, with a decree that was passed abolishing the feudal rights of the nobility. In German-speaking lands, serfdom was abolished mostly during the first decade of the 19th century. In Bavaria (where Storch's German translator, Rau, was from), serfdom disappeared in 1808, but in Saxony it was not until 1832, while in Hohenzollern-Sigmaringen it was 1833.[478] Storch was also a much cited political economist in his own right, publishing and debating mainly in French, so he was very much part of the discourse that we are interested in.

3.2.4.1 Intangible Capital and Freedom

Whether it was because he was writing in Russia, considering the prevalence of serfdom there, or in spite of it is hard to say; but it is certainly clear that Storch brought the idea of freedom to the theory of intangible capital. Serfdom was in effect a caste system which had a destructive impact on self-improvement and investment. It gradually became obvious that were the masses of Russia to be educated, act in their own best interests in their dealings, to keep what they earn, and to be freed of the yoke of soil and sovereign, the country would reap immense economic rewards.

The high price to an economy that Storch put on slavery, serfdom, and a rigid hierarchical society was an interesting precursor to the work of none other than Gary S. Becker (see 2.2.2.3 and 2.4 above), as his first excursion outside the traditional borders of economics was not so much into human capital, but into the economics of discrimination inspired by the confused discussion surrounding civil rights and segregation in 1950s America. In this work – *The Economics of Discrimination* (1957)[479] – Becker applied the economic principle that people act on their preferences, to study how race or gender preferences carried a price

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476 See Jean-Baptiste Say, section 3.2.3. The same, however, didn't happen with Storch's German translator Karl Heinrich Rau, see 142-143.

477 *Ibid.*, 94.

478 Alexis de Tocqueville, François Furet, and Françoise Mélonio, *The Old Regime and the Revolution*, trans. Alan S. Kahan (Chicago: University of Chicago Press, 1998), 260.

479 Gary S. Becker, *The Economics of Discrimination* (Chicago: University of Chicago Press, 1957).

when it led to discriminatory behavior. For example, in an open market economy, where people were free to act as employers, workers, or consumers, competition would lead to a situation where discriminating employers would clearly be outcompeted by those who hired the most qualified people for a job irrespective of race. In this way, it was thought open competition would tend to erode discriminatory outcomes, although not necessarily discriminatory attitudes.[480]

Peter Lewin, whose supervisor Becker was, also tried to apply Becker's ideas on racial discrimination in Southern Africa but came to the conclusion that when state power was "used to prevent the competitive process from eroding the effects of discrimination then discrimination may endure and even flourish." Becker had excluded state-forced discrimination by assumption, and therefore his analysis did not give direct answers to the Apartheid regime flourishing in the 1970s. Yet, according to Lewin, by implication the answers were there, since Becker's models gave the necessary insights on what would happen were the state apparatus of discrimination abolished.[481] In neoclassical economics textbooks, discrimination is still discussed along these lines. In open market economies with firms interested in their profits, the discriminatory firms should vanish and discriminatory wage differences disappear when non-discriminating profit-oriented firms enter the market. The discriminatory practices can only remain when customers are ready to pay the economic price, or the practices are endorsed by the state.[482] Although Storch's argument was not exactly directed against a system of racial discrimination, the outright slavery common in the Russian economy and agriculture of his time had similar features – mainly there were some social groups that had very different and limited rights and thus limited possibilities to improve their lot. The cost this caused to Russia's economy and *civilisation* was Storch's main concern.

At the heart of Storch's understanding of intangible capital was "internal assets" (*biens internes*), which he compared to "wealth" (*richesses*). What was common to both was that (a) we judge their values based on their usefulness relative to our needs, (b) they can be accumulated, and (c) they come from the same source, i.e., knowledge about nature and work.[483] What made them different was that, whereas wealth was material, internal assets were not. Although they usually manifested themselves in a form perceptible to the senses, the causes of their effects could only be reached through reasoning. Storch clarified this with an example about how it was often possible by touching and looking, to discover whether a person was sick or not. But what made a person healthy again was not so directly perceptible. The second difference was that, whereas wealth was transferable and thus had an exchange value and price; internal as-

480 Peter Lewin, "Gary Becker: A Personal Appreciation," *Organizations and Markets*, http://organizationsandmarkets.com/2014/05/04/peter-lewin-on-gary-becker/.

481 *Ibid.*

482 N. Gregory Mankiw, *Grundzüge der Volkswirtschaftslehre*, trans. Adolf Wagner and Marco Hermann, 3 ed. (Stuttgart: Schäffer-Poeschel, 2004), 450.

483 Henri Storch, *Cours d'économie politique, ou exposition des principes qui déterminent la prospérité des nations*, vol. 5 (St. Petersburg: Pluchart et comp., 1815), 12.

sets were not directly transferable, so they had no direct price. This also meant it was only possible to buy or sell the work that produced them.[484]

Storch explained this impossibility of selling and buying with instances that are close to any researcher familiar with human capital theory since the 1960s. It was not possible to sell internal assets, because it was impossible to give them away. One could give away the furniture, houses, or land one possessed, but it was not possible to give one's health to another person, or enlightenment (*lumière*), or their morals, as they were moral property that was tied to one's being or existence. However, it was possible to make these attributes valuable among one's peers through work that had a direct effect or whose results were transferable.[485] This is exactly what Paul Romer has described as the problem of transferring human capital to the general stock of knowledge and then back to human capital, which is tied to his idea about the micro-foundation of human capital (see footnote 289).[486]

The same logic was in play with buying. A person could purchase a musical instrument, the product of an artisan's work. But to learn to play it, one could only purchase time and effort (in the form of not yet executed work) from a master, and this work by a music teacher alone would not be enough to communicate the skill and talent to the pupil – the transfer required practice by the pupil as well. Storch wrote here that it was not work done but work "to be done". One could point out that the skills and reputation of both artisan and music teacher are based on work already executed, but Storch's point was to differentiate between the producers and buyers of physical products and services, on the one hand, and to emphasize on the other that unlike traditional wealth creation, that was more or less an affair of selling, creating internal assets required buyers and consumers to contribute equally. He also wanted to differentiate the intangible work (*travail immatériel*) done by the acquirer and learner of the musical instrument, and the intangible work done by the music teacher. The first worked for oneself, the latter worked for others and rendered a service – the only kind of intangible work that was exchangeable and earned a salary.[487]

That internal assets (or goods) were partially the products of services had, according to Storch, led to reasoning according to which the durability of an internal good was only similar to the duration of the service; that hey were necessarily consumed to the same measure as they were produced. Storch mentioned here Garnier, Say, lord Lauderdale, and Hufeland. This he saw as a great error and as the main reason for the very limited development of the theory of intangible value. Wealth, in traditional sense, was things *outside* us, and there could be an interval between the moments a good is produced and then deliv-

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484 One exception to this rule mentioned by Storch were honorary distinctions appreciated by the public. *Ibid.*, 13-14.

485 *Ibid.*, 12-14.

486 Paul M. Romer, "Human Capital and Knowledge," *Paul Romer's Blog*, http://paulromer.net/human-capital-and-knowledge/ (accessed October 7, 2015.

487 Henri Storch, *Cours d'économie politique, ou exposition des principes qui déterminent la prospérité des nations*, vol. 5 (St. Petersburg: Pluchart et comp., 1815), 15-16.

ered to the customer. This interval did not exist for internal assets, because they could be produced only for the person consuming them.[488] Although these goods could not circulate and change hands through intermediaries and merchants, they could exist as long as the individuals who had acquired them and could be used (or consumed) very slowly.[489]

Storch already understood that for internal assets it was characteristic that far from being destroyed in use, they extended and grew in use so that their consumption even augmented their value. Whereas internal assets such as administration of a state were consumed as they were produced and had to be produced for every year, health, skills, education (*les lumières*), taste, and other acquired abilities served a person for life, and the more the faculties corresponding with these internal assets were exercised, the more they augmented.[490] This is also central to all contemporary variations of acquired abilities, knowledge, or social networks as personal capital: human capital, social capital and intellectual capital.

3.2.4.2 Capital *Immatériel*

The result of all this discussion was that Storch turned upside down the contemporary understanding of what kind of goods and wealth were durable. Whereas as most of the contemporaries, including Jean-Baptiste Say before incorporating some of these ideas to his work, wrote that services and their producers were in trade with goods of non-durable nature and that it was impossible to accumulate real wealth from this trade, Storch thought that his reasoning lead to an "extremely important" result: Namely, to knowledge that internal assets, *biens internes,* are as susceptible to accumulation as much as wealth, *richesses*, and are able to form capital that can be used to reproduce the assets that are destroyed either by consumption or by the death of those who possess them. And as he saw that in general internal assets were *more* durable than most kind of assets considered as wealth, it followed that it was easier to accumulate the former, internal assets, than the latter.[491] These principles formed the basis for Storch's heavy emphasis and detailed discussion of "intangible capital" (*capital immatériel*).[492]

The durability of internal assets described above was important for Storch's understanding of the results of "intangible work" (*travail immatériel*). Some were durable and susceptible of accumulation, although in a form less palpable than material wealth. For instance, the intangible work done within a nation every year provided it with a certain amount of health, skills, enlighten-

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488 To speak of an interval, technology has of course changed this since Storch's days, and we can still consume the *Lost Chord* from 1888, probably the oldest remaining piece of recorded music that was originally recorded on Edison's Cylinder but is now to be found from Youtube.

489 *Ibid.*, 17-19.

490 *Ibid.*, 19.

491 *Ibid.*, 19-20.

492 *Immatériel* is here translated as intangible, because the English word 'immaterial' now carries the meanings of unimportant or irrelevant, far from what Storch wanted to say.

ment, taste, mores, and religious sentiment that were likely to be conserved and thereby augmented during the following years. Storch saw that the best analogy to represent this accumulation of internal assets was in terms of material wealth. Storch called this the "stock of internal assets" (*fonds immatériel*). It was divided in a similar fashion to the way his contemporaries differentiated "stock for consumption" (*fonds immatériel de consommation*) from capital, or "stock for production" (*capital immatériel*).[493]

This stock of internal assets, or stock for consumption, was composed of all kinds of both primitive and secondary internal assets, which included safety and leisure. If an internal asset was not used to produce another elsewhere (in someone else), it then became part of the intangible stock of consumption. In effect, any talents or knowledge not used, perfected, or used for perfection of some other person's attributes became sterile and then part of the stock of consumption. This involved also those working in industries and using their internal assets for the production of material wealth.[494]

Storch wrote that intangible capital needed first to be composed of "primitive assets" (*biens primitifs*), because the consumption of secondary internal assets would otherwise be too prompt to allow them to be accumulated.[495] Good governance, for instance, was based on intangible capital formed by more durable primitive assets like functional institutions, educated and civilized public servants, and the rule of law. In other words, good governance was the yield of intangible capital;[496] and as important for intangible production as capital was for producing material wealth. Removing from a nation the idea of health, skills, and the enlightenment of its people renders it completely unable to produce the internal assets required.[497]

Just as the division of labor in industry required an accumulation of material capital, the division of intangible labor (*division du travail immatériel*) required a similar such increase of intangible capital. If the amount or level of intangible capital was not high enough, then all efforts at division of labor were in vain. Storch used the development of science and the profession of scientist as an example of this. In countries where enlightenment was at such a point to allow scientific work; learned people were generally rather than specifically learned, i.e., they were generalists. Even if they strived to cultivate a certain scientific field, they did not focus on one particular branch of that field but were devoted to its study within a more general context. If the government of such a country set up professorships and academic positions to try and facilitate specialization, Storch argued that the differences between the chairs and positions would exist in name only, until the moment scientific knowledge had actually increased to the tipping point at which professors really would be able to specialize. The possibility of dividing intangible labor into specializations for a certain nation was relative to the spread and accumulation of internal assets within

493 *Ibid.*, 95.
494 *Ibid.*, 96.
495 *Ibid.*
496 *Ibid.*, 18-19.
497 *Ibid.*, 97.

that country. To the same degree as intangible capital increased, the professions destined to produce the internal assets differentiated and flourished. This differentiation further augmented the intangible capital stock and brought forth further subdivision. According to Storch, this was due to a continuous reaction between the two factors. Increasing intangible capital provoked division of labor, and this division further augmented capital.[498]

As economy or economizing, restriction of all unproductive consumption, was behind increasing material capital, it was also the immediate source of increasing intangible capital. Internal goods or assets had to be used in a way that always produced something new, so that their extension and multiplication exceeded the loss of intangible capital that was "harvested by death". This was the only way for a civilization to grow.[499]

Storch also discussed the differences between importing material and intangible capital, and was thus able to anticipate some of the problems of development economics. On the one hand these problems might have felt very current for him, since Russia had a history of deliberately importing of all kinds of professionals from the west, and Storch was himself of German origin. Material capital and wealth was composed of things outside us, which meant that it was possible to mend capital shortages by borrowing from abroad. Intangible capital, on the other hand, was composed of internal "assets" (*produits*), qualities, and property inseparable of the person's possessing them. A country lacking this sort of capital could also borrow from abroad, but this happened only by transplanting the country's emigrants who possessed the required internal assets. And the value of the internal assets of these settlers for a nation was far below their value were they produced in the country. If lacking in enlightenment to expand education and therefore importing teachers from abroad, a country could not find labor as useful as this if it were raised at home. Already the possible language barrier made the propagation of their enlightenment difficult, and even if they had all the knowledge and qualities required for their profession, they would always lack intimate knowledge of the people and their civil and moral habits.[500]

Storch had, however, some ideas about how countries could ameliorate the problems of importing or borrowing *les lumières*, or intangible labor. One was to study and teach foreign languages, especially languages of those countries from where the workers were drawn – learning foreign languages was after all essential for adapting and appropriating intangible treasures from other nations; so this was a powerful method for accelerating the civilization of prosperous nations too. Importing enlightenment and taste was not the only goal, the mores of those nations were at least as important.[501] Also much more recent research on technology transfer has acknowledged that the transfer of technology generally requires the transfer of skilled personnel even when the cultural

498 *Ibid.*, 97-98.
499 *Ibid.*, 98-99.
500 *Ibid.*, 99-100.
501 *Ibid.*, 100-101.

and infrastructure differences are not great. Teece has mentioned, for example, the dependence of the US on British skilled personnel at the end of the 19th century.[502]

Based on the relative *civilisation* of nations, Storch made a very rough division of countries into three classes: civilized, barbaric, and those somewhere in between. Civilized nations were those with an abundance of internal assets to the degree that intangible capital, i.e., enlightened people, books, ideas and useful institutions was employed as efficiently as was possible within that country. Such countries also spread part of their intangible capital abroad, and so became "lenders" (*prêteuses*). The intangible capital of barbaric nations, however, was not sufficient to nourish all branches of intangible labor; and so, to make up for the missing capital, they become borrowers (*emprunteuses*). Between civilized and barbaric nations were independent nations, which had once borrowed to increase and further their intangible labor, and had now reached a level where they no longer saw this necessary to have such relief. But they were still not yet advanced enough to be providers of civilization for other nations themselves.[503]

It is also worth noting that Storch presented the idea that material well-being and wealth increased hand-in-hand with civilization (through a mutual exchange of their respective values), and this was much earlier than Friedrich List (see 1.1), who also understood that the process was interactive and that the mental powers of a population were as much the reason for material progress as material progress was itself. From the perspective of "civilizational progress" (*les progrès de la civilisation*), Storch discussed health, skills, enlightenment, taste, mores, culture, internal security, external security, slavery, and external relations.[504]

After Storch's *Cours d'économie politique* was published in France in 1823 and edited and commented on by J.-B. Say, a debate sprung up on the nature and possibility of intangible goods and capital from both the national and individual perspectives. Storch replied to this in his *Considérations sur la nature du revenu national* (1824), although many of its ideas had been presented already in two conference papers presented in 1819 and 1821.[505]

In the 1819 conference paper, Storch actually set out a new basis for understanding public economy in a way that made intangible goods and capital a very natural part of it. Basically he showed that intangible goods were of utility, saleable, that they contributed to the national income, and so should be dealt

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502 David J. Teece, "The Market for Know-How and the Efficient International Transfer of Technology," *Annals of the American Academy of Political and Social Science* 458, (1981), 81.

503 Henri Storch, *Cours d'économie politique, ou exposition des principes qui déterminent la prospérité des nations*, vol. 5 (St. Petersburg: Pluchart et comp., 1815), 102-103.

504 *Ibid.*, 104-339.

505 Henri Storch, "Le revenu national considére sous un nouveau point de vue. Présenté à la Conférence le 16. Juin 1819," *Mémoires de l'Académie impériale des sciences de St. Petersbourg* 8, (1822): 412-434; Henri Storch, "Considérations sur les sources du revenu national. Présenté à la Conférence le 19. Sept. 1821," *Mémoires de l'Académie impériale des sciences de St. Petersbourg* 8, (1822): 470-494; Henri Storch, *Considérations sur la nature du revenu national* (Paris: Bossange, 1824).

with in the public economy. Storch remarked that everywhere one could see people surviving on free markets with products that were purely intangible, and within civilized nations there was a huge market for these. In addition, he pointed out that there were people around the world who languished in misery for lack of some such products, and were these products to increase, the situation for these people would improve as well. He argued that it was completely within the bounds of public economics to analyze intangible goods and capital more closely without impinging on other moral and political sciences, since these products only became economics when they formed part of the national income, and they were not considered from this perspective by any of the other sciences concerned.[506] Storch also understood that national wealth had to be understood as a flow, or income, rather than as a stock.[507]

Whereas Quesnay (and the physiocrats) had stuck to agricultural products, Smith had broadened the understanding of national wealth to include the products of manufacturing and commerce. This was a necessary and important change, but Smith had then got stuck with material products, and Storch saw no good reasons for this. Whether a product was considered material or intangible was no reason to leave it out of national income products that satisfied real needs and were constantly bought and sold on the market.[508]

3.2.4.3 *Capital Personnel* as National Capital

Storch's discussion of intangible and "personal capital" (*capital personnel*) as national capital and how it was reproduced in *Considérations sur la nature du revenu national* (1824) was clearly sharpened by Say's notes and previous comments on his work by others. The mass of assets that constituted national capital he divided into those that were immediately necessary for the process of production but only moderately important for the producers themselves, "effective capital" (*capital effectif*), and assets that were crucial to the producers themselves but only moderately important for the production process (*capital personnel*). In other words, only the first was capital in the old definition of the term, and it was divided into "fixed" (*fixe*) and "circulating" (*circulant*). Fixed effective capital was composed of: (a) soil improvements (*améliorations foncières*); (b) *constructions* such as factories, museums, roads, and ports; and (c) machines and tools (*outils*) required by industries and services.[509]

Personal capital was also divided into "fixed" and "circulating" (as a component of national capital), and its fixed part included both the natural and acquired faculties of the producers, i.e., the people. These were the results of services they had received within the community for their education, raising, and upkeep. Because these faculties were used in production, this "fixed personal capital" was analogous to "fixed effective capital", especially with regard

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506 Henri Storch, "Le revenu national considére sous un nouveau point de vue. Présenté à la Conférence le 16. Juin 1819," *Mémoires de l'Académie impériale des sciences de St. Petersbourg* 8, (1822), 425-426.

507 *Ibid.*, 427.

508 *Ibid.*, 428–429.

509 Henri Storch, *Considérations sur la nature du revenu national* (Paris: Bossange, 1824), 88-89.

to what was understood as soil improvement (*ameliorations foncières*), except this element excluded the productive faculty that was already inherent in land, but then effective capital excluded the natural faculties of a person (fixed personal capital). In effect, this meant that as long as fixed effective and fixed personal capital were combined, they mutually compensated for each other's deficiencies. The real difference was that a person required upkeep before becoming economically active, whereas the land existed without the help of human beings. Storch further divided "fixed personal capital" into three kinds: (a) natural faculties; (b) mechanical and routine faculties that required instruction; and (c) faculties and labor that needed a scientific education. In this last category he included the work of entrepreneurs in all branches of industry. Furthermore, artists, lawyers, doctors, teachers, the clergy, administrators, and the heads of military required scientific studies and an education to develop their faculties. The value of such capital partly consisted of the maintenance costs of these studies, and partly of the fees for them.[510]

Meanwhile, when it came to "circulating personal capital", Storch saw two kinds: (i) the material goods required for maintenance (*subsistances*), and (ii) the services which a producer required for ones existence (*services*). Storch understood the latter to be the underlying components or factors that made it possible to produce the three kinds of fixed personal capital faculties mentioned above. For laborers with just their inherent natural faculties, the production process required only a few services – e.g., personal safety, health, maintenance, not to mention the culture of religious sentiment, because the essential needs of workers were linked to being human, sensitive, and intelligent. Without any spiritual and cerebral nourishment the most essential qualities of a good laborer were lost. But when it came to services required and rendered by workers doing more complex jobs, it became more complicated. Whereas workers generally only required protection of their person, entrepreneurs and capitalists required protection of their material and financial property. All of these services were of course not public, and successful capitalists additionally required the services of stewards, cashiers, businessmen, lawyers, accountants, insurers, and others to defend their interests. Production was therefore very much about rendering and selling different kinds of services.

The last chapter in Storch's *Considérations*, "How nations enrich themselves by employing their superfluous income",[511] included some ideas that eventually became fundamental to modern economics, and which many economists at the time found difficult to accept (and still do). Storch ridiculed the prevailing theory that saw saving as an automatically necessary part of production. Furthermore, he argued that Smithian analogies between the economy of an individual and nation were fallacious; instead, he drew an analogy between that of an isolated family and a nation: both save and produce only in order to consume more goods.[512] If everyone wanted to save, no one would be able to,

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510 *Ibid.*, 90–101.
511 "*Comment les nations s'enrichissent-elles par l'emploi du revenu superflu?*" *Ibid.*, 160.
512 *Ibid.*, 171-172.

because in a mutual relation of productive individuals one person's expense was another's income.[513] Thus Storch understood very well the importance of demand, and that excessive savings could in fact endanger a national economy.[514] In a way, one might see Storch as an early Keynesian, in the sense that he was arguing that it was very one-sided to focus on just savings and supply from the point of view of public or national economics. His reasoning was perhaps based on the idea that civilization had not stagnated since birth, and thus if the human mind had made progress, it was spending not saving the superfluous income that had been reaped from the world. Storch was, in this sense, preceding Pellegrino Rossi, for instance, who wrote two decades later that saving alone could be seen in purely negative terms – as an act of simply not consuming. There was nothing more to it than that (*rien de plus*).[515]

3.2.5 Louis Say

Louis (Auguste) Say (1774-1840) was Jean-Baptiste Say's younger brother, an industrialist, and the founder of two sugar refineries in Nantes and Paris. With these he made a fortune before starting to write about issues of political economy.[516] He was a severe and uncompromising critic of what he claimed was the loose and fluctuating terminology of Adam Smith and David Ricardo. He also criticized Smith for pricing things based on their exchange value alone. His brother's work he appreciated, yet in some vital matters he disagreed strongly (and these he went into at length in his publications). For example, he saw that his brother had forgotten that there could be no production of wealth without new or improved utility. For Louis Say, the wealth of something could only be determined in proportion to its degree of utility; exchange value was a secondary matter.[517] This made it easier for Louis to see service producers as productive and to define capital in a way that emphasized human faculties. It is clear that Louis Say was more of an entrepreneur and merchant than a political economist. Unlike his brother Jean-Baptiste, who turned to political economy after failing in business, Louis started to write his works at the relatively mature age of 44 to complement to his active and successful life as an entrepreneur. Writing about political economy was perhaps a way to imitate as well as to react to what his brother was doing.

In *Principales causes de la richesse* (1818), fundamentally a critique of Smith, Louis Say defined wealth as being all material and intangible things that were

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513 *Ibid.*, 176.
514 *Ibid.*, 177-178.
515 See Pellegrino Rossi, pp. 121-125.
516 He chose a good time to enter the sugar refinery business, since due to high tariffs and eventually an import ban for refined sugar in 1814, there certainly was demand for his products in France. Marc Penouil, "Louis Say," *Revue économique* (1967), 99.
517 Robert H. I. Palgrave, ed., *Dictionary of Political Economy*, 3/3 (London: Macmillan, 1913), 359-360. Ricardo's comment to Louis Say's criticism was: "M. Say's brother, Louis Say, has written a thick volume of criticism on Adam Smith's, Malthus', his brother's, and my doctrines;—he quarrels with all our opinions, but shews pretty evidently that he knows very little about them." David Ricardo, "Ricardo to Trower. 14 Dec. 1822," *The works and correspondence of David Ricardo* (2004), 245.

of utility, of which there were two categories: (i) those that satisfied our direct and diverse needs; and (ii) those that did so indirectly. From the sum of all this wealth he took capital to be all things that could be accumulated and owned in durable sense. These could be both public and individual forms of capital, and they were divided into two categories as well: (a) material capital, and (b) intangible capital. There were two kinds of intangible capital. One consisted of human or natural active forces, and the other of intellectual capacity, i.e., the art to make the most advantageous use of those active forces to produce utility.[518]

Labor he defined as a combined use of active force and a certain amount of intellectual capacity. Those who possessed active force, intellectual capacity, or both combined drew from this intangible capital a profit proportional to the utility produced.[519] He emphasized that for a person who had these two kinds of capital, it was not working that was paid, but the work done, i.e., the utility resulting from the effective application of physical and intellectual forces. In exchange for the utility performed, one received a money payment with which some other utility could be purchased. He saw that, by this definition, intangible capital alone could not produce things of immediate utility and it was necessary that the force and industriousness of man act upon material capital.[520] Therein lay the secret of wealth creation – the action of intangible upon material capital, and the augmentation of capital was the main reason for wealth to increase.

However, about ten years later, in *Traité élémentaire de la richesse individuelle et de la richesse publique* (1827), Louis Say's classification had changed a bit, perhaps due to the influence of his brother's works. He now said that all capital could be divided to three grand classes. These were (i) immovable capital (lands, houses, etc.), (ii) movable capital (goods, tools, money, etc.), and (iii) industrial capital (physical force, intellectual capacity, skills in arts and sciences, commercial credit etc.).[521] For some reason, the English translation of the last category in the original – *capitaux industriels* – has been changed to intangible capital. This was a term, as we saw above, that J.-B. Say used in his 1818 work (*capitaux immatériels*).[522] Finally, in his *Études sur la richesse des nations* (1836) Louis Say went back to two categories of capital – "effective" and "pecuniary". Industrial capital was now part of effective capital, which covered both the physical and intellectual faculties of people. Again, the use of these faculties was behind producing all things and services which satisfy our needs and tastes; and here too, the principal criticisms were being levelled at Adam Smith's followers (*l'école d'Adam Smith*).[523]

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518 Louis Say, *Principales causes de la richesse ou de la misère des peuples et des particuliers* (Paris: Déterville, 1818), 67-68.
519 *Ibid.*, 68-69.
520 *Ibid.*, 69.
521 Louis Say, *Traité élémentaire de la richesse individuelle et de la richesse publique* (Paris: P. Mongie, 1827), 116.
522 Lewis (Louis) Say, *An Elementary Treatise on Individual and Public Wealth* (London: Edward Churton, 1835), 115.
523 Louis Say, *Études sur la richesse des nations* (Paris: Renard, 1836), 65.

3.2.6 Charles Ganilh and the Residual

Charles Ganilh's (1758–1836) views on capital's rate of profit is something that most authors in political economy forgot for almost 150 years. Ganilh did not enjoy respect among political economists, at least not across the Channel. In Palgrave's *Dictionary of Political Economy*, E. C. K. Gonner wrote that the chief value of Ganilh's *Dictionnaire analytique d'économie politique* was to remind the modern user of those subjects that were being most discussed at the time, but both its range and method were said to be very limited.[524] Much earlier, in *The Literature of Political Economy*, an even smaller entry on Ganilh's *Dictionnaire* by McCulloch said that Blanqui may well have said that the *Dictionnaire* was Ganilh's worst work, but "in truth they [Ganilh's works] are universally good for nothing". Schmoller also accused Ganilh of claiming that there was no revenue without it being paid in money, which would mean that eating, drinking, clothing, and residences were possible only with money as a means of exchange.[525] Nevertheless, Ganilh had some very interesting things to say about capital's rate of profit and the nature of capital itself. Furthermore, another reason for these criticisms may have been simply based on the fact that Ganilh challenged Smith and his followers' ideas about production, productivity, and wealth.

Ganilh attacked the idea of "sterile labor" or those classes of sterile producers that were prominent in Smith's *Wealth of Nations*. According to Ganilh, the labor of all classes converged in the production of revenue. All three classes of consumers, who, in exchange for their consumption, carried out different tasks and produced different kinds of product, consumed the national product. One group, implying the 'non-sterile' agriculturalists of Smith and the physiocrats, produced all the goods of consumption for all classes of society. Another group produced the durable goods, whether for utility, convenience, or pleasure. And a third group rendered the indispensable services which promoted the well-being of individuals and ensured the maintenance, prosperity, and glory of a civilized society.[526]

Furthermore, Ganilh argued against Smith's idea that consumption would somehow run counter to the accumulation of productive capital. Ganilh reasoned that it was not possible to consume products without giving the producer the equivalent with to what he had produced, and thus consumption should not harm production. It would be a mistake to subordinate consumption to production, because it was consumption which provided production with all its

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524 Robert H. I. Palgrave, ed., *Dictionary of Political Economy*, 3/3 (London: Macmillan, 1913), 182-183. See also Willie Henderson, "Charles Ganilh's *an Inquiry Into the Various Systems of Political Economy* and Subsequent Writing: English and French Contexts," *Journal of the History of Economic Thought* 30, no. 4 (2008): 511-534.

525 Gustav Schmoller, "Die Lehre vom Einkommen in ihrem Zusammenhang mit den Grundprincipien der Steuerlehre," *Zeitschrift für die gesamte Staatswissenschaft,* 19, no. 1/2 (1863), 7.

526 Charles Ganilh, *La théorie de l'économie politique, fondée sur les faits résultats des statistiques de la France et de l'Anglettere*, vol. 2 (Paris: Deterville, 1815), 5–20.

powers.[527] Ganilh also explicitly turned Smith's hierarchy of sectors on its head, and argued that it was intellectual work that was in the end the most efficient wealth producer, not agriculture. Both individual and general wealth followed the progress of the intellectual classes; and although there were problems with social institutions, politics, and administration, wealth in general was in proportion to the combined insights, talents, and genius of all laboring classes.[528]

Abandoning the idea of sterile labor opened up perspectives that made it easier to discuss both growth and intangible forms of capital. In terms of growth, not having to relate everything to agricultural production and not having have to regard growth in any other areas as somehow less 'real' certainly helped to understand an industrializing and modernizing society. In terms of intangible forms of capital, understanding both the economic and non-economic value of services and public services made it easier to discuss reputation, talent, knowledge, or honesty as capital.

In the first volume of *La théorie de l'économie politique* (1815) Ganilh discussed important phenomena and factors that were not visible in the balance of trade or usual national statistics, but which were still of great importance and profit, in his opinion, and formed the third branch of the commercial wealth of all nations:

> Enfin, la dernière partie qui ne figure ni dans le bilan du commerce des peuples modernes, ni dans leurs statistiques, et qui n'en est cependant ni la partie la moins précieuse, ni la moins profitable aux progrès de la richesse commerciale, consiste dans les lumières, les talens, la probité et la réputation des commerçans; source et fondement du crédit commercial, de ce fonds illimité et inépuisable dont les prodiges dépassent toutes les exagérations de l'imagination la plus hardie, et dont les bienfaits sont encore bien loin de ceux qu'on peut en attendre, si l'on parvient à connaître toute l'étendue de ses ressources. On pourrait évaluer cette partie inconnue du capital des peuples commerçans, par l'excédant des profits que les capitaux réels et effectifs d'un peuple obtiennent sur une somme égale des capitaux réels et effectifs d'un autre peuple.[529]

The insight, talents, honesty, and reputation of a merchant were important sources of commercial credit and resources, and it was possible to evaluate the amount of this unknown capital nationally by estimating the difference of profits per units of real and effective capital between nations. Therefore, Ganilh knew to explain differences of wealth and profits with usually unmeasured, unknown (*inconnue*) capital consisting of knowledge, talents, and reputation,

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527 Charles Ganilh, *Dictionnaire analytique d'économie politique* (Paris: 1826), 95.

528 Charles Ganilh, *La théorie de l'économie politique, fondée sur les faits résultats des statistiques de la France et de l'Anglettere*, vol. 1 (Paris: Deterville, 1815), 269-273.

529 "Finally, the last part, which features neither in the balance of trade for modern nations, nor in their statistics; and yet is no less precious or profitable to the growth of commercial wealth, consists of the insights, the talents, the honesty, and the reputation of those in commerce; the very source and foundation of commercial credit, that springs from an unlimited and inexhaustible supply, with a potential that goes beyond the exaggerations of the boldest imagination, and which has benefits of which we still do not know the full extent. One might calculate the amount of this unknown part of capital belonging to a mercantile nation by comparing the excess of profits that their real and effective capital obtains to an equal sum of the real and effective capital of another nation." Translated by the author. *Ibid.*, 168.

and other intangible factors. This is a conceptual precursor of the Solow residual.

In his article *capitaux* (capitals) in 1826 published in *Dictionnaire analytique d'économie politique* Ganilh took a kind of a transaction cost approach to intangible capital. Good government and administration did not produce directly and immediately, but indirectly and mediately they contributed to production by increasing the fecundity of other labor. Without their protective and guardian services other directly producing industries would be less fruitful and productive. He wrote that any person doing any kind of business has to use considerable share of one's time to protect or insure oneself against the constant threat against one's person or property. Furthermore, one had to shield against the laziness, vice, and criminality of one's fellow citizens and against the ambition and avarice of foreigners. Therefore, for Ganilh, the profit of capital was always in proportion to the education and talent of those supervising and leading in the workplace.[530]

3.2.7 Adolphe Blanqui

Adolphe Blanqui (1798-1854) was also one of the early commentators on whether intangible goods, i.e., services, should be included as a productive part of the economy. Blanqui was an economist writing extensively on issues of economic history and the history of economic thought. He founded the *Journal des Économistes* and succeeded Say as Professorial Chair of the *Conservatoire des Arts et Métiers* in 1833. In his short *Précis élémentaire d'économie politique* (1826), published shortly after Say and Storch's debate, and in his later works, he discussed both the formation of intangible capital and production of intangible goods.

3.2.7.1 Formation of Intangible Capital

According to Blanqui, capital was formed only with the help of already existing capital. Capital could be knowledge and skills (such as a poet has). Indeed, if a man of letters wrote a successful tragedy that brought in 50,000 francs, which he then used to buy 60 acres of woodland, it was the result of previous investment in the education and maintenance of the poet, i.e., his capital.[531] Blanqui's definition of labor also contained an intellectual element, so that "work" was either intellectual or mechanical action exercised by man on the resources offered by nature. It was the basic principle behind all production, utility, and value, and meant that both chemists and woodcutters, for instance, were equally capable of producing utility whether they did so intellectually or mechanically. In his discussion concerning the distribution of wealth and the revenue of capital, he noted that when such capital performed services that made more capital (such as a mechanical tool), then it was natural that these services be compensated for it.[532]

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530 Charles Ganilh, *Dictionnaire analytique d'économie politique* (Paris: 1826), 90, 102.
531 Adolphe Blanqui, *Précis élémentaire d'économie politique* (Paris: Bachelier, 1826), 59-60.
532 *Ibid.*, 178-179.

On the one hand Blanqui stated that without work, we would have never started to use steam, wind, or water. Yet he wondered that if humans were left without any of these natural agents, to what extent would we exercise our intellectual or mechanical capacity to build mills. Therefore, Blanqui also emphasized the importance and power of nature in helping production. He thought that this served as an answer to economists who had exaggerated ideas about the importance of work and were ignoring the obvious action of nature, e.g., water, air, and soil. This also served him in his next step, since he thought that this had also led economists to think up systems that were unnecessarily harmful to landowners.[533] This was not a statement of support for physiocracy; he clearly stated the huge error some previous authors had made by attributing sovereign influence over land and property as a production factor. The production of agricultural products had a limit, although this was extendable to some degree, but manufacturing products had no other limits than a man's genius.[534]

When discussing intangible products, Blanqui gave credit to Say, and mentioned him as the first to have come up with the theory.[535] Say was the one who had rehabilitated the intellectual producers (or the *savans*) in the eyes of the economists. As Say had done, he listed scientists, chemists, doctors, lawyers, and artists as among the learned. Intangible products (*produits immatériels*) were products that one could not touch and were consumed at the moment of their creation. Blanqui cited Say as saying that Adam Smith did not want to consider the "results" of these industries as products, but nevertheless the results were indeed sources of wealth, for they had an exchange value.[536]

But like Say too, Blanqui was here stuck with the idea that to be productive from the point of view of national capital, intangible products had to be such that they promoted the production of tangible goods. For instance, if a *savant* found a way to cut the expenses of producing some formerly very expensive substance. Whereas Smith had denied that these industries could be productive, some other authors (Blanqui doesn't give the names) had stated that they were and could proliferate *ad libitum*. Blanqui threw in Rome as an example to prove that Smith was right and that the intangible goods in general don't serve accumulation and thereby are sterile regarding national capital. The eternal city had no lack of doctors, lawyers, priests, and wandering entertainers who healed, defended, preached, and played as much for the Roman people as for money. But the Papal States were not rich, since the products of these industries were consumed the instant they were produced and could not be reproduced.[537]

Like any other goods, intangible products were themselves the result of a previously employed capital. The cost of educating a chemist, doctor, or a lawyer was represented by the capital in his person or his talents. The inventions, prescriptions, and counsel could be understood as the products of these profes-

533 *Ibid.*, 70.
534 *Ibid.*
535 *Ibid.*
536 *Ibid.*, 72.
537 *Ibid.*

sions.[538] Despite in most cases being unproductive from the point of view of national capital, for their proprietors the capital in skills and knowledge was a true source of revenue. After this Blanqui went to discus division of labor and the impact of machines on economy, both dealt based on Say's work.

Blanqui offered further elucidation on the impact of skills and knowledge in his chapter on the industrial revenue of the learned (*savants*), entrepreneurs, and workers. This discussion was similar to the one by Say. Blanqui stated that this framework fitted manufacturing better than agriculture because the profits were higher and more distinct. The high profits of industry were interest on the capital allocated to the education of the industrialist and on the capital engaged in production. That the profits in industry were often higher than in agriculture was because the education of an industrialist lasted longer and was more difficult, he argued, than in farming.[539]

3.2.7.2 Industrial Orders: *Savant, Entrepreneur, Ouvrier*

According to Blanqui, the "learned" (*savant*), held the premier place in the industrial order. They were the ones who invented, perfected, and simplified the processes that gave the "entrepreneur" (in second place) the chance to produce more goods as cheaply as possible – by employing "workers" (*ouvriers*). The learned, however, were not getting the highest profits from their work. Blanqui illustrated this point with an instance about James Watt, the inventor who had made some of the most crucial improvements to the steam engine. He had to share the profit of his inventions, because he was unable to commercialize them before Matthew Boulton became involved – due to having had a share in Watt's patent as part of a settlement for an unpaid debt from John Roebuck. Most of the time, wrote Blanqui, the *savants* were content with public recognition (*couronne civique*), if it did justice to their genius. Such generosity of spirit was, in fact, one of the signs of true talent in Blanqui's opinion. It led these men to diffuse, communicate, and to apply their inventions usefully, sometimes even to the detriment of themselves. Blanqui wrote that they had become like the light that no one pays for and the people that others forget to thank, even if they are the ones that have benefited the most.[540]

The second in the industrial order were *entrepreneurs*, and their work was also dependent on their acquired or innate attributes, which were apparently qualities not commonly found. The entrepreneur was not only responsible for implementing the ideas of the learned in a way that served the aims of the capitalist, who provided the funds (if the entrepreneur was not himself the capitalist); but also for employing the workers, who provided the required labor. Some of the required qualities in an entrepreneur were honesty, wisdom, economic efficiency, business skills (*activité*), and intelligence. Such were the requirements, that in many ways they were not so different from those of the *savant*. Whether a business prospered or failed was largely dependent on the management skills of the *entrepreneur*, which explained the huge fortunes among some of them.

538 *Ibid.*, 72-73.
539 *Ibid.*, 171.
540 *Ibid.*, 172.

The more a business was exposed to risk, the more there were good chances, since it was precisely the hazards that excluded certian competitors by temporarily diminishing demand (*quantité demandée*).[541]

In *Précis élémentaire*, Blanqui did not bring any new elements as such to the discussion on intangible capital, but he repeated the views of Say and often criticized those going further than him. Blanqui's thought in *Précis élémentaire* still adhered to the hierarchy of sectors in the spirit of Smith and physiocracy, which meant that from a national perspective, the producers of intangible goods (i.e., services) were productive only when their services promoted and helped produce tangible goods. The role of the worker meanwhile, was simply to offer one's physical force. Society only required, able-bodied, alive, and fit. This too he had picked up from Say. Although the work of laborers was manual, the analogy between a machine and man was not appropriate, because a worker could have children and furthermore his person represented capital accumulated by his parents for his benefit. These were to be taken into account in the salaries of the workers.[542] It is a bit difficult to infer from this last statement to what degree Blanqui thought the analogy was applicable here, and whether the whole of a person's body was thought to represent an individual's capital, but at least when discussing *savants* and *entrepreneurs,* his emphasis was on their acquired skills and knowledge.

3.2.7.3 Moral Capital and Industrial Development

In *Cours d'économie industrielle* (1836-1838) Blanqui was more specific and used more space to define and discuss what he called moral capital (*capital moral*). The content of the discussion had leaped forward considerably, and Blanqui considered the issue of moral capital to be the most important question related to capital as a whole, because it was the intelligence of man that determined the use of other resources. The differences related to the level of this moral capital and the level of development between, for instance, North and South America were enormous, and Blanqui also cited the map prepared by Charles Dupin showing the level of popular education in each *département* in France and how the high level of education went hand-in-hand with industrial development. When he spoke of *intelligence*, though he noted that natural circumstances and climate had some role to play, he did not mean some inherent capacity; he was emphasizing the role of education and adopted habits.[543] In *Cours d'économie industrielle*, he also discussed how moral capital was created – through elementary, secondary, and higher education.[544]

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541 *Ibid.*, 173.
542 *Ibid.*, 173-174.
543 Adolphe Blanqui, Adolphe Gustave Blaise, and Joseph Garnier, *Cours d'économie industrielle, 1837-1838*, vol. 1 (Paris: J. Angé, 1838), 51-53. Dupin's map: Charles Dupin, "Carte figurative de l'instruction populaire de la France," https://commons.wikimedia.org/wiki/File:Carte_figurative_de_l%27instruction_populaire_de_la_France.jpg (accessed April 11, 2015).
544 Adolphe Blanqui, *Histoire de l'économie politique*, vol. 1/2 (Paris: Guillaumin, 1837), 165-185.

It is interesting that Blanqui noted this correlation between high levels of education (i.e., moral capital) and industrial development, because it is something that economic historians are still very much debating. For example, Raphaël Franck and Oded Galor show in *The Complementary between Technology and Human Capital in the Early Phase of Industrialization* (2015),[545] that early industrialization may well have been conducive for human capital formation with increased literacy and education, and not a period when people predominantly became less skilled, as has previously been thought. Blanqui and Dupin would have immediately agreed with this, and indeed enough authors of the time saw material and moral development as mutually dependent on one another to see it as a mainstream view. Dupin's map, showing the level of popular education in France by department also matches quite well with the maps presented by Franck and Galor on the number of teachers (in 1840), the share of literate conscripts (1859-1868), and the share of pupils in the population (1840).[546] In all of these and in Dupin's map, the indicators of education level are highest in Northeastern France, though one must bear in mind there is a two to four decade difference in the time periods the maps cover.

Blanqui wrote that education increased the intrinsic value of a person, and this value was also representative of the sums spent on their education. Whether a mechanic, laborer, or a thinker, their value went up or down based on their capacities and usefulness. Education was the fixed capital in people. Whereas Bacon had written that talent is power, Blanqui saw it as wealth. Whereas landowners' stock remained in the land, educated inventors profited from their work for a period before it became public domain and usable for everyone. Studying was thus the best and the surest method to increase the moral capital of a country. Blanqui used an instance of two brothers (very similar to the one used already by Cantillon), where the first brother received a total of 20,000 francs to live off (*rentier*), while the second got an education worth a total of 20,000 francs. After ten years the first brother had been subsisting miserably on an annual interest of a thousand francs, whereas the educated one had made it in industry and commerce and doubled or tripled the initial capital invested. This kind of thinking could be applied to nations too, with Blanqui comparing Spain to the first brother and England to the second.[547]

Blanqui also discussed the effect of demand on the value of moral capital. A daily increase in moral capital was the factor that facilitated the growth of national wealth. As with other classes of capital, the abundance of moral capital also made it cheaper, i.e., the interest rate went down. Blanqui illustrated this again by comparing a man of independent means (*rentier*) with a man of indus-

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545 Raphaël Franck and Galor Oded, "The Complementary Between Technology and Human Capital in the Early Phase of Industrialization," *Working Papers from Brown University, Department of Economics* 3, (2015): 1-49.

546 *Ibid.*, 10.

547 Adolphe Blanqui, Adolphe Gustave Blaise, and Joseph Garnier, *Cours d'économie industrielle, 1837-1838*, vol. 1 (Paris: J. Angé, 1838), 54-55. Spain's failures are still a standard fare of economic historians, see: Jerry F. Hough and Robin M. Grier, *The Long Process of Development: Building Markets and States in Pre-Industrial England, Spain, and Their Colonies* (2015).

try, who had the know-how and intelligence to run a business. Whereas the rentier would receive 4 to 5% interest on his capital, the man of industry could expect a 10 to 15% return. This was natural, Blanqui argued, since the activity and knowledge (indeed talent) of a man who could run a successful company had to be compensated better than someone simply investing his money and bear only the risk of partial loss.[548] Finally, Blanqui complained that the French retired too early, compared to the English, and let their businesses be run by their offspring rather than more talented people. This was unproductive consumption of the moral capital of the nation.[549]

In the 1838 edition of *Cours d'économie industrielle*, Blanqui discussed how to increase the moral capital of a nation through public education, for women especially. He started by presenting his view on the best way for industry to be organized. This required: (1) banks to multiply and distribute capital to the areas of need; (2) roads and railways to facilitate commercial relations, the circulation of ideas, and transport of merchandise; and (3) moral capital. The last he defined here as the development of intelligence, the diffusion of useful knowledge, and the growth of individual aptitude in one's profession. Moral capital was made up of all the intellectual forces of a nation, in all its specialized forms, applied to all branches of production. It would be increased with a better system of education that would enable a person ready to take full advantage of each and every natural resource of a country.[550]

> Ce n'est pas que l'intelligence manque, c'est l'enseignement.[551]

3.2.8 Auguste Walras

The idea that value was based on "scarcity" (*rareté*) instead of utility was the overarching feature of Auguste Walras' (1801–1866) writings on social wealth, and indeed it is scarcity that provides the link between his two major works: *De la nature de la richesse et de l'origine de la valeur* (1831), and *Théorie de la richesse sociale* (1849). Whereas Auguste's point of departure was the nature and origin of property, Van Daal and Jolink (1993) have argued that his son Léon took the concept further to look at its role in the exchange of social wealth (see 6.2.3).[552] Auguste Walras accused Say of contradicting himself by arguing on the one hand that value is based on utility and with the other that social wealth only equates with produced wealth. In *De la nature de la richesse et de l'origine de la valeur*, Walras made clear the reasons why wealth could be both material and intangible; while in *Théorie de la richesse sociale* (1849) he explicitly wrote about human faculties being forms of intangible capital. However, his emphasis on

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548 Adolphe Blanqui, Adolphe Gustave Blaise, and Joseph Garnier, *Cours d'économie industrielle, 1837-1838*, vol. 1 (Paris: J. Angé, 1838), 56-57.
549 *Ibid.*, 60.
550 *Ibid.*, 161.
551 "It is not intelligence that is lacking, it is education." *Ibid.*, 160.
552 Jan van Daal and Albert Jolink, *The Equilibrium Economics of Léon Walras* (London; New York: Routledge, 1993), 13.

the difference between capital and the service of capital, and on human faculties being a part of natural capital led him to consider human beings as capital too.

3.2.8.1 Natural vs. Social Goods, or the Wrong Distinction?

J.-B. Say's idea of value was based on the commonly accepted distinction between natural and social wealth (*biens naturels et sociaux*). Say argued that political economy was not interested in dealing with natural wealth, yet he understood that just as some lands were naturally more fertile than others, so were some individuals naturally endowed with the "gift" (*dons gratuits*) of greater industrial faculties than others. Nevertheless, he still treated them as economic goods. Auguste Walras argued that this completely ruined Say's principles that (i) social wealth was always man-made, (ii) that all values were man-made, and (iii) that political economy should thus not deal with natural gifts; because at the same time he was admitting that both arable land and the industrial capacities of man *were* partially 'natural wealth'. Walras argued that while it was fine to distinguish between natural and man-made wealth, it was erroneous to then claim that political economy be only interested in the latter. Instead, the distinction should be over whether, in fact, the supply of a certain good was limited or not.[553] The subject of political economy was supposed to be about everything that had appreciable value, and it seemed that this only applied to goods in limited supply,[554] so perhaps this was the key to value – scarcity. As both arable land and humans were naturally endowed with varying levels of wealth and industrial faculties, it was clearly unfeasible to separate the natural and man-made utility in them. Rather it would be better, when both these sources of capital were in short supply, to see each of them as legitimate. Although Auguste Walras did not take his reasoning quite so far, his son Léon did; and this opened the door for human capital to be seen in a physical capacity based on a subjective and relative concept of value (not just wealth). Human beings and their attributes could now be seen as the inseparable combination of natural and man-made capital, in similar manner to arable land.

Auguste did not see the tangibility of labor or its products to be an issue. He thus saw Smith's division of labor into productive and unproductive, or tangible and intangible utility, as a needless distinction to make. Whether utility was fixed or embedded in material objects or an intangible phenomenon made no difference; its essential purpose was to satisfy needs and produce enjoyment.[555] Many products of an intangible nature also had the most durable consequences, so Smith and Say's criterion of durability was being fulfilled only to show that asking about the materiality of a good was not the right question to

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553 In 1805 Christian von Schlözer called these the "gifts of nature" (land, forests, fishing rights, etc.), not produced by people but which through limited availability in a developed society received value as "figurative" or "improper capital" (*uneigentliche Kapitalien*). Christian von Schlözer, *Anfangsgründe der Staatswirtschaft oder die Lehre von dem Nationalreichthume* (Riga: Hartmann, 1805), 68.

554 Auguste Walras, *De la nature de la richesse, et de l'origine de la valeur* (Paris: Furne, 1832), 78–83. Originally published in 1831.

555 *Ibid.*, 24.

be asking.[556] Similarly, because it was about relative values, nor was it the right question to ask if the talent or skills of lawyers, doctors, administrators, and musicians were a form of wealth.[557]

Auguste Walras also accused J.-B. Say of confusing capital with its service. This was an argument made more forcefully later on by Léon Walras (6.2.3) and also Irving Fisher (5.2.5); and used to show the weaknesses in definitions of wealth, capital, and interest (or profit) in the works of many authors. For example, in relation to the theory of human capital, Léon Walras argued that it was wrong to think of the labor itself as capital (as Macleod was doing), because labor was merely the "service" of laborers; and as Fisher also argued, the laborers themselves were the actual capital.

To better understand Auguste Walras's reasoning, a glance at his doctrine of goods is in order. He saw that economists were interested in utility, and utility included all those sensations of satisfaction and pleasure that any kind of goods or phenomena (material or "incorporeal") caused. These external phenomena were all goods, and possession of such goods of utility meant wealth or riches. Form this point of view, it was perfectly possible to say that health or gaiety were a form of wealth as they were also useful. Whether economists should be interested in all such goods, however, was another matter.[558] Walras the elder devised an axis of distinction for all things that were, by their nature: (1) "graspable or manipulable" (*saisissables ou coercibles*) and (2) "non-graspable or non-manipulable" (*insaisissables ou incoercibles*). The first group included things like fruit, trees, plants, animals, minerals, and (to a degree) arable land; while the other included the sea, great rivers, lakes, the air, the wind, sunlight, natural heat, and all those natural forces (like magnetism for instance) that seemed to exist and function in a permanent and universal manner. The first could be enjoyed by individuals exclusively, while the second was clearly available for the universal use and enjoyment of all humanity.[559]

Items in the first group generally tended to be in limited supply, which meant they were more likely to be scarce (*rare*), and this affected their value. From this followed the second axis of distinction in terms of countability between (a) "limited goods or appreciable wealth" (*biens limités ou des richesses appréciables*), and (b) "unlimited goods or non-appreciable wealth" (*biens illimités ou des richesses inappréciables*). According to these two axes, unlimited and non-graspable goods were to be considered in terms of their relative "utility"; while limited and graspable goods were to be considered in terms of of "wealth". This meant that non-graspable unlimited goods were excluded from any theory of property, because they could only be compared in terms of their utility, and this made it relatively impossible to measure them in an exact or rigorous enough manner. Walras claimed, for instance, that it was unfeasible to measure the utility of beauty, health, prudence, and a thousand other qualities

556 *Ibid.*, 27-28.
557 *Ibid.*, 23-25.
558 *Ibid.*, 45-46.
559 *Ibid.*, 46-47.

of this kind. When an unlimited non-graspable was seen to be "of utility" (or rewarding) in some way or another, then all was said and done. The science of political economy could not add anything more to this, Walras argued.[560]

> L'utilité dérive de la nature intime de la chose comparée à la nature humaine, la valeur dérive de la rareté. C'est parce qu'une chose est rare, et uniquement parce qu'elle est rare, qu'elle se vend et qu'elle s'achète, autrement dit qu'elle devient *échangeable* et qu'elle tombe dans le *commerce*.[561]

The goods that interested political economists were those that were limited in quantity, graspable by nature, and consequently measurable. They could be owned, compared, and given a value according to their scarcity, not their utility, and scarcity brought value. An item could be two, or three times more scarce than some other object, and thus two, or three times more valuable. This was a criterion that could be rigorously applied and thus be the proper object of a science. However, the possession and enjoyment of utilities did constitute a genuinely important class of wealth that a moralist should not neglect, but only the possession of rare ones (and values) constituted appreciable wealth that could be counted and given a value. Walras called this "mathematical wealth" (*richesse mathématique*), and this was the proper object of study for political economy. Meanwhile, the relation of wealth to property was a moral one, despite the fact that during some eras force and violence seemed to have been the defining factors in this.[562]

Walras, in mocking reference to Ganilh, claimed that it had never occurred to a moral philosopher before to claim that there was a difference between ancient and modern morals. Ganilh had maintained that there was a clear moral difference between earlier slave-based societies and the enlightened capital-based free trade of modernity. Walras disagreed, believing there was only *one* moral, and it had remained unvarying in its nature. In effect, this meant that cultural mores could actually be ignored in political economy, because these had in fact always been the same for all countries and all epochs.[563]

Auguste Walras' views thus very much did away with the whole category of moral capital that was commonly accepted at the time as a category of intangible or intellectual capital within political economy. Authors like Storch, for instance, even went so far as to describe habits and mores as articles that could be imported if an undeveloped nation was catching up with a more developed one.

3.2.8.2 Transmissible and Intransmissible Capital

In *Théorie de la richesse sociale* (1849) Walras was more explicit about the nature of intangible capital (he also called it *capital immatériel*). He defined as capital all

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560 *Ibid.*, 49.

561 "Utility is derived from the inner nature of an object compared to human nature, whereas value is derived from scarcity. It is because an object is rare, and only because it is rare, that it sells and buys, in other words, that it becomes exchangeable and falls into trade." Translated by author. *Ibid.*, 69.

562 *Ibid.*, 50-56.

563 *Ibid.*, 55.

social wealth that was consumed only slowly, or not consumed on the spot. Income or services of social wealth were those exchangeable values that were consumed immediately. What was capital and what income depended most of the time on our *usage* of the wealth in question, not on any absolute feature of the item itself; and most things were were suitable for a wide range of uses. A tree planted in an orchard that fruited every year was capital; while a tree felled for firewood was income, for example. A sum of money was, however, not to be confused with capital. This was only income prepared in advance for daily, monthly, or annual consumption. Real capital rendered a service that in no way resembled the capital itself, thus producing a revenue equally distinguishable from the capital itself.[564]

Walras differentiated again between natural and artificial capital as in his earlier work; and just as land and arable land contained natural capital, there were the natural faculties of natural capital in each person. Walras argued that it was nature that accounted for our physical strength, intellectual capacity, and moral capacity. Again, separating natural and artificial capital was not required, however, and as well-tended agricultural land combined these, so did cultivated people by developing their natural faculties. Learning a difficult profession and filling one's mind with useful knowledge was one such case of enhancing natural human faculties with artificial perfection.[565]

The natural capital of these personal faculties and abilities did not live longer than the person who possessed them. They weakened with aging, and disappeared at death. Most artificial capital also shared this disadvantage of not lasting more than a certain time period. Walras wrote that personal faculties were a form of capital that was like *viager* [566] – which in France meant when real estate was sold on a reverse annuity basis; in other words like a mortgage, but in reverse (so by death you were left with nothing).

In addition to this natural and artificial distinction within capital, one could differentiate it according to tangibility. A piece of arable land or a house were tangible or material capital, whereas acquired knowledge or talents were clearly intangible, and yet the revenue that each kind of capital could bring in was *both* tangible and intangible revenue, so a house, for example, could produce intangible revenue. It is not completely clear here whether Walras was following Say, who saw that all kinds of income from capital was immaterial in the sense that it satisfied our needs, and the utility rendered was more or less a subjective sentiment of our consciousness.[567]

Walras also made a distinction between transmissible and intransmissible capital, which is particularly interesting for us because it was possible to detach transmissible capital from the person possessing it, and pass it via an item to another. The proprietor of such capital could then sell it, and it became the property of another individual. On the other hand, intransmissible capital was

564 Auguste Walras, *Théorie de la richesse sociale* (Paris: Guillaumin, 1849), 53–56.
565 *Ibid.*, 58.
566 *Ibid.*
567 *Ibid.*, 59-60.

impossible to separate from the person possessing it. Both natural and acquired personal faculties were intransmissible capital. One could not transfer or sell one's physical force, health, intelligence, or professional skills. A lawyer, doctor, or professor had a mass of capital contained in his knowledge, but this could not be transferred to others in the same way as one sells a house or transfers a sum of money. Revenue from such capital was, however, transferable like any other form of revenue. So although one could not remove any of nature and education's capital, it was possible to alienate its *revenue*. Doctors and lawyers put the revenue of their respective medical and legal know-how to use for their customers, just as architects received a salary for putting the revenue of their capital into designing buildings, and musicians put theirs into performing in front of an audience. Note here that in Walras's terminology the "salary" of such professionals is *not* the "revenue" of their capital in knowledge and skills. Only the service that they are providing is the transmissible revenue, and the salary is payment for the exchange of service.[568] Léon Walras, Vilfredo Pareto, and Irving Fisher would also follow this kind of reasoning later.

Although Auguste, himself, allowed for personal faculties that had been acquired to be detached from the person possessing them, his works had certain features that his son Léon, and also Irving Fisher would later pursue in such a way as to render such separation impossible in the future. When interpreted more strictly, if the main ideas behind a theory of capital were (i) to separate capital from its income or service; (ii) to see all human abilities as partly the work of nature; and (iii) make their value partly dependent on natural causes; then it followed that abilities that had been acquired as distinct capital could not be separated from the person possessing them.

3.2.9 Charles Dunoyer

> Un capital de connaissances ou de bonnes habitudes ne vaut pas moins qu'un capital d'argent.[569]

Charles Dunoyer (1786-1862) was a liberal French economist and one of the first to come up with the idea of the "economic cycle". He also presented an excellent analysis of the errors and contradictions in the concepts of intangible labor, goods, and capital in the works of Smith, Say, and Sismondi in the second volume of his *Nouveau traité d'économie sociale* (1830).[570] Dunoyer was puzzled by the way these authors could on the one hand claim that the producers of intangible goods from educators through to magistrates, artists, and doctors were sterile or unproductive, and yet their products (education and science, good governance, civilized culture, and health) formed part of the national capital. The reason for this evident contradiction was, according to Dunoyer, the inabil-

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568 *Ibid.*, 60–61.

569 "Capital in knowledge and good habits is not worth less than pecuniary capital." Charles Dunoyer, *Nouveau traité d'économie sociale*, vol. 2/2 (Paris: Sautelet, 1830), 20.

570 *Ibid.*

ity to distinguish between work and its results.[571] In many encyclopedia entries and research articles, Dunoyer is considered a disseminator of Say's ideas, especially the idea, as Benkemoune notes "that all activities are productive, including those that result in immaterial products".[572]

3.2.9.1 Level of Freedom

Dunoyer's general starting point was that the level of freedom or liberty among a people depended on their race, culture, and the external conditions affecting them. This meant that generally people were free to extend their sphere of activities up to the optimal point of perfection that their physical bodies and external conditions would allow, and it also depended on their culture, in terms of how far it had developed towards industrial life (*vie industrielle*), as industrial society most favored the development of human faculties.[573]

Because industry was about producing something useful, it was evident for Dunoyer that if a thing was "useful" (*d'utilité*), then it was also "productive", but the preceding literature on the matter was somewhat confusing. Dunoyer saw that the matter needed clarifying – producers were usually considered to be only those who produced something of a physical and material nature. On the other hand, the work of those who "acted" on people, like doctors, teachers, lawyers, preachers, officials, musicians, actors, were not seen as part of industry (*industrielle*); the argument for this being that their work did not leave behind anything real or durable that one could accumulate or sell later – so it was unproductive.[574]

3.2.9.2 Capital Embodied in Men

In *De la liberté du travail* (1846), Dunoyer divided the social (or common) capital of a society into two classes: (i) capital that work and labor developed and "embodied in humans" (*dans les hommes*); and (ii) capital "in material objects" (*réalisées dans les choses*).

We are clearly more interested in the first class, which included "business know-how" (*génie des affaires*), "practical know-how" (*génie de l'art*), and a large number of "moral qualities" (*qualités morales*). These formed what he called the intellectual and moral capital of society, and were its stock of personal faculties. Note that *génie* does not mean "genius" here; indeed, Dunoyer made clear that the faculties embodied in people were the result of work.[575] Dunoyer saw business know-how as the most important component. It included the ability to correctly estimate the supply and demands that society required; and administrative skills, like guiding an enterprise wisely, understanding accounts, and intelligence in making and interpreting speculative estimates. Next in importance was practical know-how; which required, for instance, the skill of being able to

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571 *Ibid.*, 22.
572 Rabah Benkemoune, "Charles Dunoyer and the Emergence of the Idea of an Economic Cycle," *History of Political Economy* 41, no. 2 (2009), 272.
573 Charles Dunoyer, *Nouveau traité d'économie sociale*, vol. 2/2 (Paris: Sautelet, 1830), 1-2.
574 *Ibid.*, 4.
575 Charles Dunoyer, *De la liberté du travail*, 2 ed. (Paris: Guillaumin, 1846), 243.

apply one's practical and theoretical knowledge effectively and tactfully among the workforce. Dunoyer called these "industrial faculties" (*facultés industrielles*).

Dunoyer's liberalism and his defense of the freedom of labor and trade, went quite far. He opposed the legislation brought in to regulate child labor and was against any regulation of the medical profession as he was convinced free competition would eliminate charlatans from the profession.[576] In his *Capital in the Twenty-First Century*, Thomas Piketty had some harsh words for Dunoyer, as on the one hand he was arguing that industrial society would do away with artificial inequalities, while on the other he drew attention to natural inequalities based on differences in physical, intellectual, and moral capabilities.[577]

3.2.10 François Giordan

The first occurrence of the term "human capital" (*capital humain*) in French political economics as anything more than just an issue of population demographics seems to be in François Giordan's short book *Doctrines economiques de la banque de mobilisation et de garantie des créances hypothécaires* from 1838.[578] Paul Deschanel of the French Academy, as President of the Chamber of Deputies had, for instance, discussed depopulation after the revolutionary and Napoleonic wars (published in *La Revue Hebdomaire* in 1820).[579] It is, however, very probable that earlier occurrences will turn up, since the idea Giordan is presenting with regard to capital was nothing new in the 1830s. Giordan wrote that although capital is usually considered as being the fruits of past labor in the form of tools, machines, money etc., the most important form of capital was the man himself, and thus human capital was the first class of capital to be examined. He believed that this was the simplest way to solve a problem which still remained unsolved.[580]

There was clearly more human capital available when there were more enlightened and educated people around, so the worth of individuals was connected to the amount of education they had received. Giordan compared the inhabitants of the pampas around Buenos Aires to those in the environs of London, and suggested that the former remained more or less in a "state of nature" from birth to death, whereas the latter changed their value as they got older. Giordan suggested that their value consisted of all the expenses made from their birth to their coming of age. A twenty-year-old had lived 7300 days, and if 24 hours had cost one franc, he was worth 7300 francs. All capital was also susceptible to earning interest, and if not, its holder was making a loss. A person

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576 Yves Breton, "Les économistes, le pouvoir politique et l'ordre social en France en 1830 et 1851," *Histoire, économie et société* 4, no. 2 (1985), 240.

577 Thomas Piketty, *Capital in the Twenty-First Century*, trans. Arthur Goldhammer (Cambridge (Mass.): The Belknap Press of Harvard University Press, 2014), 85.

578 François Giordan, *Doctrines economiques de la banque de mobilisation et de garantie des créances hypothécaires* (Paris: Thomassin, 1838).

579 Paul Deschanel, "Union Des Grandes Associations Françaises. Allocution de M. Paul Deschanel," *La Revue Hebdomaire* 29, no. 1-2 (1820), 133.

580 François Giordan, *Doctrines economiques de la banque de mobilisation et de garantie des créances hypothécaires* (Paris: Thomassin, 1838), 6.

therefore had to produce 365 francs annually in order to exist beyond his 20th birthday. He thought it correct to say that the man's value was due to the numerical strength of the body to which he belonged and of the instruction he had acquired, because their price was determined by demand and competition on the market. The fact that the price was higher the more there was demand proved that objects had value only in relation to man, and that this value was quite relative to what the man had. The evaluation of the value and power of great men of London who in turn had enlightened and governed Great Britain was only possible through calculating mathematically the effect they produced. Their value was a composite of all the intrinsic values they had set in motion, and thereby their power to the masses was close to infinite.[581]

The first consequence Giordan drew from this was that a nation was on track to prosperity when the mass of its members produced more than they consumed. When all product was consumed, the nation was stationary, and if more was consumed that produced, the nation was retrograde. None of the existing nations had yet reached anywhere close to the maximum level of well-being that was rationally imaginable. On the contrary, Giordan saw forces pushing people to become slothful and ignorant. The secret of well-being and prosperity for a nation was in the labor of the masses. When everybody produced, the nation became the first in its league. And were each citizen to save a penny a day, its treasures would have no limit. In bigger questions, the leaders carried the responsibility, Giordan admitted, but he also argued for individuals to make intelligent use of the little capital they had, and this would have a considerable effect on the aggregate level.[582]

Despite using the term *capital humain* for the ideas presented above, Giordan was not presenting original views here. In fact, as we saw earlier, his short description of human capital was quite close to McCulloch's. All of the expenses were capitalized, and therefore a whole human being or population could be seen as capital. French economists such as Pellegrino Rossi (see section 3.2.12) or Paul Leroy-Beaulieu (see section 6.2.2), who saw the benefits of an intangible human capital, despised such approach where people were simply equated with capital.

3.2.11 Auguste Comte and Human Capital of Humanity

Auguste Comte also seems to have used the term "human capital" (*capital humain*), in some of his works, namely the second (1852) and fourth (1854) volumes of his *Système de politique positive*.[583] In these, Comte seemed to be proposing an religious form of humanism that involved neither God nor the supernatural. Unlike in his earlier works, he also placed art above science, which resulted in a hierarchy of phases required for a universal education which began with

581 *Ibid.*, 6-7.
582 *Ibid.*, 8.
583 Auguste Comte, *Système de politique positive, ou traité de sociologie. Tome deuxième*, vol. 2 (Paris: Carilian-Goeury, 1852); Auguste Comte, *Système de politique positive, ou traité de sociologie. Tome quatrième*, vol. 4/4 (Paris: Carilian-Goeury, 1854).

the affective, followed by the aesthetic, then the theoretical, and finally the practical.[584] This future-oriented project had little success, however, except in uniting both believers and non-believers against him. Comte defined religion as a state of complete harmony where all the parts of life were ordered in their natural relations to each other. He also defined religion as a form of consensus and harmony in society, in the same way as health is for the human body. In its political function, Comte's positivist religion was supposed to govern each individual and at the same time unite them. Sociological theories could then replace the theological, and sociology, not biology would determine membership of humanity.[585] Although not exactly a political economist, Comte was nevertheless quite influential; for instance, J.S. Mill wrote that Comte's works persuaded him to move away from the Benthamite school.[586]

3.2.11.1 Comte's Humanist *Capital Humain*

Comte's use of the term "human capital" was connected to his humanist ideals. By systematizing industry, he hoped that the intellectual and material spheres would both be regenerated, as the former had been particularly prone to illusions. For instance, Comte felt that theoretical accounts (in political economy) had put too much emphasis on economic growth that was simply based on products of intelligence, while disregarding the importance of "conservation" and "reproduction" for intellectual wealth. These latter factors were provided by his positivist humanism even in cases when growth was not in sight. The practical requirements of Comte's system differed from the theoretical in so far as they served the complementary function of conveying the collective wealth offered by human capital through the work of individuals.[587]

Comte's altruistic theory thus came up with two simultaneous services at play here – the direction and execution of the job at hand. They were intimately connected and should never be separated, but they normally were because they required distinct aptitudes and preparation. From Comte's positivist perspective, the division into entrepreneurs (direction) and workers (execution) that had occurred in western industry from the Middle Ages onwards was sanctioned in the name of humanity. But in Comte's opinion, it was the coordination of this dualism with its patrician hierarchies that was the main difficulty with practical regeneration, even though there was a considerable amount of hierarchy in his designs too. The practical leaders with an aptitude for administration were on top, while the technical knowledge and skill resided in workers and operators. Indeed, the workers were the fruit of the special relationship between science and industry. In all classes, happiness was a result of the continuing growth of sympathetic instincts that flowed from the free participation in

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584 *Ibid.*, 51.

585 Michel Bourdeau, "Auguste Comte," http://plato.stanford.edu/archives/win2014/entries/comte/ (accessed May 5, 2015).

586 William J. Ashley, "Introduction," in *Principles of Political Economy,* ed. William J. Ashley, (London: Longmans, Green and Co., 1906), I.11.

587 Auguste Comte, *Système de politique positive, ou traité de sociologie. Tome quatrième*, vol. 4/4 (Paris: Carilian-Goeury, 1854), 58-59.

meaningful social activity.[588] Meanwhile, a certain egotistical instinct in the leaders was quite enough to produce the willpower they needed to direct collective existence. Within a positivist humanist framework, pride among other things would choose them to look out for the collective good. Because they would be sheltered from the vanities of riches, their free choice of work based on personal instincts would also be directly followed by material concentration.[589]

In some places, Comte's human capital seems to refer to a capital common to the whole of humanity but was given to a select few to take care of, on behalf of the whole. For example, when given a proper education, the proletariat could be ridden of all anarchist tendencies, would understand its true individual and collective nature, and would accept a hierarchical social classification given that it would secure continuous benefits. Sufficiently reassured that their future material needs would be met, the proletariat would accept this concentration of *capitaux humains* as a fundamental condition for the civic effectiveness of their capital.[590] Comte also wrote about how socially higher-placed groups of people accumulated and also transferred capital over generations. The concentration of material power in the head of the family (capital)[591] made him morally a civil magistrate, but also increased his responsibilities. In Comte's system, the patrician or leader would shamelessly be able to select his son as a successor, *if* the son was the most suitable. On the other hand, if not related, it would be possible to adopt the successor to keep capital in use that was beneficial to humanity.[592] In some instances, he use the term in the sense of capital of the whole of humankind as if there were multiple species around that built machines, used tools, or had cattle. In a sense, of course, Comte was true here to his philosophy of science: psychology was part of biology, because man's higher functions, whether intellectual or moral, were nevertheless species-specific. Combined with collectivist and hierarchical ideas of humanity, this turned the question of "What should I do?" on its head and into an engineering problem of "What should be done to make men more ethical?" Positivists following Comte were also invited to live openly, thereby removing the distinction between private and public lives.[593]

Comte's discussion of the wages of office-holders shows how far his ideas were from more conventional idea of human capital understood as something that yielded interest in the form of higher wages. He took the differentiation between arts that perfect the man and the arts that modify the world from Charles Dunoyer (see section 3.2.9). But the principle of his religious theory of

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588 *Ibid.*, 59-61.
589 *Ibid.*, 79.
590 Auguste Comte, *Système de politique positive, ou traité de sociologie. Tome deuxième*, vol. 2 (Paris: Carilian-Goeury, 1852), 415; Auguste Comte, *Système de politique positive, ou traité de sociologie. Tome quatrième*, vol. 4/4 (Paris: Carilian-Goeury, 1854), 65.
591 Interestingly, *capitale* comes from the Latin meaning "head" too.
592 Auguste Comte, *Système de politique positive, ou traité de sociologie. Tome deuxième*, vol. 2 (Paris: Carilian-Goeury, 1852), 407-408.
593 Michel Bourdeau, "Auguste Comte," http://plato.stanford.edu/archives/win2014/entries/comte/ (accessed May 5, 2015).

wages was to consider the service of humanity essentially as free; the true satisfaction came from the works itself, and the wages of such offices were to be considered more or less as an expense allowance. Comte emphasized that compared to the human capital inherited from the previous generations, the objective participation of each individual was minuscule.[594] This view, that most was inherited from the previous generations, was not any kind of consensus point at the time, and for example J.S. Mill though that this was a fallacy. Mill emphasized that human hands, speaking of England in his case, had produced the greater part of the wealth now existing within the last twelve months. Capital was kept in existence from age to age not by preservation but by perpetual reproduction, and this explained also the great rapidity with which industrious countries rose from a state of devastation, whether natural or human caused.

Comte's use of the term human capital was quite far form the way the political economists at the time discussed the issue. However, some parallels did exist and can be drawn. It was common at the time, and had been for a good while before, to see knowledge, skills, culture, and civilization as collective gifts from past generations, whose past work they reflected in capital.[595] These pass much more easily than material capital into Comte's framework, where capital was seen as a collective property or attribute of humanity. And of course, considering the direction the accounts on capital by the French political economists were going, the knowledge of how to build, do, and organize things was becoming more and more tightly connected to and defined as capital. Another point Comte's use of human capital raises is the variety with which the term was used in the 19th century. There is the (i) human *capital* of education, knowledge, and skills; b) people as capital, in the sense of a machine analogy or the demographic labor force as well; and c) Comte's human capital in the sense of capital of humanity or human species.

3.2.12 Pellegrino Rossi

Pellegrino Rossi (1787–1848), an Italian born economist and politician, was an important figure in France during the "July Monarchy", and later he served as Minister of Justice in the government of the Papal States under Pope Pius IX. Rossi used three chapters in the second volume of his *Cours d'économie politique* (1842), to define and explain the nature and workings of capital, which he saw as the third factor of production. This he considered to be one of the most difficult parts of political economy. The employment of capital, the forms it could take, and the resulting combinations were according to Rossi little known or clarified until his times. The matter was complicated by the interaction of multiple elements at work there, but it was important and had to be discussed, because of the practical consequences of understanding the issue. The first difficulty concerned the concept itself, and uncertainty around the definition. This

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594 Auguste Comte, *Système de politique positive, ou traité de sociologie. Tome deuxième*, vol. 2 (Paris: Carilian-Goeury, 1852), 408-410.

595 See for instance Adam Müller, section 4.2.1.

threw a shadow over most deductions made in the field.[596] Furthermore, Rossi discussed the relation of capital to other factors of production. Rossi's ideas are explained at some length below, since his work drew together many of the issues related to intangible goods and capital; as well as productive and unproductive labor. He also connected ethical and moral concerns discussed in economic thought roughly from Adam Smith onwards to his discussion about capital.

As so many others, Rossi illuminated his understanding of capital with stories about man's emergence from the natural state. A man endowed with only the forces he had received from nature was thrown to the world with needs. Such a worker had at his disposition only primitive, natural forces: his hands, his intellect, i.e., instruments of work (*l'instrument-travail*), and another natural agent, the land and its natural offerings (*l'instrument-terre*). He profited form these natural offerings when he killed a wild beast and nourished himself. He may have had enough imagination to reserve for the next day the remains of his meal. Thereby he made a saving, but this instinctive foresight, to which also ants are capable of, does not yet make capital of his peace of meat or a capitalist of the hunter.[597]

While capturing the wild beast, the hunter could notice especially hard wood that he imagined would make a good weapon that would make the hunt of the following day easier. It would help him to make from natural property (*bien naturel*), i.e., the wild beast, a product (*produit*) of the hunter. The hunter may eat his prey on the spot; he may also conserve some part of it for later consumption; but further, he may save part of the prey, not for consumption, but for further production. He may make clothes from its hide or needles from its bones, for instance. With the latter step, he has created capital. In Rossi's word, he had made a machine, and between such machine and the most complicated steam engine, there was no conceptual difference. Form this analysis, Rossi drew his first deduction concerning capital, namely that not all products are capital, because not all products are instruments. As we have seen elsewhere, saving alone does not automatically create capital; it is required that savings be then used in further production for this to be so.[598]

A further point Rossi wanted to make in connection to this was that not everything that produced revenue was capital, although everything that produced revenue for the one possessing it was of utility – it was also wealth. His example was that if he made a loan of 10,000 francs with 5% interest to some person, he necessarily had no knowledge of how this person used the money. The 10,000 francs could have been spent on frivolous living; yet the debtor may be able to pay back the loan with an agreed amount of interest. In such a case, the creditor would receive a revenue product of some other value that has been used in production. Yet because of the frivolous living of the debtor, social capi-

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596 Pellegrino Rossi, *Cours d'économie politique*, 2 ed., vol. 2/4 (Paris: Guillaumin, 1843), 177-178.
597 *Ibid.*, 178-179.
598 *Ibid.*, 179.

tal would have diminished by no less than 10,000 francs. Thereby, in Rossi's opinion, capital was that portion of man-made wealth that was destined for further production. What was used in production, but was not man-made wealth consisted of the other factors in production, i.e., labor or land. Wealth that had been produced, but which was not destined for further production was not an instrument of production.[599] These were important distinctions, because they also had consequences, as we shall see below, on how expenses and effort were capitalized in the creation of intangible capital.

3.2.12.1 Saving and Destination

A further point Rossi made was that there were two phenomena required to generate capital – saving and destination – and both of these were dependent on the human will. Saving was the immediate cause (*cause prochaine*), destination was the effective cause, and capital was the result. Rossi made a clear stand here against the abstinence school of capital though, which equated capital conceptually with saving. Rossi thought that saving was not an exact enough concept to denote and explain the third instrument of production. When the proposition of the abstinence school was laid bare – "saving is an agent of production"[600] – its absurdity was evident. Saving alone was a negative act, the act of not consuming and "nothing more" (*rien de plus*).[601] For Rossi, the concept of capital had three elements: man-made wealth, savings, and destination.[602] The complexity of the interaction between these as well as the variety of forms that capital could take, made it impossible to know the exact amount of national capital at any given moment, but through analysis it was possible to unravel the various forms it took and thereby recognize capital wherever it formed.[603]

There was tangible (*matériel*) and intangible (*immatériel*) capital. The knowledge of inventors or acquired abilities of a worker were intangible capital, but the revenue from this was often confused with the revenue from labor.[604] Rossi discussed intangible factors of production at length in connection with production factors (see below), but in the chapters about capital he wanted to emphasize the problem with capitalization itself. Every time there were capacity or talent created there was capitalization, but what was actually being capitalized? Rossi's instance was a young man who graduated as a civil engineer with honors after long and difficult studies. Counting all the expenses of the study period starting from his nourishment made the error of assuming that were he not intended to become an engineer, the young man would not need to eat or require housing or clothes. To say that that the young man capitalized all that he consumed put him directly on the same level as a hunting dog. If the owner of a dog starts training it, all the advances used to feed, house, and train it, would indeed be capitalized; but Rossi asked whether the hunter would have

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599 *Ibid.*, 179-180.
600 "[…] l'épargne est un agent de la production." *Ibid.*, 181. See section 2.2.5 on Senior.
601 *Ibid.*
602 *Ibid.*, 184.
603 *Ibid.*, 185.
604 *Ibid.*

the same options with his children as with his dog. If he did not want his son to go through lengthy studies, fair enough, but his son would still require food, housing, and clothes.[605]

3.2.12.2 People are Not Capital, Skills and Knowledge Are

From the example above it becomes clear that Rossi saw only the acquired abilities, knowledge, and goodwill of people as capital. People themselves were certainly not capital and nor were their production costs capital investments, but rather basic necessities. Rossi is thus clearly on a different path to those taking the actuarial production cost approach to human capital, or seeing people as capital within the institutions of slavery or serfdom. What the young man capitalized during his studies was the sum of work that, during his apprenticeship, he could have employed somewhere else. The young engineer could have instead worked for nine to ten years in a factory, so what was capitalized was the lost days of "unskilled work" (*travail naturel*) from the day the boy reached working age to the moment when he started earning an engineer's salary, as a "learned man" (*savant*) which would be enough to compensate with interest the foregone income that could have been earned in the time taken to receive the training.[606] That wage differences between highly skilled and unskilled labor should be seen as compensation for the cost of education is a standard neoclassical view.[607]

Intangible capital comprised not only acquired abilities, but other things, like a good reputation – the result of consistent good quality work. At this point Rossi also discussed the effect of time on the value of good wine, but emphasized here that the actual capital lay in the caves and barrels that were used appropriately to store the young and imperfect wine at the beginning, not the time itself which was part of the physical requirement of all wine anyway.[608] Another distinction Rossi made was between public and private capital. Canals, roads, all means of communication among others were public capital. National capital was the sum of public and private capital. Money was capital only when it satisfied both of the conditions for capital – saving and destination. Money reserved by a manufacturer to buy a new machine was thus capital. Another distinction was between "instruments of production" (*capital-instrument*) and "materials of production" (*capital-matière*). Here he was questioning whether raw materials were actually capital, though most other economists seemed to think they were. Also he wondered to what degree the maintenance of workers from the employers purse was capital investment or just compensation for labor. These he saw as new and interesting questions worthy of further inquiry.[609]

A more detailed view on how intangible production factors worked is to be found in Rossi's discussion about production factors in the first volume of

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605 *Ibid.*, 185-186.
606 *Ibid.*, 187.
607 N. Gregory Mankiw, *Grundzüge der Volkswirtschaftslehre*, trans. Adolf Wagner and Marco Hermann, 3 ed. (Stuttgart: Schäffer-Poeschel, 2004), 439.
608 Pellegrino Rossi, *Cours d'économie politique*, 2 ed., vol. 2/4 (Paris: Guillaumin, 1843), 189.
609 *Ibid.*, 189-190.

the *Cours d'économie politique*.[610] A big part of the discussion was about how economists should morally relate to human labor. The starting point was that wealth was divided to natural and man-made wealth, and whereas an economist should not forget natural wealth, the main focus was man-made wealth. Rossi thought 'man-made' to be somewhat misleading here, since in his opinion man does not have the ability to create a single molecule. The power of humanity was in combining, modifying, and transforming what already existed. Production was therefore an act of transforming some raw material into something new in substance, form, use, or service. These products somehow provided the link between our needs and the world about us, but it did not have to be exchangeable, as some economists maintained. Rossi believed there was wealth that was not directly tradeable; 'creations' should thus be used only to describe products of the mind, and even then with reservations. [611]

Whereas land and labor were primitive forces, for Rossi, capital was always a result. Capital was savings applied to reproduction, it was about using resources that could have been used for consumption and comfort to instead produce some more. Rossi thought that work as power was not transmissible; and in this respect, slave-owners worked against nature or abused their victims.[612] Capital and land were, however, regularly and legitimately traded. They were the material factors of production that obeyed only the laws of nature. Furthermore, instinct and organic sensibility were not enough to create in irrational animals the principles of freedom, duty, and rights; they, as capital and land, were the only means towards the end goal. The intelligent, free, and responsible man was subject to moral law. Just as an atom could not avoid behaving according to the laws of physics, so was the human will unable to escape the principle of morality.

Rossi argued that the economists had to accept the facts as they were, and not accept or promote the confusion of the work of man with other productive forces. These differences were more than speculative, since Rossi cited the article 1780 of the *Code civil* stating clearly *"[o]n ne peut engager ses services qu'à temps, ou pour une entreprise déterminée."* [613] Even the law stated that the work of a man was not to be confounded with that of a horse or a steam pump. Rossi thought that his argumentation was sufficient to prove that human labor was a productive force *sui generis*, a force that the economist, as well as the moralist, and the publicist must distinguish from all others.[614] Here was Rossi's ethical argument against human capital when understood in cost of production terms, or as seeing individuals as whole entities as capital and means of production. One often sees the German Historical School (GHS) labeled as ethical and moral economics, but Rossi is a case of a classical and liberal writer seeing the economy in

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610 Pellegrino Rossi, *Cours d'économie politique*, 2 ed., vol. 1/4 (Paris: Guillaumin, 1843).
611 *Ibid.*, 221-223.
612 "Le travail en tant que puissance n'est point transmissible; les possesseurs d'esclaves ne l'ont rendu tel qu'en le dénaturant […]" *Ibid.*, 230.
613 "One can engage man's services only for a specific time or for a specific undertaking." *Ibid.*, 233.
614 *Ibid.*, 234.

terms of existing moral, cultural, and social norms. How Rossi really brought his ideas to bear on intangible capital, and forces of production at the policy level, was in his treatment and recommendations concerning public education and research.

One direct follower of Rossi was Joseph Garnier (1813–1881). He drew much of his basic ideas on capital from Rossi. For Garnier too, capital differed from labor and land in the sense that it was artificial and that it's power could increase indefinitely. He cited from Rossi the statement that capital was the material life of a state and the measure of its civilization and progress. With capital, society rose on the scale of its needs and pleasures. In addition to the material means of production, Garnier also saw the reputation of a shop, office, or a newspaper as capital. And, of course, acquired abilities were capital when they were such that they brought profit when leased. Garnier wrote that from a certain point human beings are capital, but he emphasized Rossi's important distinction that unlike a dog or a cow (that we can kill or sell at will and use as an instrument), a child does not capitalize all that he or she consumes. When a child comes of age able for 'natural' labor, it is the expenses above basic necessities of his further studies and the foregone income during these studies that are capitalized. A little shepherd or a child working in a factory does not capitalize anything or only very little, but an apprentice acquires and accumulates knowledge that benefits him later, while his father is deprived only of his work input during the studies.[615] Garnier also argued that trade with intangible goods produced with the help of *capital immatériel* was in an economic sense analogous to that of man-made wealth produced with *capital matériel.*

3.2.13 Hippolyte Dussard

In *Encyclopédie du commerçant. Dictionnaire du commerce et des marchandises* (1841), Hippolyte Dussard, later to become the editor-in-chief of *Journal des Économistes* (1843-1846), used about seven pages to explain the theory of capital, which he described as "the most important part of economic science." His entry discussed at some length, both the material sides of human capital (health, longevity), and the intangible (skills, education, knowledge). Dussard saw the health and longevity of an individual to be partly a result of the savings of previous generations. Although one might think in abstract that the first generation laborer had health and life as a gift of nature, in practice individuals should thank their parents and community for investing the required resources in their upbringing. Dussard wrote that until the age of 10 or 12, children were receiving food as an advance payment and were thus in essence amassed capital. This created obligations towards the parents, and hence, the science of the é*conomistes* was in line with the morals of society.[616] In addition to being alive and able to work; skills, education, and knowledge were the results of investing

615 Joseph Garnier, *Éléments de l'économie politique*, 2. éd. ed. (Paris: Guillaumin et cie, 1846), 100.

616 Hippolyte Dussard, "Capital," in *Encyclopédie du commerçant: Dictionnaire du commerce et des marchandises. Tome premier. A-F,* (Paris: Guillaumin, 1841), 465.

time and resources in learning how to do things. Having the skills to use a saw and a plane already meant having more capital.

> Celui qui sait manier la scie et le rabot a déjà un capital plus grand.[617]

For the same reason, the income of a doctor was higher than an artisan's because the savings needed to train as one were much higher. This higher compensation represented not so much the doctor's intelligence, as just the interest paid on a much bigger investment in education.

> Ce n'est pas, à proprement dire, l'intelligence qui se paie, c'est l'intérêt du capital dépensé dans l'éducation du médecin.[618]

3.3 Intangible Capital and Liberalism

In France the hangover caused by physiocracy, monistic models, and the excesses of revolution was shrugged off by liberal economists such as Jean-Baptiste Say, who attacked the physiocratic view that agriculture was the only productive sector of the economy and drew attention to how it had also cast along shadow of influence over how the classical economists categorised economic sectors based on their assumed real productivity or sterility. Say's understanding of *capital immatériel* was that managerial, spiritual, educational, and artistic professions could be just as productive as other sectors of the economy by providing stable institutions and conducive conditions for prosperity. Essential in Say's broader understanding of wealth and productive labor was that if one wanted to remain in a classical conceptual framework, where capital was understood to be the share of wealth destined for further production, the concept of wealth had to also include intangible products for there to be intangible capital. Yet Say kept Smith's focus on material production whereas, for instance, Henri Storch challenged this. Similar ideas can be found in the works of other French economists like Nicolas Canard (1801), Charles Ganilh (1815), Charles Dunoyer (1846), and Adolphe Blanqui (1837).

Say's idea that political economists were only interested in social, i.e., man-made wealth was challenged by Auguste Walras, who noted that human faculties in much the same way as arable land varied depending on what they had been naturally endowed with, although it was possible to improve and increase these faculties through education and improvement. But his key contribution to the debate was that it was their scarcity which gave human abilities their value, like any other economic goods. Walras also noted that the form of capital revenue was not dictated by the form of capital it was derived from; so that, for instance, the revenue from arable land represented the service it ren-

617 *Ibid.*
618 *Ibid.*, 468.

dered for the farmer. These ideas would later be of importance for the physical human capital theories of Léon Walras, Vilfredo Pareto, and Irving Fisher.

Many of the liberal economists thought that through investments in intangible capital, i.e., education and science, the rising tide of productivity would lift all boats and thus reconcile the juxtaposition between labor and capital. When reading the French early 19th-century economists, it becomes evident that they emphasized the capital nature of education and knowledge and its impact on productivity much more than their British counterparts, with the moral part of this also being vital. At times it was so important that the whole category of intellectual capital was, in fact, called moral capital. In stark comparison, economists like Malthus and Ricardo had very different reasons for promoting public education for the masses. They too were concerned with lifting all boats, but their greatest concern seems to have been that it should not cause a population explosion as a consequence. This feature of economic literature had its parallel in the way education systems were set up in England and France at the time.

When England and France were compared in 1800 and 1850 with indices such as the percentage of manpower engaged in industry, contribution of industrial production to GNP, and number and size of factories, England was clearly the more industrialized. But contrary to what one might expect, it was France whose educational institutions carried the characteristics that are commonly attributed to an industrial society. The French system included features such as a specialized training for professions and administration, social mobility through school achievement, a rationalist educational philosophy, and a conscious incorporation of recent developments into the curricula.

This very strong emphasis on economic liberty in early 19th-century French economic thought is in line with what the post 1970s economic orthodoxy has understood to be the requirements for a thriving capitalistic society. In this respect, the demands for dismantling and streamlining state regulation over the past four decades seem to echo the abolition of feudal duties and mercantile privileges in the 19th century. But not all have seen the roots of capitalism in freedom and egalitarian principles. Fernand Braudel, in his *La dynamique du capitalisme* (1985), wrote that it was trade with regions far away or recently "discovered" (which the Germans called *Fernhandel*), and not local and regional market exchange, that was actually the basis for the emergence of what we began to call capitalism (in spite of the anachronism and for want of a better word). The main reason why Braudel saw the roots of capitalism in long-distance trade was that there the nature of capital, always looking for the best returns, was more able to rid itself of regulatory, religious, and social restraints. If we accept Braudel's interpretation of the history of capitalism (and at the same time that of Werner Sombart's), our understanding of capitalistic society, when we describe it as encompassing our basic economic (if not necessarily political) freedoms, is thus just a humane enhancement of the motor itself. In Braudel's view, capitalism was unleashed and worked best in societies that tolerated the privilege of the few; and that capitalism could never have triumphed

without identifying with the state; in fact, without actually becoming the state.[619] We accept the values of capitalism, as a society, and the privilege of the few, but the privileged are not necessarily thought of as the individual merchants (*négociants* or *Kaufherren*) of the past, but more as global multinational corporations. This perhaps reflects the hierarchy based on natural inequalities that many of the liberal French authors were writing about.

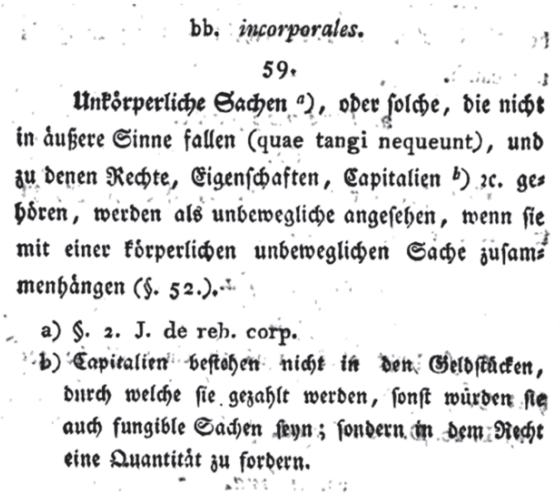
619 Fernand Braudel, *La dynamique du capitalisme* (Paris: Flammarion, 1985), 68.

4 INCORPOREAL AND MENTAL CAPITAL IN GERMAN THOUGHT

An intellectual achievement has, as does material, a triple basic purpose. It gives either intellectual capital, or it aims at exchange of ideas, or it provides intellectual enjoyment.[620]

Franz Joseph Mone in *Theorie der Statistik* (1824)

4.1 Cameralist, Classical, Romantic – German Thought Before 1848



bb. *incorporales.*

59.

Unkörperliche Sachen [a]), oder ſolche, die nicht in äußere Sinne fallen (quae tangi nequeunt), und zu denen Rechte, Eigenſchaften, Capitalien [b]) ꝛc. gehören, werden als unbewegliche angeſehen, wenn ſie mit einer körperlichen unbeweglichen Sache zuſammenhängen (§. 52.).

a) §. 2. J. de reb. corp.

b) Capitalien beſtehen nicht in den Geldſtücken, durch welche ſie gezahlt werden, ſonſt würden ſie auch fungible Sachen ſeyn; ſondern in dem Recht eine Quantität zu fordern.

FIGURE 5 Incorporales in Roman private law[621]

620 "Die intellektuelle Errungenschaft hat wie die materielle einen dreifachen Grundzweck. Sie gibt entweder ein geistiges Kapital oder sie bezweckt den Austausch der Gedanken oder sie verschafft geistigen Genuß." Franz Joseph Mone, *Theorie der Statistik* (Heidelberg: August Oswald's Universitäts Buchandlung, 1824), 89-90.

In Theodor Schmalz's handbook of private Roman law from 1793, there was a definition of *incorporales* (FIGURE 5), discussed under things (*Sachen*). As the Germans grew increasingly fascinated with classical antiquity in the 19th century, the fact that Roman law already recognized a category of intangible things beyond the senses, including rights, property, and capital, did not go unnoticed by the political economists of the time. As we shall see below, Friedrich von Hermann's idea of intangible capital was very close to this *Handbuch*-definition, and Wilhelm Roscher cited Roman and Greek sources when discussing *unkörperliches* and *quasi-Kapitalien*. Roman capital of this kind did not so much consist of money, with which such claims were paid for, but of the right to claim such a quantity. When these intangibles were connected to fixed *corporales*, they also were considered as fixed tangible goods. Although the definition does not say anything explicit about considering skills, knowledge, relations, or reputation as capital, the knowledge that the Romans and the Greeks were well versed with the concept of intangible goods and capital likely gave strength to the arguments for a broader understanding of capital, especially as other sources made it evident that the economic value of a skill was well understood.[622] Roscher also found antecedents for reputation as a form of capital from Greek literature.[623]

In German language works of economic and social thought the liberal and emancipatory argument in connection with increasing national intellectual capital (*geistige Capital*) was presented early on by Friedrich Buchholz in his *Untersuchungen über den Geburtsadel und die Möglichkeit seiner Fortdauer im neunzehnten Jahrhundert* (1807). Buchholz was an early liberal author and is credited for introducing sociological and positivistic views to German thought. Buchholz's argument was that even though the French Emperor held the least personal domains among European monarchs, he commanded the most power and resources. Therefore, the monarchs in German lands should consider doing of their own accord what had become demanded in France. If the relation between the nobility and peasantry was no longer that of master and serf (*Leibeigene*), and there would now only be free landowners, subjects only to the state, hereditary privileges should cease to exist, because they would not be able to survive as long as the concept of property concerned only things and not men. Legal equality (*Gleichheit des Anspruchs*) was the immediate consequence of this order of things (*Ordnung der Dinge*). Buchholz was convinced that to increase the intellectual capital of the nation – of which all else that was called capital was only a reflection – the best way was to strengthen the moral momentum that legal equality could set in motion.[624] But as we shall see, almost at the same time, Adam Müller applied what he also called intellectual capital and similar concepts to defend the existing order and hierarchies.

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621 Theodor Schmalz, "incorporales," in *Handbuch des römischen Privatrechts,* (Königsberg: Nicolovius, 1793), 25.

622 See quote from Plato's *Eryxias* in subsection 5.2.2.1.

623 See section 7.1.1.2.

624 Friedrich Buchholz, *Untersuchungen über den Geburtsadel und die Möglichkeit seiner Fortdauer im neunzehnten Jahrhundert* (Berlin, Leipzig: N/A, 1807), 266-268.

As an example of the fact that also this latter more restricted view of intellectual capital as a concept had been around from the beginning of the century, one can take Christian von Schlözer's (1774-1831) idea of personal capital (*persönliches Kapital*). Schlözer defended his doctoral thesis in Göttingen and was later professor of political science in Moscow and Bonn. In *Anfangsgründe der Staatswirtshcaft* (1805), he proposed that personal capital was the basis of income for the learned, artists, artisans, and all other people whose livelihoods or businesses were such that they had to be learned, rather than simply understood 'by nature'. This learning was not possible without already accumulated capital that carried the student through studies or an apprenticeship. In the process, the consumed capital was replaced by the acquired skills. Schlözer compared a person learning a trade to the raw material, which through the application of capital and acquired artificial abilities (*erworbenen Kunstfertigkeit*) attained in the process an ability to produce useful goods. Labor in which such special requirements was needed, von Schlözer called artificial labor (*künstliche Arbeit*). Most professions required both ordinary and artificial labor, but the assets of a shoemaker compared to an ordinary laborer were his acquired abilities, or his artificial capital (*Kunstkapital*).[625]

Yet a further early instance of the idea of skills and education as capital we find from cameralist, Johann Paul Harl (1772-1842), professor of philosophy and political economy (*Cameralwissenschaft*) in Erlangen. His contemporaries clearly did not appreciate him, as he was called "*stumpfen Kopf*" by Rau, and Mohl wrote that his works were "as bad as can be."[626] Nevertheless, in *Vollständiges Handbuch der Staatswirtschafts- und Finanz-Wissenschafthe* (1811) he divided capital into personal or skill capital (*Kunst-Kapitale*), material capital, and ideal capital. The last meant money or financial capital. Personal or skill capital was accumulated labor with which a person attained or appropriated a skill. The skill was a surrogate or compensation for the time, power, and resources that learning the skill, art, or science required. All the learned, artists, and artisans possessed capital of this variety. Harl noted that often the time and money spent to acquire skill capital did not always pay itself back. In these cases the problem was lack of talent, lack of diligence, or sometimes both.[627] The term Harl used for this, *Kunst-Kapital* or *Kunstkapital,* was quite common in German political and economic literature in the early 19th century.

As we shall see in the next subchapter, Adam Müller and Franz Josef Mone presented much broader systems of intangible capital than the ones briefly mentioned here. Meanwhile, Friedrich List challenged both Smith and Say when arguing for the importance of production powers over material entities of wealth; and Johan Heinrich von Thünen developed methods to estimate the *Erziehungskapital* invested in men. The subchapter after this, devoted to Karl-

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625 Christian von Schlözer, *Anfangsgründe der Staatswirtschaft oder die Lehre von dem Nationalreichthume* (Riga: Hartmann, 1805), 21–22.

626 Theodor Inama von Sternegg, "Harl, Johann Paul," in *Allgemeine Deutsche Biographie,* (1879).

627 Johan Paul Harl, *Vollständiges Handbuch der Staatswirtschafts- und Finanz-Wissenschaft* (Erlangen: Hilpert, 1811), 203–204.

Heinrich Rau and Friedrich von Hermann then showcases some of the arguments which were used against the idea of human capital and national intellectual capital.

TABLE 4 Intangible capital concepts in German-speaking lands before 1848

Author*	Adam Müller (1779-1829)	Christian von Schlözer (1774-1831)	Franz Josef Mone (1796-1871)	Friedrich von Hermann (1795-1868)	Friedrich List (1789-1846)	Johann Heinrich von Thünen (1773-1850)
main designations	intellectual capital, idea capital, knowledge capital etc.	personal capital	intellectual capital	intangible capital	intellectual capital	educational capital
in German	geistige Capital, Ideen-Capital, Kenntniß-Capital	persönliches Kapital	geistiges Kapital	Immaterial-kapital	geistige Kapital	Erziehungs-kapital
definitional breadth	ideas, knowledge, science, social science, skills, applied know-how, moral, institutions, national consciousness, art	learned skills and abilities	religiosity, knowledge, morality, skills, diligence, schools, universities, intellectual tools	rights, contracts, patents, privileges	discoveries, inventions, improvements, material and immaterial productive powers	investments in upbringing and education, health, dexterity, academic skills, knowledge
main levels of analysis	nations, humanity	individuals	individuals, nations	private and public economies	nations	nations, individuals
functions (benefits)	civilization	income stream	civilization, development, growth?	income stream, property	engine of growth and development	higher productivity, health, independence of action
service producers can are productive	yes	–	yes	yes	yes	–
human beings as capital	no	no	no	no	no	yes, cost of production approach
foundational publications (year)	1809	1805	1824	1832	1841	1842
*Selected authors.						

4.2 Scope of this Enquiry in German Language Texts (Before 1848)

4.2.1 Adam Müller (1779-1829)

Adam Müller, Austrian consul general for Saxony, emphasized the constructive powers of man, state, and society in his Romantic political economy. Müller

was born in Berlin, lectured in Berlin and Dresden, served as a tutor to Prince Bernhard of Saxe-Weimar, and later entered the Austrian civil service as his political activities closed the door to working in the Prussian bureaucracy. In the Austrian service, he took part in a number of Metternich's diplomatic endeavors.[628] In his theory he subordinated the individual to serve a higher organic whole and saw money as a binding factor in society. He challenged the market economy concept of capital by introducing his "true" concept of capital, which subsumed, as Gerhard Kolb puts it, "God, man, nature, and culture".[629] In Müller's theory, capital was also presented as an argument directed against the worst nationalistic fanatics of his time. Indeed, seeing all accumulated wealth, faculties, experience and knowledge as capital common to all humankind sobered the discussion somewhat and brought some moderation to it. All experiences that people had historically amassed in their struggle for survival and all the products they had produced to achieve this were seen as capital, whether intellectual, emotional, or material in kind. This capital was as applicable to the whole species as to each individual in it; encompassed all talents, goods, skills, faculties, "and property that had made humankind's survival possible; and became increasingly varied and productive with time.[630]

4.2.1.1 Müller's Classes of Intangible and Human Capital

Harm-Peer Zimmerman's summary[631] of Müller's view on different classes of capital is worth representing here in its entirety, since many forms of capital have their place within the broad sweep of its two main branches set out here.

1. "Intellectual capital" (*geistige Capital*) described riches and property in the intellectual sense, especially in terms of speech, science, and the written word, to which there were the following four aspects:
   a. "idea capital" (*Ideen-Capital*), which included theory, art, morality, religion, national consciousness;
   b. "knowledge capital" (*Kenntniß-Capital*), which covered the empirical and positivist cultural sciences, factual knowledge about social phenomena, trade, money, and life experience;
   c. "natural science capital" (*Naturwissenschafts-Capital*), which included mathematics, chemistry, biology, physics, and agrology; then finally
   d. "crafts knowledge capital" (*Kunstwissenschafts-Capital*), which referred to applied knowledge, especially technical know-how.

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628 Mark Perlman and Charles R. McCann, *The Pillars of Economic Understanding: Ideas and Traditions* (Ann Arbor: University of Michigan Press, 1998), 412.

629 Gerhard Kolb, *Geschichte der Volkswirtschaftslehre: Dogmenhistorische Positionen des ökonomischen Denkens* (München: Vahlen, 2004), 104-105.

630 Harm-Peer Zimmermann, *Ästhetische Aufklärung: Zur Revision der Romantik in volkskundlicher Absicht* (Würzburg: Königshausen & Neumann, 2001), 451-452. Following discussion on Müller's views on capital and labor is mostly based on Harm-Peer Zimmerman's detailed study on the subject.

631 Translated and adapted from *Ibid.*, 457-458.

2. "Physical capital" (*das Physische-Capital*) involved people, groups, organizations, and objects embodied and tied up with property, plus functional and organizational wealth, to which there were the following four aspects:
   a. "experience and credit capital" (*Erfahrungs- und Credit-Capital*), which existed in the character of individuals, and the institutions tied to them (e.g., class, properties and personal belongings);
   b. "power capital" (*Kraft-Capital*), which represented infrastructure or costs tied to soil improvement;
   c. "crafts capital" (*Kunstfertigkeits-Capital*), which covered the means of production for everything from industrial buildings to hand tools; and finally
   d. "monetary capital" (*Geld-Capital*), as this did not cover only money, but all forms of financial capital, and all previously mentioned forms of capital, as long as they could be used in exchange or as currency.

This very broad definition of capital shows that, although Müller followed Adam Smith in the sense that the source of all this wealth was labor, which meant all past and present activities that were directed against privation and poverty and could be accumulated, his view differed from the mercantilists, Smith, physiocrats, and most liberalists about what kind of labor was accounted for here. Smith defined productive labor as only that which created physical products; Quesnay and the physiocrats saw labor in agricultural terms; and Colbert saw labor as only that which could bring in money. Indeed, many liberalists saw broad swathes of human activity as unproductive and sometimes even parasitic. Müller's concept, however, was much broader and it was partially followed by Friedrich List and the German historical school (GHS). With his detailed presentation of the subject, Müller started to rehabilitate the economic significance of large groups of people and vocational fields. These included the clergy, scholars, officials, administrators, actors, musicians, artists, and the service sector as a whole. Also the work of women – at the time consisting of housework, bringing up children, and charity – was appreciated by Müller, while he claimed that Smith saw no value in it.[632] As Zimmermann notes, these were new and pioneering insights and they were presented with an unparalleled intensity.

4.2.1.2 Bourdieu of the Early Nineteenth Century

Müller's use of the concept of capital, or to be more precise, the connection he made between the intangible phenomena that he valued and capital, shows how one of the main roles of intangible capital as a concept, from the beginning, has been how to give something economic or societal value which until then has been previously considered as either unimportant or immeasurable. Zimmerman compares Müller's views to those of Pierre Bourdieu, but in principle

632 *Ibid.*, 451-452.

they might as well be compared to those of Gary S. Becker, because Becker's research also brought into the economic limelight subjects that had been previously undiscovered, neglected, or sometimes just placed outside the field. At the same time, Müller's view shows how capital and the mechanism by which it is supposed to generate future revenue has been a way to highlight the importance of some aspect or another of human existence even when it is quite far removed from the traditional understanding of what is considered relevant to economics.

Another very interesting aspect of Müller's capital theory is how it operates using similar concepts to J.-B. Say and Henri Storch's theories, and yet is in many ways directly opposed to them. Müller's thinking was very conservative in the sense that he saw the value in 'existing' social relations, institutions, art, mores, and knowledge; and his economic philosophy, advocating a kind of feudalism in the way it unifies social organization harked back to Johan Gottlieb Fichte (1762-1814) and Edmund Burke (1729-1797). From Fichte he took the notion of the state as an organic whole, while from Burke came the appreciation of the corporatist state, in which rights were derived from belonging to the group. In such views, all elements of individuality were subordinated to serve the greater good of nationhood; with the state existing as the means to preserve cultural interest and internal order.[633] Say, on the other hand, saw the possibilities of a future where many of the above values were reformed throughout. Whereas Müller saw the medieval remnants of the guild and class systems as valuable institutions that should be safeguarded, Say and Storch envisioned the kind of human potential that would be set free if mercantile regulation and the remnants of the feudal system were thrown away. Although he seems to have taken a different direction, Müller nonetheless saw himself as a follower of Adam Smith; but he was concerned that the German interpreters of Smith tried to apply his principles too literally to the German context, without taking into account that his propositions were grounded in a British cultural context.[634]

4.2.2 Franz Josef Mone (1796-1871)

In his work *Theorie der Statistik* (1824),[635] Franz Josef Mone, a statistician and archivist from Baden, presented a theory of intellectual capital that regarded the

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633 Mark Perlman and Charles R. McCann, *The Pillars of Economic Understanding: Ideas and Traditions* (Ann Arbor: University of Michigan Press, 1998), 412. Perlmann and McCann also noted Müller's broad understanding of capital.

634 *Ibid.*, 412–413.

635 Franz Joseph Mone, *Theorie der Statistik* (Heidelberg: August Oswald's Universitäts Buchandlung, 1824). See also French translation from 1834: Franz Joseph Mone, *Théorie de la statistique*, trans. Émile Tandel (Louvain: Vanlinthout et Vandenzande, 1834). Same themes are also to be found in Franz Joseph Mone, "Théorie de la science statistique divisée en statistique de l'intérieur et de l'extérieur d'un peuple, comprenant dans la statistique de l'intérieur," *Journal des travaux de la société française de statistique universelle,* 4, no. 5 (1838): 261-302; Franz Joseph Mone, "Théorie de la science statistique divisée en statistique de l'intérieur et de l'extérieur d'un peuple,

different kinds of academic and cultural institutions as the "intellectual capital" of a country. One instant reaction to this view is that it is only right for a statistician to think like this, since the number of schools and universities per capita of population would probably work well as a proxy for human capital in an era when education (let alone mass education) was still very underdeveloped. Along these lines, Franck and Oded (2015), have recently used the number of school buildings as a proxy for estimating human capital formation in their empirical historical research on the complementarity between industrialization and human capital formation.[636] But Mone was also very detailed about the characteristics and knowledge that created a civilized individual and on a broader level, a civilized people.

4.2.2.1 Individual and Collective Acquisition

When classifying professions, the major divide for Mone was between those whose work satisfied material needs and those whose work satisfied intellectual needs. To analyze the development of nations, societies, and also individuals, Mone focused on and attempted to classify their achievements. Therefore he also made a difference between individual and collective intellectual capital (*geistiges Kapital*). Although he emphasized the importance of intellectual and intangible factors throughout *Theorie der Statistik*, to get a more succinct idea of his thoughts on the matter merits a glance at his categories of individual and collective "acquisition" (*Errungenschaft*). This acquisition could be material or immaterial, and the two were in constant mutual interaction; after all, the institutions that built and promoted the growth of individual and national intellectual capital required material investments, and equally material wealth could be increased by further immaterial acquisition. This equivalence and complementarity of the tangible and intangible come up time and again in his discussion about the nature and power of individuals, classes, communities, and peoples; in his discussion about different kinds of goods and their trade; and in his discussion about manual and mental labor (he even had a category of intellectual tools to complement the material means of production).

Mone discussed both individual and collective acquisition under the title of "acquisition of the people" (*Errungenschaft des Volkes*), with a people or a nation seen here as a form of productive power. What it actually "produced" was the net left after annual consumption and possible losses, and this net product Mone equated with his category of acquisition. Acquisition could be material or immaterial, and it could be private, i.e., produced by an individual, or public when made by a collective. The difference between material and intellectual acquisition was that estimation of the amount or value of the product of the latter on an annual basis was possible only in rare cases. Mone's solution to this problem was twofold. On the one hand he described how he thought the mech-

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comprenant dans la statistique de l'intérieur," *Journal des travaux de la société française de statistique universelle,* 4, no. 7 (1839): 389-436.

636 Raphaël Franck and Galor Oded, "The Complementary Between Technology and Human Capital in the Early Phase of Industrialization," *Working Papers from Brown University, Department of Economics* 3, (2015): 1-49.

anisms of education (*Bildung*) for improving intellectual wealth should be built, and what their impact would be on individuals, collectives, and (among other phenomena) commerce.[637] The other was to specify and estimate the level of intellectual acquisition by looking more closely at the institutions created to promote the growth of intangible wealth.[638]

This latter was quite a novel idea, and had a clear investments perspective to the creation of intangible capital. The institutions of religion, education, science, and art could all be costed as proxies for intangible capital. The national and public acquisition (*Volkserrungschaft*) of this intellectual wealth required a degree of material wealth; and the process of how private acquisition in the material sphere could become the acquisition of nations was similar to the argument on the intellectual side. Statistics thus had to specify the sources and amount of material wealth needed to found institutions with specific intellectual goals. The basic goal of intellectual acquisition was (i) to create intellectual capital (*geistiges Kapital*); (ii) to promote the commerce of ideas (*Austausch der Gedanken*); and (iii) to create intellectual pleasure. These roughly corresponded with capital, trade, and consumption on the material side.

4.2.2.2 Intellectual Capital of Nations

Mone's classification of what constituted the intellectual capital of nations was as follows. The first class was (i) religiosity, and the main institutions supporting it were the churches, which he divided into main churches, auxiliary churches, and chapels. The second main class was (ii) science, for which foundations were built in education of the young, and was supported by schools for various ages within the German education system. Finally, the third main class was (iii) art, and the institutions for its acquisition (*Erwerbung*) were art schools. These art schools he divided into those giving teaching in (a) music, poetry, and rhetoric; (b) the visual arts, and (c) acting and theatre.[639] Regarding the transfer of ideas, Mone made a similar trisection and included, e.g., a long list of those institutions and associations that promoted research and the spread of research-based knowledge. These varied from institutes or departments of science to ancillary institutions such as libraries, and more discipline-specific ones.[640]

Furthermore, when national intangible acquisition involved both intellectual and physical goals, Mone called this "acquisition for mixed goals". This covered, for example, stipend systems that took care of the material needs of pupils and students or rewarded them for doing well in their studies – here the intellectual goal was more prominent – whereas, in the instruction of dancing, fencing, riding, and swimming for all classes or professions, the physical goals predominated. Mone also listed here all the institutions that taught people working professions (polytechnics, agricultural schools and institutes, craft

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637 Franz Joseph Mone, *Theorie der Statistik* (Heidelberg: August Oswald's Universitäts Buchandlung, 1824), §. 27, 34-39, 57, 67, 68.
638 *Ibid.*, 79-80, §. 69.
639 *Ibid.*, 90-91, §. 83.
640 *Ibid.*, 89-93, §. 83-86.

schools, and trade schools).[641] This shows how broad a division he made between tangible and intangible, ranging from social classes, through forms of production and commerce, to capital. Probably this also reflects the spirit of the early 19th century German universities. In this respect, the research and instruction done in the higher status institutes was geared towards the intangible and intellectual, understood in terms of both researchers, teachers, and taught (*intellektuelle Stände*), as well as what the "intellectual acquisition" itself (*Errungenschaft zu intellektuellem Zweck*); whereas in the schools for the manual professions, the instructed were from the working or material class (*arbeitende, materielle Stände*) and the goal was a more tangible material acquisition.

Mone argued that the yield of the intellectual assets of a nation was assessed by a threefold process of specifying the effect of (i) publicly acquired intellectual capital (*geistiges*); (ii) the transfer of ideas; and (iii) the intellectual goods consumed for pleasure. The yield of intellectual capital could be assessed by counting the number of people attending churches and schools, by the degree to which teaching and its results complied annually with the school curriculum, and by counting the number of students attending full-time, half-time, or not at all. The effect of the transfer of ideas would become apparent in the number of people belonging to religious associations; the degree of intellectual promotion in societies of the sciences and arts; and the number of people involved in the advancement of scientific institutions for collecting resources for research (libraries, museums, various institutions serving the medical and natural sciences).

4.2.3 Friedrich List (1789-1846)

Friedrich List is often considered as an early member or a precursor of the earlier German historical school of national economy. On the other hand, there are good reasons to link him more with French economic thought of the time, since he spent long periods in the country; and that is where he wrote *Le système naturel de l'économie politique* (1837) and *Das nationale System der Politischen Oekonomie* (1841).[642] On the other hand, before this he had spent years in the US, where he was the editor of a German language newspaper *Der Adler* and founded a railway and canal company.[643] Werner Abelshauser notes that List, by encouraging countries to improve their terms of trade, has been long considered as a prophet for the New International Economic Order that was being put forward in the United Nations in the 1970s. Indeed, many of the themes List was interested in are still very topical today. He wrote about economic and political integration, customs unions, infrastructure, networks, and large economic areas. Abelshauser sees that these points in themselves are enough to distin-

641 *Ibid.*, 93, §. 85.

642 Friedrich List, *Das nationale System der Politischen Oekonomie* (Stuttgart: J.G. Cotta'scher, 1841). The former French work has not been used here.

643 Mark Perlman and Charles R. McCann, *The Pillars of Economic Understanding: Ideas and Traditions* (Ann Arbor: University of Michigan Press, 1998), 413.

guish List from the early GHS,[644] but from the point of view of the history of economic theory, List still has his place among the early generation of the GHS, since the rationale of the school was empirical and pragmatic critique and, according to Abelshauser it is here that Lists's greatest strengths lie too. List was able to create a fruitful association between theoretical deductions based on the liberal principles of classical economy and historical institutionalism with its realistic premises for the developmental economics of continental Europe.[645]

List also took another step in redefining what it was that constituted national wealth. Whereas Adam Smith had broadened the concept to include manufacturers as productive within a physiocratic framework; and Say taken further steps to be able to include administrators, scholars, priests, and educators;[646] List saw their concentration on exchange values of whatever one produced as fundamentally flawed, at least from the point of view of national wealth. By concentrating on exchange value and material wealth, classical economics had come to a state where a pig farmer was considered productive, but a teacher not so.[647] For List, this was barking up the wrong tree.

> The errors and contradictions of the prevailing school to which we have drawn attention, can be easily corrected from the standpoint of the theory of the productive powers. Certainly those who fatten pigs or prepare pills are productive, but the instructors of youths and of adults, virtuosos, musicians, physicians, judges, and administrators, are productive to a much higher degree. The former produce values of exchange, and the latter productive powers, some by enabling the future generation to become producers, others by furthering the morality and religious character of the present generation, a third by ennobling and raising the powers of the human mind, a fourth by preserving the productive powers of his patients, a fifth by rendering human rights and justice secure, a sixth by constituting and protecting public security, a seventh by his art and by the enjoyment which it occasions fitting men the better to produce values of exchange.[648]

List wanted to set his theory and work apart from the vocabulary of "the School" (as he called the British and French classical economists), as they dealt with these issues within a limited understanding of what constituted a capital framework. List saw that a relevant starting point for analysing whether something or someone was productive should be its ultimate utility or benefit to the general conditions of a nation. It was not its exchange value at the moment of transaction. List thus criticized Say for (i) equating national wealth with exchange values, (ii) for claiming that he had seen nations grow rich with all forms of government, and (iii) for claiming that one could not create riches through legislation. List stated that while laws and public institutions might not

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644 Werner Abelshauser, "L'école historique et les problèmes d'aujourd'hui," in *Histoire et économie politique en Allemagne de Gustav Schmoller à Max Weber,* ed. Hinnerk Bruhns, (Cologne: Fondation Fritz Thyssen & Maisons des sciences de l'homme, 2004), 20.

645 *Ibid.*, 20-21.

646 See section 2.2.2 on Smith and section 3.2.3 on Say.

647 Friedrich List, *Das nationale System der Politischen Oekonomie* (Stuttgart: J.G. Cotta'scher, 1841), 213.

648 Friedrich List, *The National System of Political Economy*, ed. J. Shield Nicholson, trans. Sampson S. Lloyd (London: Longmans, Green, and Co., 1909), II.XII.22.

produce immediate value, they could nonetheless generate productive powers.[649]

Whereas Say wrote saw export subsidies as presents to less developed nations, List saw them as ruinous machinations that would only help consumers in the target country for a while, but in the end were destructive of its own productive powers, national wealth, and employment. The export subsidies of the English to countries on the continent, List compared to the Trojan Horse. In the same way, once again defending protective tariffs as a way to prepare industry for free competition, he wrote how a few years technical advantage and export subsidies for the English would ruin the cloth and fabric manufacturing industry from Germany, unless steps were taken to protect it with tariffs.[650]

List was able to free himself from the shackles of physiocracy by claiming to be focusing on general well-being and the conditions of a nation rather than exchange values and by partly bypassing the concept and role of capital in all this with his emphasis on productive powers.

4.2.4 Johan Heinrich von Thünen (1783-1850) – *Erziehungskapital*

Hans Frambach called Johan Heinrich von Thünen the founder of modern economics; while Schumpeter mentions him alongside the system-building "geniuses" of Cournot, Jevons, Walras, and Marshall in the first issue of *Econometrica*. Schumpeter also noted, when writing about Marshall's contribution in his *History of Economic Analysis*, that both the principle of substitution and marginal productivity were actually von Thünen's ideas[651] (although Marshall did acknowledge this)[652]. Thünen was also one of those continental economists working on the mathematical front whose methods William Stanley Jevons admired, being afraid as he was that British economics risked losing its preeminence because of its eschewal of mathematical symbolism.[653] Mark Blaug has also felt the need to laud Thünen as "three economists in one": he is the father of location theory; one of the independent discoverers of the marginal productivity theory of distribution; and for mathematical economists and econometricians he is a pioneer of using calculus in maximization problems, which he often checked against self-collected data. Unlike most German adherents of

649 *Ibid.*, 215-216.
650 *Ibid.*, 218.
651 Joseph A. Schumpeter, *History of Economic Analysis*, ed. Elizabeth Boody Schumpeter, 12 ed. (New York: Taylor & Francis, 2006), 805-806. And again, Lionel Robbins thought that Schumpeter clearly underrated Marshall with his supposed neglect of Jevons, von Thünen, Cournot, and Dupuit. Mark Perlman, "Introduction," in *History of Economic Analysis*, ed. Elizabeth Boody Schumpeter, (New York: Taylor & Francis, 2006), xx.
652 Mark Blaug, *Great Economists Before Keynes: An Introduction to the Lives & Works of One Hundred Great Economists of the Past* (Brighton: Wheatsheaf, 1986), 246–249.
653 Mark Perlman and Charles R. McCann, *The Pillars of Economic Understanding: Ideas and Traditions* (Ann Arbor: University of Michigan Press, 1998), 219, 320; Hans Frambach, "Johann Heinrich von Thünen: A Founder of Modern Economics," in *Handbook of the History of Economic Thought: Insights on the Founders of Modern Economics*, ed. Jürgen G. Backhaus, (New York: Springer, 2012), 299.

Adam Smith and classical political economy, Thünen was able to come up with original ideas that took him further than the classical British and French instances. Although absorbing a big part of their contributions, von Thünen was critical on some major points. For example, he criticized Smith for equating the interests of capital with the profit of an entrepreneur.

4.2.4.1 Investment in People

Thünen's *Isolierten Staat* (1826, 1842, 1850, 1875)[654] included a chapter on the consequences of capital investments in people and on evaluating people within a capitalistic framework.[655] The reason he had to ponder such an issue was that in the previous chapter he had presented a theory and equations which showed how time and resources invested in the education and health of workers increased their productivity. Increased productivity then compensated for the costs of the investment and brought returns. Thünen's account on the matter is one of the clearest and most explicit defenses of the idea of human capital, defined very much like Becker and others later on in the 19th century. Furthermore, it has an ethical aspect that sees various beneficial consequences for individuals if the state starts to consider them as capital. Thünen used quite early on the term "educational capital" (*Erziehungskapital*). In Ngram searches the term appears in the 1860s, and is thereafter in quite common use until the 1930s.

Thünen wrote that especially in the upper classes, e.g., doctors and state officials, it was evident how much their suitability and their level of effectiveness in their various professions – supposing their gifts of nature were the same – was dependent on a long and careful preparation. This was less recognized among lower class manual workers, but Thünen argued that through a longer and better education (*Erziehung*), effectiveness could be increased here also. In this context he discussed (i) how body strength could be maximized by people starting physical work at the age of 17-18, rather than 15 and through better nutrition; (ii) the relationship of gymnastic exercises to dexterity; (iii) the ability to read, write, do calculations, and have a basic knowledge of the natural sciences and how that related to the complexity of tasks one was able to perform; 4) the relationship of these previously mentioned factors to independent thinking and to efficient work; (v) how improved basic academic skills and independent thinking would diminish the need for supervision and bring down administration costs; and (vi) how the intellectual education of workers (*geistige Ausbildung*) would lead to a better understanding of the consequences of their actions, so that they were less at the mercy of their immediate wants and needs. Based

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654 Here I use the third edition of the book, corresponding to the first complete edition, i.e., the part one from 1842 and part two from 1850. The first edition of the part one was first published in 1826. His theory of capital is in the second part and was therefore first published in 1850. Johan Heinrich von Thünen, *Der isolierte Staat in Beziehung auf Landwirtschaft und Nationalökonomie. Erster Theil*, 3 ed., vol. 1 (Berlin: Wiegandt, Hempel & Parey, 1875); Johan Heinrich von Thünen, *Der isolierte Staat in Beziehung auf Landwirtschaft und Nationalökonomie. Zweiter Theil. I Abtheilung*, 3 ed., vol. 2 (Berlin: Wiegandt, Hempel & Parey, 1875); Johan Heinrich von Thünen, *Der isolierte Staat in Beziehung auf Landwirtschaft und Nationalökonomie. Zweiter Theil. II Abtheilung*, 3 ed., vol. 2 (Berlin: Wiegandt, Hempel & Parey, 1875).

655 *Ibid.*, 145-149.

on these premises, he presented two assumptions. The first was that the longer and better a worker's upbringing and education, given similar natural talents, the higher the work product would become. Secondly, because a better education and upbringing would raise costs, the net work-product of an individual must bear a certain relation to the costs of that education and upbringing.[656]

After presenting the mechanisms described above on how improved education and health could increase productivity, Thünen presented a model in equations which estimated how big the influence of a longer education to a worker's higher productivity might be, and the relation of higher educations costs to productivity. Thünen's argument for including the "intangible goods of people" (*immateriellen Güter der Menschen*) as part of national capital was thus based on theoretical reasoning, as well as general observations of circumstances in German-speaking lands and others, such as Ireland, Russia, Guinea, and Norway.

> Da das höher ausgebildete Volk, mit denselben materiellen Gütern versehen, ein weit größeres Einkommen schafft als das ungebildete Volk, und da diese höhere Ausbildung nur durch eine Erziehung, die eine größere Konsumtion von materiellen Gütern erheischt, erlangt werden kann, so besitzt dieses Volk auch ein größeres Kapital, dessen Nutzung sich in dem größeren Arbeitsprodukt desselben ausspricht.[657]

What were the consequences of including health, skills, knowledge, and reasoned behavior to capital then? Thünen wrote that there seemed to be an inner shyness among authors about discussing issues such as what capital an individual contains, or the cost of a human being. That man seems to stand so high was certainly a compliment to our species, but it nevertheless, according to Thünen, meant there was uncertainty and confusion about what were surely some of the most important concepts for political economy. He was arguing that it was, after all, possible to guarantee the dignity and freedom of man even when subordinated to an analysis based on the laws of capital.[658]

Furthermore, Thünen saw that the sacrifice caused by this compliment was futile, because when the everyday practice of business and industry was considered, an entrepreneur combined workers and machines based on the principle of minimizing costs, and would get rid of the worker without thinking twice if the machine did the work more cheaply.

4.2.4.2 *Erziehungskapital* and War

But more serious than this, was the error of not considering people and their abilities as capital in times of war. For here a hundred men in the prime of their lives could be sacrificed to regain one cannon. This was an irresponsible

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656 *Ibid.*, 140-141.

657 "Because better educated people can, given the same material goods, reach much higher income than uneducated people, and because this higher education can only be reached through instruction requiring higher consumption of material goods, this people owns more capital, which use is pronounced in its higher labor productivity." *Ibid.*, 145.

658 *Ibid.*, 146.

waste,[659] and one of the reasons for it was that whereas losing a cannon meant one more expense for the state treasury's accounts, new recruits were not given any value as they were made available simply via forced conscription. Thünen claimed that the state was taking the men without seeing them, for instance, as members of their families, for which they were often the sole source of income, and these families were not given any kind of compensation. The citizen even let this happen, while if the same were done without compensation for bulls or horses, the practice would have caused a general revolt.[660] As with the instance from manufacturing, here too it seemed that physical capital was more valued than the people it involved.

If, instead, the state would consider its citizens as capital instead of cannon fodder, several beneficial consequences would follow. 1) The state would be obliged to compensate the families of the fallen soldiers by paying for the upbringing and education of the children. 2) For disabled soldiers it would have to compensate them, not only for the destroyed capital spent on their education, but also for the cost of living the rest of their lives. 3) For soldiers that survived and were able-bodied, the state would have to compensate them for the lost income of the period they were in service.

Thünen hoped that such an approach would make wars even more costly than they already were, and therefore make them rarer, or at least fought with less human casualties.[661] Luckily he did not live to see the First World War.

> Was nichts kostet, das achtet man nicht – und dies gilt nicht von Sachen, sondern leider auch von Menschen.[662]

He used the same reasoning with regard to the slave trade too. He described how many slaves could die on the voyage from Africa to North-America, but his favorite example was Napoleon, who was apparently unmoved when confronted about a planned operation that would cost too many lives. He claimed Napoleon to have said at this point "Cela ne fait rien, les femmes en font plus que je n'en use".[663] What was even worse was that with the Napoleonic Wars, all the European nations started basing their armies on conscription. Thünen thought it was this utter disregard for human life implicit in the conscription system that made it possible to raise more and more armies until the nation was exhausted. Napoleon's disastrous Russian campaign was one example of what the illusion of free human capital could have. Although Thünen wrote that the story of Napoleon's failure would warn future conquerors of making the same mistakes. Luckily he did not live to see the Second World War either.[664]

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659 Von Thünen claimed that the economic value of one hundred men was about twenty times that of a cannon. *Ibid.*

660 *Ibid.*, 146-147.

661 *Ibid.*, 147.

662 "What costs nothing is not appreciated – and this concerns not only things but unfortunately also people." *Ibid.*

663 "It doesn't matter, women make more of them than I use." *Ibid.*, 148.

664 *Ibid.*, 148-149.

Even if the defense of the fatherland was the first duty of a citizen, and the state could indeed call on citizens to give their lives for the benefit of the whole, it should never be allowed, Thünen wrote, for the only wealth that an ordinary family had – the working head of the family – to be taken away. This could push the whle family into ruin. Whereas a wealthy landowner could get the horse he required for military service paid for by the state treasury, an ordinary family could lose everything without anyone even thinking of any kind of compensation.[665] In Thünen's view, conscription was thus a 100% tax on the interest of educational capital (*Erziehungskapital*) that had been invested by the soldier's family.

4.3 The Dissenting Voice

4.3.1 Karl Heinrich Rau

Karl Heinrich Rau (1792-1870) interests us in the sense that he was one of the early 19th-century authors elegantly presenting the opposite case for the kind of goods and capital that political economy should be concerned with.[666] Indeed, Rau placed all personal goods (*persönlicher Güter*) outside the sphere of political economy. In the introduction to the first edition of his *Lehrbuch der Politischen Oekonomie: Grundsätze der Volkswirtschaftslehre* (1826), Rau wrote that he chose the term "political economy" as it was "known from the Thames to the Seine, and from the Neva to beyond the Atlantic Ocean". In other words, he wanted it to connect to work in the same field abroad. He had no high hopes of changing the general disregard the French and British authors had towards German achievements in political economy, but he wanted to avoid the usual issues of disagreement with them and to bring insights from abroad to his own work. He emphasized the importance of Ricardo's work, which, despite being close to canonical in Britain had undeservedly, he felt, received little attention in Germany.[667] That he so clearly singled out Ricardo, for whom the labor theory of value was such a fundamental problem, already hints at what to expect from Rau in terms of his views on intangible capital.

Although Rau had translated Henri Storch's *Cours d'économie politique* (1815)[668], which emphasized the importance of intangible goods and capital, it seems to have had very little influence on his own treatment of capital and wealth in his *Lehrbuch der Politischen Oekonomie* (1826). Say and Rau, both very influential in their own countries, read, edited, or translated Storch; but where-

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665 *Ibid.*, 149.

666 Karl Heinrich Rau, *Lehrbuch der politischen Oekonomie*, 8 ed., vol. 1 (Heidelberg: C. F. Winter, 1868), 3, §. 46.

667 Karl Heinrich Rau, *Lehrbuch der Politischen Oekonomie: Grundsätze der Volkswirtschaftslehre*, vol. 1 (Heidelberg: Winter, 1826), viii-ix.

668 Published in German as Heinrich Friedrich von Storch, *Handbuch der National-Wirthschaftslehre*, trans. Karl Heinrich Rau, vol. 1/2 (Hamburg: Perthes und Besser, 1819).

as Say incorporated some of Storch's ideas on intangible capital, Rau stood firmly in the materialist camp, despite citing Storch when discussing different kinds of material capital.[669]

Rau argued that Adam Smith's idea that skills and acquired abilities were capital did not ring true, because skills were, at the same time, not wealth (*Vermögen*). Rau understood only material goods to be wealth, as in fact did Smith, in spite of including skills as a form of fixed capital. Rau argued that personal goods were components of the personality, and as such, their relation to human beings was completely different than that of material goods. He saw that they were different in terms of creation, transmission, duration, and destruction even if, in many other respects, they could be compared. Here he cited Storch and conceded that Storch had applied the terms, concepts, and classifications of material goods to personal goods with success. Probably Storch was spared any more explicit criticisms because, after all, he talked about internal 'assets' (*biens internes*), which perhaps distinguished them a bit more from material goods. Nevertheless, Rau was claiming that, rather than be treated as components of wealth in economics, personal goods should instead be seen as (i) conditions that had a powerful influence on wealth, and (ii) as the *ends* to which all economic endeavors were directed; since material goods, after all, only had meaning when applied to human life.[670] Skills and other abilities were personal goods, and thereby not wealth nor capital. Rau also discussed land improvement at the same time, because it was often used as an analogy for investing in skills and knowledge, but here too he argued that investing in drainage (*Entwässerung*) or tillage (*Aufführen von Erden*) were not capital investments, because in such cases the set of values (*Werthmenge*) of the piece of land in question increased by an amount equivalent to the sum of capital invested.[671]

4.3.2 Friedrich von Hermann – *Immaterialkapital*

Friedrich von Hermann (1795-1868) was a yet another early commentator and proponent of the idea of intangible capital, although only in the Sismondian tradition. Compared to Müller and Mone discussed above, his work was much more within the framework of political economy. He was among the early founders of the subjective theory of value, "entrepreneur profit" (*Unternehmergewin*), and was also a pioneer of using statistics in economics. After the publication of *Staatswirtschaftliche Untersuchungen* in 1832 discussed below, he was appointed full professor at the University of Munich. He was also a politician, head of the statistical office in Bayern, and an important adviser for the kings of Bayern from Max I to Ludwig II. He was also especially influential in the economic policy of Bayern during the reign of Maximilian II from 1848 to

669 Karl Heinrich Rau, *Lehrbuch der Politischen Oekonomie: Grundsätze der Volkswirtschaftslehre*, vol. 1 (Heidelberg: Winter, 1826), 89.

670 *Ibid.*, 3. As did also Smith despite making an exception with skills and knowledge in relation to capital. It is also possible that Smith's underlying idea was that people are physical capital. See sub-section 2.2.2.3.

671 *Ibid.*, 90.

1864. Hermann is an interesting case for he argued that what we now understand as human capital should *not* be understood as capital neither in personal nor in national sense, but what we roughly understand as intangible capital – rights, patents, contracts – he discussed as "immaterial capital". In contemporary discussion Geoffrey Hodgson as well as Thomas Piketty have presented similar definitions as well as similar arguments against human capital.[672]

4.3.2.1 Intangible Economic Goods and Productive Labor

Just by looking at the table of contents in Hermann's *Staatswirtschaftliche Untersuchungen* (1832), one can see a number of differences with the standards of classical political economy. In what is now Germany and Austria, the works of Smith and his followers were embedded in the older cameralist and political science traditions, which was probably one reason why the primacy of self-interest as the guiding principle of society and collective life was not accepted without a grain of salt. Already in the table of contents one sees that the main principle of any economic society (*Gesellschaft*) was public or common good (*Gemeinnutz*), which complemented and constrained the self-interest driving the private economy. The latter often worked against the common good and it required complementing, especially when not able to provide all individuals with the necessary subsistence. But what interests us more here, is that he also defined services and certain conditions or relations (*Verhältnisse*) as economic goods, discussed the Smithian and physiocratic ideas of productive and unproductive labor, and Adam Müller and Henri Storch's views, while at the same time presenting his definition of intangible capital. [673] So I will discuss his work in that order – economic goods, productive labor, and finally capital.

For Hermann, everything that could possibly satisfy a human need was a good. From an individual's perspective, these goods were either internal or external goods. Internal goods comprised innate talent and what one "freely and spontaneously created or produced inside" (*was er freithätig in seinem Innern erzeugt*); while external goods were what one produced or received for the satisfaction of needs from the outside world. The internal goods directly expressed themselves outwards when they satisfied a need or brought enjoyment to another person and indirectly when they were consumed in connection or as part of external goods. The first, direct mechanism was at play for example in teaching, and the second indirect form in the production of material goods.

Hermann divided external goods according to their sources. The first source was nature and its gifts; the second was the combination of nature and work, which transformed the form or composition natural materials or objects; and the third source were services and the conditions or relations of social coexistence. This last class of external goods was the highest, and was further de-

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672 On definition of capital as monetary value, legal rights, and institutions. Geoffrey Martin Hodgson, *Conceptualizing Capitalism: Institutions, Evolution, Future* (Chicago: The University of Chicago Press, 2015), 178-179.

673 Friedrich von Hermann, *Staatswirtschaftliche Untersuchungen* (München: Anton Weber, 1832), ix–x. Here I use the first edition of *Staatswirtschaftliche Untersuchungen* from 1832. Hermann was working with a significantly expanded and revised edition at the time of his death in 1868; it was published posthumously in 1870.

fined by Hermann as the "constant reciprocity of services" through which society provided the individual with security, the possibility for trade and occupation (*Erwerb*), made it possible to enjoy friendship and family life, provided the scientific community, and provided the religious community. Were these combined together under the title of living conditions, the category would include the conditions of law, acquisition, companionship, love, science, and religion. Secured with contracts and legislation, such conditions became rights (*Rechte*) and privileges (*Gerechtsame*).[674]

As we see, Hermann's definition of goods did not set materialistic constraints for the discussion about productive labor or capital, nor was there any strict demarcation between free and economic goods. The first were the goods provided by nature, and the economic ones were differentiated from them only in that their creation and use for the satisfaction of needs required effort and care. Creating and acquiring economic goods required the sacrifices of either work or compensation. Efforts and sacrifices in their acquisition and improvement could also be made from gifts of nature and most of the results of work (i.e., transforming the natural form of materials or objects, as mentioned above), which were also economic goods.[675]

In addition to such material goods, services could also be economic goods. Of services Hermann mentioned "aid (*Beihilfe*), security, healing, and teaching". Under conditions or relations, Hermann mentioned the network of customers of a business. Many goods in this class, however, were economic goods for an individual only to the degree that consuming them required an effort or gift in return. Hermann noted here that he was not treading a new path; this classification of goods into material and incorporeal, was already present in James Steuart's *Political Economy* published in 1767.[676] Steuart saw all activities and performances that were acquirable with money as economic goods, and divided them into material and incorporeal and the latter further to services and rights. As discussed above, Smith had also read Steuart and based his classification of goods and the productiveness and unproductiveness of their producers on Steaurt (see sections on Steuart and Smith above). Hermann too differentiated between the "use value" and "exchange value" of goods and saw that everything that had exchange value was an object of economy.[677]

Hermann wrote that it was not possible to assign all economic goods to being the property of some person, because that would require subordinating people in an unusual way (i.e., slavery) and counting personal goods that were not yet economic as property. Or if this was done with no slavery, then one had

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674 *Ibid.*, 2. Hermann noted here that in Rau's *Wolkswirtschaftslehre* (1826) Rau's logic makes all goods in personal goods, a category Rau had reserved for gains and benefits received from services provided by other people.

675 *Ibid.*, 3.

676 James Steuart, *An Inquiry Into the Principles of Political Oeconomy: Being an Essay on the Science of Domestic Policy in Free Nations. In Which Are Particulrly Considered Population, Agriculture, Trade, Industry, Money, Coin, Interest, Circulation, Banks, Exchange, Public Credit, and Taxes.*, vol. 1/2 (London: A. Millar and T. Cadell, 1767), 360–361.

677 Friedrich von Hermann, *Staatswirtschaftliche Untersuchungen* (München: Anton Weber, 1832), 3–4.

to see labor force (*Arbeitskraft*) as being property over which its owner had no direct control, because it was hired and so could not be sold at will. Hermann argued that the fact something was property did not make it a good of exchange. Only when one gets the idea to exclude others from using or enjoying something, does that good becomes a good of exchange, and only goods that were external to their owner, not internal, were to be understood as providing an exclusive right of enjoyment.[678]

Wealth, according Hermann, was defined as all the goods available to an individual. It was possible to speak in this sense about the inner wealth of a person or the natural wealth of a nation, but usually by wealth, what was meant was the amount of external goods that a person had, and especially the amount of goods for exchange. Economic wealth, however, was not based solely on material goods, but *all* the goods of exchange that one could trade or swap. If some need was satisfied by the good and there was scarcity of it, then it was wealth, regardless of whether it was material or not.

Again Hermann acknowledged that he was in no way presenting any new ideas, which was probably a rhetorical move since, as we saw, he had to present a solid basis for the opposite case to people who had read Karl Heinrich Rau's *Lehrbuch* (1826). Steuart had already seen wealth as exchange values in circulation, which in practice consisted of goods that were material and goods that were not – these latter being services and rights. But Hermann cited J.-B. Say as the one who had really broadened the understanding of wealth to include intangible goods. Say was, however, wrong in explaining wealth as consisting simply of exchange values as this ignored the national importance of use value.[679]

When discussing this national wealth (*Vermögen*), Hermann made a clear departure from Smith, Ricardo, and Malthus. National wealth was not simply the sum of its citizens' wealth, but also included the property of foundations, corporations, municipalities, and the state. Besides the labor force, it was one of the most important factors in production of goods, but nevertheless only one of the factors. The business of a nation's political economy was neither limited to the increase or decrease of the wealth of certain individuals nor were the sums of that at its core; instead, it had to focus on the "wellsprings" (*Quellen*) from which all goods of exchange emerged and on the laws of how the activities (*Leistungen*) of various private economies were compensated or balanced (*Ausgleichen*) within the market.[680]

Furthermore, limiting the scope of the field to production and trade of material goods had no logical foundation, for it would cut out a considerable share of economic activity and what was understood as property.

> Beschränkt man es, wie Einige, auf körperliche Güter, so übergeht man unter den Gegenständen der Wirthschaft nicht blos alle ursprünglich persönlichen Leistungen, die ihrer Seltenheit wegen oder als Ergebniß von Arbeit und Aufwand wirthschaft-

678 *Ibid.*, 4–5.
679 *Ibid.*, 5.
680 *Ibid.*, 10.

> liche Güter und wichtige Elemente des Verkehrs sind, sondern auch einen Theil des rechtlich anerkannten Vermögens, alle immaterialen Aussengüter von Dauer nämlich, die sich im Besitz Einzelner befinden können. Bei einer großen Zahl von Staatsbürgern müßte man fast leugnen, daß sie eine Wirthschaft führen, z. B. bei allen, die blos von ihrem täglichen Arbeits verdienste leben.[681]

In addition, personal talents and skills that could have significant economic impact and be a source of wealth were to be included in the analysis.

> Daß der Einzelne, mit größerem Vermögen, wirthschaftlich besser sieht, als ein Anderer mit kleinerem, ist nur richtig bei gleicher Arbeitskraft beider; großes Talent, dessen Leistungen anerkannt und begehrt sind, kann eine fruchtbarere Quelle wirthschaftlicher Güter seyn als selbst großes Vermögen.[682]

Hermann wrote that the competition (*Kampf*) of producers and consumers, between themselves and against each other, made automatically sure that, in the long run, the cheapest and most sought after commodities prevailed in the market, except if the customers were forced to support uneconomic labor. One indication that production or providing a good or service was productive, was if it was sought after and if the price received from the market without extra effort was at least enough to cover production costs. This productivity varied depending on the geographical area, and on the gifts of nature, morals, and personal powers of the inhabitants.[683] In order not to overlook whole classes of private economy and lines of business, or to disown important parts of the economy and sources of livelihood which satisfied clear and real needs, all profitable personal services had to thus be understood as economic goods.[684] Hermann thus considered that the limiting of services outside economic goods, common in classical economics after Smith, and the language of productive and unproductive labor based on rigid sectoral hierarchies of production as unfounded.

4.3.2.2 Why Skills Were Not Capital

Hermann noted, as did many other German authors, that before Smith the concept of capital was used in the literature of political economy in approximately the same way as it was in everyday life. Steuart had understood capital to be the money lent against interest, and only in one place did he note that a sum of money could represent any item of the same price. But Steuart also saw the expenses of labor and materials as the sole defining factors in the price of a product, and Hermann felt the French economists had a better understanding of this though (i.e., the physiocrats), as they recognized the necessity of expenses in

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681 "If one confines it, as some have, to physical goods, then one bypasses as objects of economy not only the primarily personal services that are due to their scarcity or due to being results of work and effort economic goods and important elements of commerce, but also part of the legally recognized assets, namely durable intangible external goods that individuals can possess. With a large number of citizen, one would have to deny that they even run a business, for example with all who live off their daily services." Translation by the author. *Ibid.*, 10-11.

682 *Ibid.*, 11.

683 *Ibid.*, 36-37.

684 *Ibid.*, 41.

farming, crafts, and trade, and could analyze in detail the advances made in agriculture. But this vision of acquisition or business capital as an expense eating the real wealth produced by farming combined with a false understanding of productivity and the profits of industry had led them on a false path. The merit of Smith's less partisan study, was to recognize that the input of goods and labor in farming, industry, and trade could create a surplus over and above the expenses.[685]

While discussing the details of Smith's understanding of capital, Hermann noted that the earlier British authors had also followed Smith's lead here until Lauderdale, whose work, Hermann argued, was flawed. The younger authors like Ricardo, Malthus, Torrens, and James Mill had not built on Smith's theory of capital any further though, and in Hermann's opinion their treatment of the subject was actually inferior to the *Wealth of Nations*. Hermann listed quite a few authors here, and he found especially problematic McCulloch's idea that national capital consisted of the part of annual product available for further production *and* maintenance of the populace, as this unnecessarily mixed the ideas of income and capital. The German authors who more or less had stayed within the Smithian framework were Sartorius, Lüder, von Jakob, and Kraus, whereas Hufeland had presented some of his own ideas. Recent notable authors like F. B. Weber, Lotz, and Rau had also stayed within Smith's framework, whereas some authors who had deviated from it were Graf Bouquoy, and the authors of *Staatswirthschaft nach Naturgesetzen* (1819). Most of the development of capital theory since Smith had come from the French authors though, in Hermann's opinion. Here he listed Canard, J.-B. Say, and Ganilh.[686]

The first problem in Smith's understanding of capital was his treatment of land as not being capital. This is not discussed here, although it was one of the recurring themes in the debates of the time, and the main problem with it was of a general nature: Smith, limiting capital to the goods used in production, stated that land was not capital, yet in other places noted that land is for a tenant farmer only a tool to generate wages and profit for his capital. That the income from land was generated differently than from most classes of capital was no reason to place it outside capital, especially as land improvements were tightly connected to ground rents, and Smith accepted land improvements as capital.[687]

A more relevant point for us, was that many recent German authors, Hermann mentioned Rau and Lotz among others, had tried to prevent the broadening of the concept of capital within a Smithian framework with an argument that Smith's work did not agree with; namely, they claimed that only *external* goods could be capital. Here goods had been divided into a stock for consumption, and stock for the creation of income, i.e., capital. Smith, however, included acquired abilities and education under fixed national capital, which was actually at odds with his doctrine of material economic goods. F. B. Weber

685 *Ibid.*, 43-44.
686 *Ibid.*, 47-48.
687 *Ibid.*, 48–49.

had noted this already in his *Politische Oekonomie* (1813), and more recent authors like Rau and Lotz had left acquired abilities and talent out of their concepts of capital altogether.[688]

On the other hand, some authors who overlooked the main feature of capital as the property of people or persons had gone even further with this idea, because they considered the labor force of people as capital. This was not only because its production incurred expenses, but because it produced income and could therefore be evaluated like any other capital.[689]

Hermann clearly thought that understanding people as capital generally had its roots in Smith's contradiction inherent in the idea that skills and knowledge were capital at the same time that economic goods and wealth had to consist of material goods. So on the one hand there were those who thought that economically very relevant skills and abilities and other intangible phenomena could not be discussed as capital, and on the other were those who were all for it. Hermann now argued that both were wrong but in a rather unexpected way. The materiality of the discussed phenomena was not the defining issue in whether or not they were capital; it was this: the "labor force" or *Arbeitskraft* – skills, education, talents, etc. – of an individual should not be understood as capital (human or otherwise) and, indeed, nor should the individual as a whole; but it was their rights, from people's work contracts through privileges to business secrets, that should – and this was "intangible capital" (*Immaterialkapital*).[690] Hermann had six main arguments for this.

1. Property that produced income had to be sellable, whereas so-called personal or human capital was not. Thus to say that the labor force was rented out with a service contract, as J.-B. Say wrote, was not quite right, because it was only their services that were provided, and if those services did not materialize, then wage could be withdrawn. A rented slave, on the other hand, was forced to work and could be leased (vermiethen) or rented out, where a free man was hired (dingen). Hermann admitted, however, that where slavery existed, part of the inhabitants of the country were the sellable property of individuals and produced income in the same manner as owning cows did. In such countries the labor force of slaves was part of the national income in a very different manner than that of the free.[691]
2. Capital as property was a continuous source of income, whereas the labor force of every individual was consumed directly as the results of work or indirectly as wages.
3. Hermann also claimed that a person's *Arbeitskraft* was, for its owner, not the same as land, arable land, buildings, or machines, which in

688 *Ibid.*, 50.
689 *Ibid.*, 51.
690 *Ibid.*, 56–57.
691 *Ibid.*, 51.

addition to the provided income stream also replaced their wear and tear. Only when looking at workers as a group was it possible to compare them to a machine. In individuals such replacing of wear and tear was not observable.

4. The costs of raising and educating (*Erziehung und Bildung*) children were only similar to reproducing and replacing fixed capital in the sense that one could see them as investments replaced by the value of the services provided by those educated and raised. The differences were (a) that the compensation never fell on the individual making the investment but on the laboring class as a whole; (b) that a machine worked with the aid of natural agents, which meant its production was reliable, whereas people differed in their intellectual and physical talents; and (c) Those who invested property in fixed capital expected a return, although the will of a father to count on his children's income as profit and replacement of his expenses in education could go too far, Herman wrote.[692]
5. *Arbeitskraft* differed from other property as a source of income too, in the sense that the word income (*Einkommen*) was only applicable when workers could consume the fruits of their labor. Income from property, however, could be delivered regardless of the persons involved.
6. Hermann saw that, among all investments in production, there was a tendency for there to be a stabilization or equalization of profits. Thus if a father let his son learn with no higher intentions, it would eventually bring a wage in keeping with others. Between income from work and profits of property, however, such equalization was not possible, and no father asked himself whether it was more profitable to invest in his son's education or in building a machine.[693]

Hermann's arguments for why human or social capital should not be understood as capital are quite similar to those presented by Geoffrey Hodgson. Hodgson's criteria were whether (a) the right of use can be owned or hired, (b) whether it has a market price, (c) whether it can be used as collateral, and (d) whether it can be bought or sold (alienated). Hodgson saw that "human capital" fulfilled the first condition; the second only partially (wage labor allows a price only for the right of use); and three and four as existing only in slave societies. "Social capital", according to Hodgson, does not fulfill any of the conditions, however.[694] Hermann's first argument above already included at least numbers one, two, and four of Hodgson's conditions and one can see Hermann's argu-

692 *Ibid.*, 52.
693 *Ibid.*, 53.
694 Geoffrey Martin Hodgson, *Conceptualizing Capitalism: Institutions, Evolution, Future* (Chicago: The University of Chicago Press, 2015), 179.

ment (4), that the income from property should be deliverable regardless of the persons involved, as similar to Hodgson's requirement of collateral. Therefore, there are very similar features already in this early 19th-century debate as in our contemporary one. As a further note, Hodgson's argument that, to be capital, a thing must be able to serve as collateral and that one's ability and faculties for work should not be considered as capital does not quite hold, because wage assignments as collateral, and wage garnishment as a measure of securing repayment were used for example in the US until the 1985 Federal Trade Commission's Credit Practices Rule prevented the worst extremes of it.[695] Whether an individual can use the expected future monetary value of one's labor as collateral seems to be an issue of regulation, not necessarily an issue of intrinsic attributes of the phenomenon in question. Unfortunately, one could make a similar argument about slavery. Irving Fisher later argued that a 'note of debt' loses its value, the instant our faith in the ability of the debtor to deliver the repayment is lost (see 5.2.5 on Fisher). Fisher saw the debtor as physical being as the ultimate collateral.

After the conditions listed above, Hermann concluded that it was confusing to discuss *Arbeitskraft* as capital. Instead, it should be seen more as a special source of income, which had some similarities with property but required its own analysis due to considerable differences. However, not all of his reasons are entirely convincing. For instance, in his reason number three, he does not want to consider nutrition and rest as a valid means for replacing the wear and tear of a labor force. One could even counter that people (and their *Arbeitskraft*) are the perhaps the only agents of the human economy (though draft animals are also, to some degree), which are capable of reproducing themselves without the help of other conscious beings. Other counter-arguments might be that if *Arbeitskraft* cannot be counted as capital because of inherent differences in skills and strength, why is it that agricultural land is, when harvests are so different and crop failures common. Only in the sense of fixed ground rent is the income derived from land stable, otherwise one could argue that it is just as variable as the labor force of different people.

As this discussion of Hermann's ideas on intangible capital show, his understanding of capital had a strong historico-legal flavor, and thus he considered the right or privilege to something (providing income) as capital, while at the same time holding on to the idea that the factors of production behind that income (labor force, skills and knowledge) were not capital. Hermann pointed to the French authors N.-F. Canard (3.2.2) and J.-B. Say (3.2.3) as being the first to count labor force as capital.

Canard claimed an artisan's property (*Grundvermögen*) was his person, while Say repeated, in 1828[696], that industrial faculties were capital for which

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695 Federal Trade Comission, "Complying With the Credit Practices Rule," https://www.ftc.gov/tips-advice/business-center/guidance/complying-credit-practices-rule (accessed June 11, 2015); Thomas A. Durkin and others, *Consumer Credit and the American Economy* (Oxford: Oxford University Press, 2014), 520.

696 *Cours complet d'économie politique pratique* in 5 volumes, published in 1828-1829. Jean-Baptiste Say, *Cours complet d'économie politique pratique*, vol. 1 (Paris: Rapilly, 1828).

rent was paid as part of the wages. They were capital from an individual's point of view, whether or not the industry was productive, and the laborers themselves could also be seen as capital. Hermann felt that Say did not follow through these principles in his work, because he usually made a difference between income from work and the interest of capital. Say's idea that a person could have wealth in funds, i.e., skills, *and* wealth in revenues, was in Hermann's opinion a stupid idea; like counting both a state obligation and its revenue in the same category of wealth. In England, only McCulloch had followed this path, but in his work the idea was isolated, and Hermann was of the opinion that it consequently did not have much impact on his system otherwise.[697]

4.3.2.3 What Was Wrong with National Intellectual Capital

This French idea of humans and human faculties as capital was rare among the German economists. More common, and subject to Hermann's scorn, was the idea of connecting the intellectual life (*Verkehr*) of a nation to the concept of capital. This idea was being promoted by Adam Müller, Henri Storch, and the historian Heinrich Luden.

Müller described the sum of experiences and ideas, which earlier generations had left for posterity as the "intellectual capital of nations that was conserved and reproduced in language". This worked similarly to the way in which physical capital was conserved and moved through money (4.2.1). In Storch's theory (3.2.4) the annual national labor or income provided a certain amount of health, skills, science, taste, morals (*Sitte*), and religiosity, which although intangible, could reproduce and augment itself the following year. Of this wealth, the intangible capital part was that which reproduced the internal assets of the people. In *Sur le revenue national* (1824)[698] he had taken his idea back a little, however, stating that for an individual, the faculties of work were not capital as such, but that the personal capital "of a nation" was the sum of such faculties.[699] The difference was based on the idea that, for it to be capital, one would be able to rent it out and enjoy the income, which was not possible for an individual, whereas from the national perspective it would be used in production. Hermann pointed out this step back in Storch's theory, and the problem with the idea that capital was property.[700] Hermann probably thought here that a nation could not rent out its citizens and enjoy the income, as this would have conflicted with his own disinclination to abstract *Arbeitskraft* from people themselves.

Hermann also claimed that Storch contradicted himself when he claimed that capital was past labor, while nature was still responsible for growth in the innate strength of workers. Hermann could have considered the idea of labor force as capital, had it been possible to create workers of a certain strength

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697 Friedrich von Hermann, *Staatswirtschaftliche Untersuchungen* (München: Anton Weber, 1832), 53-54.

698 Henri Storch, *Considérations sur la nature du revenu national* (Paris: Bossange, 1824).

699 Friedrich von Hermann, *Staatswirtschaftliche Untersuchungen* (München: Anton Weber, 1832), 55.

700 *Ibid.*

without the help of nature (as one might build a steam engine, for example).[701] At least in France, many authors understood that a steam engine functioned very much with the help of nature starting from the combustion of fuel to the laws of nature that transformed the heat of boiling water into mechanical motion. Nevertheless, drawing the boundaries of capital in terms of whether nature had played a part in its creation would not have left much else to consider than the abstract world of contracts and rights, and this was certainly not Storch's aim. This point, that not all capital was produced, was the same one that Auguste Walras was leveling against Say, and Storch argued in later works that nature had its role in providing part of the attributes he would call personal capital (3.2.4.3).

4.3.2.4 Patents, Contracts, and Rights as Intangible Capital

As we have seen above, Hermann's arguments against the 'human' or 'intellectual' were not so much based on the intangible nature of what was considered as capital. Instead, the main point was that capital was something that could also be property. This was a bit different than the standard classical argument which made capital part of wealth, and it also differed from Fisher's later argument that such rights were just the rights of use to the real capital. All rights or contracts to continuous services (*Leistungen*) of other persons who had no property were a form of intangible capital (*Immaterialkapital*). Also commercial secrets and privileges of a company were intangible capital when they provided their owner with a continuous stream of income.[702] These fulfilled Hermann's own conditions for capital to some degree, as well as those presented by Hodgson, but there is an interesting catch here. If we consider legal rights or contracts for the work, performances, or services of other people as capital, then there is a certain asymmetry involved. Whereas the lord of a manor, for example, might consider the contracts obliging his peasants to bring steady revenue in as capital, a peasant could not consider the leasing or renting out of his *Arbeitskraft* as capital. Thus securitized labor power could be capital, but that sold by an individual on the labor market could not.

A further problem in Smith's theory of capital, Hermann felt – although Storch and Rau also saw this problem – was the placing of all personal services outside the sphere of economic goods if they were not involved in production of material goods or preparing materials for such production. A service provider could not produce wealth or create surplus, but just drew part of the surplus created by others and held it against the services provided, thus no investment they had made in their business was productive or part of the national capital. Services would then logically compare to leased goods for which the rent would be equivalent (*Gegenwert*) to the benefit or return of use. These then remained outside Smith's doctrine of national capital, which also meant that all capital in transport, when it was used to serve passengers instead of trade, all capital of innkeepers, a theater company, and all capital bound up in the build-

701 *Ibid.*, 56.
702 *Ibid.*

ings, collections, machines, and instruments of various public institutions, providing society with indispensable services, were unproductive in terms of national wealth. Hermann saw this as a consequence of Smith's limited concept of income, and the wrong way to treat income and productive labor. Storch had been right to note that Say had overestimated the importance of material capital compared to service production, even if he had understood that services were economic goods. Ganilh too had noted this clear gap in Smith's thought.[703]

An interesting part of Hermann's concept of capital is that he did not see any problem in considering intangible phenomena as capital, but for it to be so, it had to be property; and in this way it could be rented out or sold. We should bear in mind though, that work contracts did not indicate these transactions (of renting or selling), they concerned the provision of services, and this *Arbeitskraft*, as we have already noted above was not capital.

The force with which he defended these legal rights, contracts, and privileges as capital may have had some class interests behind it. The Smithian and physiocratic understanding of productive and unproductive labor, as well as capital as the real means of production had the consequence that large segments of society were seen as unproductive members (if not parasites) living off the income and wealth generated by others who owned the real source of capital. This concerned the lowest segments, e.g., Smith's menial servant, and the highest of the high (administration), who in terms of their wealth and income were thus dependent on their rights, contracts, and privileges, since they were not necessarily engaged in production or providing services in any real Smithian way. Hermann's analysis in terms of accepting only rights, bonds, stocks, patents, and contracts as intangible capital, and his way of excluding human capital at the same time is quite close to what Geoffrey Hodgson and Thomas Piketty have argued more recently. [704]

4.4 The German Approaches

The authors discussed above, Adam Müller, Franz Josef Mone, Friedrich List, J.H. von Thünen, Karl Heinrich Rau, and Friedrich von Hermann presented quite different approaches to capital. Adam Müller used the idea of capital in an attempt to showcase the value of various economic, social, and cultural phenomena from various classes of theoretical and applied knowledge handed down from posterity. Mone's approach and concept was also wide-ranging, but as a statistician he was more interested in measurable and countable material proxies that would make the level of investment in intangible capital more visibly understood as knowledge, skills, mores, and religiosity.

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703 *Ibid.*, 58-59.

704 Geoffrey Martin Hodgson, *Conceptualizing Capitalism: Institutions, Evolution, Future* (Chicago: The University of Chicago Press, 2015), ch. 7.3, 179-178.

Friedrich List, on the other hand, took a direct stance in the debate about productive and unproductive labor and argued that classical economics was going about this in an absurd way, as it focused either on material wealth (the British) or exchange values (the French). The most important issue in terms of national wealth was the ability to produce, and here many of the so-called "unproductive" professions and their products were in fact producing intellectual capital and thus creating productive powers.

Meanwhile, J.H. von Thünen focused more on the human aspect of intangible capital. As a pioneer of econometric methods he developed ways to estimate and measure the invested *Erziehungkapital* and its expected revenue. He argued that the length of education and training could be compensated in increased labor productivity, health, and other positive outcomes. He also argued that an understanding of citizens as capital by the state would have various positive ethical and humanitarian outcomes as the value of human lives and their labor input would be made more visible, and the immense cost of war would also become even clearer than it already was.

Karl Heinrich Rau, however, reinforced the Smithian focus on material wealth being the only kind of wealth. Education, knowledge, and skills were internal, and thus inseparable from human beings. Although they had a great influence on productivity and the use of material goods and capital, they themselves were not to be confused with external economic goods because, and this was the key to his argument; human beings and their needs were the very reason these external goods existed. They were the objects of wealth, and humans were the subjects that used these objects.

Friedrich von Hermann was more precise in his criticism of "labor power" as being a form of capital, and came up with various arguments against the very idea of human capital. He argued that capital had to be property, i.e., owned by someone, and sellable or rentable. He also argued against the idea that work contracts indicated a lease of property. Instead they were about rendering services which it was possible to pay for. Hermann also argued against the ides of national intellectual or intangible capital. Instead, in a historico-legal manner, he discussed rights, patents, privileges, and contracts as capital, which could provide a stream of income.

4.5 Wealth, Economic Goods, and Capital Before 1848

Much of the nineteenth-century debate that interests us, concerning the definition of capital in the aftermath of Adam Smith's *Wealth of Nations*, was connected with his terminology of "productive" and "unproductive" labor. While assessing and reviewing the past concepts of intangible capital, this debate therefore has to be taken into account. The basic structure of an economic tract or a textbook at the time, and often also on the latter half of the century, was such that it would almost invariably begin with the concepts of goods, wealth, capital, land, and labor; and the intangible capital debate was usually discussed at

this point too, so that the basic idea was that wealth consisted of economic goods, and capital was wealth (i.e., economic goods) that could be used in further production.

If economic goods were defined as only durable, storable, material goods, as Smith maintained, the consequence was that only the producers of material goods were socially productive of wealth and capital, while those in the business of offering services or other kinds of intangible products were comparatively unproductive. This was, as we have seen time and again above, Adam Smith's understanding of the issue, although he tried to soften it with writing about the importance of many such unproductive tasks in society. The problems with this view started from the fact that it was an extension of the physiocratic idea that there were different wealth-producing sectors in the economy (in Smith's case agriculture, industry, and trade), and most of what happened on the markets was a zero-sum game of distribution; and this did not really sit well with Smith's own views about the workings of the markets. But Smith's focus on actual capital goods meant that the income derived from services or liberal professions was not seen as durable and storable, therefore they were, in principle, living at the expense of the productive sectors of the economy.

This was not a very palatable idea to many economic thinkers, the majority of whom were probably deriving their income from such services, not to mention being in liberal professions themselves. But apart from this, Smith's view did not make much economic sense either. As we have seen, Lord Lauderdale wondered about the definition of capital, while J.-B. Say, in nearly every other way a major Smithian proponent, started to redefine what economic goods were understood to be. As the logic was that wealth consisted of economic goods, and capital was wealth directed for further production, there seemed to be a need to change the definition of economic goods, and this is where intangible economic goods and services entered the scene in, for example, the works of Canard and Say. Say still stayed within the Smithian framework, with his emphasis on material products as being the only ones that could increase national wealth. Meanwhile, Storch and others proposed that intangible goods and services were, in fact, susceptible to accumulating wealth; that they could form skills, knowledge, morals and habits akin to capital; and that their producers had to be considered as equally productive of national wealth. This was a quite natural follow-up to Smith's understanding of capital, since he himself had extended or redirected the understanding of capital from what was previously a sum of money lent or invested, to the actual *means* of production. If there were certain things in which one could invest time and resources, and expect a return, then it was just logical that they be considered as capital investments too. Senior went on to note that most people throughout history had in fact been service providers, and the principal kinds of exchange had been services rendered for subsistence in return.

Another major consequence of seeing the triangle of intangible goods, wealth, and capital as productive, was that it offered a natural antidote to the rather pessimistic population and wage-fund theories of the time. Whereas

these theories saw the level of technology as more or less static, and human existence constrained by the fixed resources of land, or the available capital/wage-fund per laborer, the idea that one could perhaps invest in intangible forms of capital that had economic and other returns soon developed into the idea that it was possible to increase labor productivity by solidly investing in education, instruction and innovation. Adolphe Blanqui was a great instance of such thought, and by the middle of the 19th century this had become a mainstream view among the liberal economist establishment of France. It was also thought that investing in people would not only increase their productivity, but that this capital investment would also make the workers participants in sharing the profits of industry, and thereby ease growing social inequality which was one of the major concerns with early industrialization.

The issue, however, was by no means settled: the debate labored on over what exactly was productive and unproductive labor; and bolstered by population and wage-fund theories, the material understanding of wealth and capital managed to weather the storm, holding classical economists (and others, to some degree, in France and Germany) in its thrall for much of the 19th century. In the following chapters on the latter half of the century, we shall see the kind of problems that J.S. Mill got into (see section 5.2.1 and subchapter 5.3), when he tried to emphasize the crucial economic importance of skills, knowledge, and habits as well as the economy of services and intangible goods. This was because all the while he was attempting to remain within the inherited language of classical economics.

5 REALIST AND UNREALIST LANGUAGE OF THE MARKET

> We have already defined Personal wealth to consist firstly of those energies, faculties and habits which directly contribute to making people industrially efficient, and secondly of their business connections and associations of every kind. The first group consists of internal assets and the second of external goods; but both are productive; and therefore if they are to be reckoned as wealth at all, they are also to be reckoned as capital. Thus Personal wealth and Personal capital are convertible […].[705]
>
> Alfred Marshall in the first edition of *Principles of Economics*, 1890

> [T]he language of the market-place commonly regards a man's capital as that part of his wealth which he devotes to acquiring an income in the form of money; or, more generally, to acquisition (*Erwerbung*) by means of trade. It may be convenient sometimes to speak of this as his trade capital; which may be defined to consist of those external goods which a person uses in his trade, either holding them to be sold for money or applying them to produce things that are to be sold for money.[706]
>
> Alfred Marshall in the eight edition of *Principles of Economics*, 1920

5.1 From Conceptual to Marginal Analysis

In this chapter I will discuss four influential British authors and one such American who, in their own way, all illustrate the development of economic thought in this period. John Stuart Mill understood very well the importance of skills, knowledge, innovation and habits, and also considered them as wealth earlier during his career. By the publication of his *Principles of Political Economy* in 1848, however, he had changed his mind, and wanted to confine the concepts of wealth, capital, and productive labor to the production and ownership utilities

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705 Alfred Marshall, *Principles of Economics* (London and New York: Macmillan and co., 1890), 134-135.

706 Alfred Marshall, *Principles of Economics*, 8th ed. (London and New York: Macmillan and co., 1920), 71-72.

embedded in material goods according to the inherited language of classical economics.

Henry Dunning Macleod, on the other hand, wrote outside the mainstream of political economy of the time, and had no problems considering personal qualities as wealth and capital. He noted, however, that considering material and "immaterial" goods as capital were *both* extensions of the original meaning of capital, which was simply a sum of money that had been invested and was yielding profit. Personal qualities brought profit through labor and credit based on personal qualities. In Macleod's view, a person could thus securitize one's own future labor income and use it as a collateral for credit.

William Stanley Jevons took a very different route, and he defined capital simply as "labor maintenance". All machines and material products that helped in production were thus the result of past labor at an intermediate stage, so their contribution was closer to the rent of land. Therefore he did not have to list dozens of examples of what kind of goods were or were not capital, like many of his contemporaries (and forbears) did. Jevons probably also defined capital as labor maintenance so that he could adjust it for his marginal utility theory of value and mathematical analysis.

The fourth economist discussed in this chapter is Alfred Marshall, definitely one of the most influential economists at the turn of the 20th century. As seen from the above quotations at the start of this chapter, Marshall accepted personal qualities as wealth and capital in the early editions of his *Principles of Economics,* but later he changed his mind. This was probably due to his debate over the definition of capital with Irving Fisher as well as due to continental influences. In Marshall's case, Fisher's influence would have been negative, in the sense that Fisher went on to define men as capital, which might have pushed Marshall the other way. He now wanted to leave the idea of personal capital (education, skills, etc.) out of his definition, as the mixing of people with the concept of capital seemed to be leading to applications that were quite far removed from the language of the market. Remnants of his earlier thoughts are still nevertheless to be found even in the eighth edition of *Principles of Economics* (1920).

The fifth economist discussed here will be the aforementioned Irving Fisher, who defined human beings as physical capital, that is the people themselves were the capital, not their skills. His conceptual framework did not allow for any kind of intangible capital, because all wealth was material, and as capital was just a cross-section of wealth at any given point in time, all capital was also material. Despite this, T.W. Schultz argued at the turn of the 1960s that, whereas Fisher's all-inclusive concept would have allowed for human capital theory to develop, it was Marshall's prestige and his followers that pushed the idea out of economics. However, we shall see that Marshall's idea of personal capital was actually closer to contemporary concepts of human and intangible capital even in the later editions of *Principles*, where he took a more restrictive view of the concept.

Towards the end of the 19th century, the theory of marginal utility and the formal analysis that went with it (e.g., Jevons, Walras, Fisher) put ideas of human and intangible capital on the back burner; nevertheless, the idea still lingered on, and remained in some dictionaries of the time. This instance is from 1885:

> **Immaterial** (im ma-të´ri-al), a. —*Immaterial capital* (*Pol. Econ.*), a name denoting that form of capital which consists of mental abilities, physical strength, business capacity, or manual dexterity, which can be employed as a source of income. Qualities of this kind constitute capital of a very solid nature. —*Immaterial property*, a name given by economists to the right a man has to the use of his own mental and physical powers, and the profits derivable from the use of them.[707]

The issue was also discussed in Palgrave's *Dictionary of Political Economy* around the turn of the century. J. Shield Nicholson (1850-1927), professor of political economy at Edinburgh University, argued that at least in popular usage "contrast had overcome the analogy" and on the national level, no statistician had yet attempted to give even a rough value to this "social capital", or to estimate the capital value of the skill of laborers. However, in cases such as compensation for injury, or death, such calculations were required. Whether other immaterial utilities like goodwill, copyright, or patents were to be included was dependent on whether materiality was considered an essential feature or not.[708] Nicholson, for one, treated acquired skills, abilities, and even people as forms of capital in his works.[709] He also used the term "mental capital" and argued that it was required in the production of material goods, services, and ideas.[710]

As the intangible conceptual framework was very much available and proposed by some very notable economists at the time, it is quite puzzling why T.W. Schultz chose to mention Fisher alongside Smith and Thünen when listing precedents for the theory of investing in human capital. After all, in Fisher's framework, it was not possible to abstract mental abilities, manual dexterity, or knowledge from people as is now done in contemporary human and intangible capital research.

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707 Samuel Fallows, "Immaterial," in *The Progressive Dictionary of the English Language,* (Chicago: The Progressive Publishing Company, 1885), 261.

708 J. Shield Nicholson, "Capital," in *Dictionary of Political Economy,* ed. Robert H. I. Palgrave, (London: Macmillan, 1901), 219–220. Reprint, originally published in 1894.

709 B. F. Kiker, "Nicholson on Human Capital," *Scottish Journal of Political Economy* 21, no. 2 (1974), 171.

710 J. Shield Nicholson, *Principles of Political Economy*, vol. 1/3 (New York, London: Macmillan and Co., 1893), 37-39.

TABLE 5 Examples of human capital concepts in English after 1848

Author*	Henry Dunning Macleod (1821-1902)	Alfred Marshall (1842-1924)	Irving Fisher (1867-1947)
main designations	capital, personal, moral, immaterial, intellectual capital	capital capital, personal	capital
definitional breadth	personal qualities (as labor and credit), education, rights	business goodwill; energies, faculties and habits making people efficient; business connections and associations	human beings and their attributes
main levels of analysis	individual	society, businesses, individual	modern economy
functions (benefits)	profit	labor productivity, higher wages, business success, industrial efficiency	labor as service, productivity, credit
service producers can be productive	yes	yes	yes
human beings as capital	no	no	yes
foundational publications (year)	1858, 1882	1890	1906
*Selected authors.			

5.2 Scope of this Enquiry in English Language Texts (after 1848)

5.2.1 John Stuart Mill's Struggle with Observations and Words

In his *Essays on Some Unsettled Questions of Political Economy* (1844)[711] John Stuart Mill discussed various themes of interest to this thesis; in particular the thorny issue left by Smith. *On the Words Productive and Unproductive* was the essay that perhaps divided the political economists the most. Although this was an issue of nomenclature, the terms were used to denote ideas of great importance, which was reason enough for another attempt to settle the issue satisfactorily. Mill wrote that if the pedantic objection to the introduction of new technical terms continued, then political economists would be obliged to turn towards the scant terminology that already existed, and make it the greatest instrument of thought possible. Part of the objection he mentioned, was that a term should not be used to represent an idea that had already been sufficiently expressed by another term.[712] In 1844, Mill argued that definitions of wealth which did not take into account the increased productivity brought about by skill and knowledge were problematic, but somewhere between 1844 and 1848, when the

711 John Stuart Mill, *Essays on Some Unsettled Questions of Political Economy*, photolithographic reproduction of the first 1844 ed. (Aldwych: Parker, [1844]1949).

712 John Stuart Mill, "On the Words Productive and Unproductive," in *Essays on Some Unsettled Questions of Political Economy,* (Aldwych: Parker, [1844]1949), 75.

Principles of Political Economy came out, Mill changed his mind and argued for traditional definitions of productive and unproductive labor as well as wealth, even though his observations and understanding of the issues had not changed. The *Principles* remained the defining account of the subject in the English language until the publication of Marshall's *Principles of Economics* in 1890, so Mill's treatment of basic concepts had considerable influence on the mainstream of classical and post-classical economic thought through to the end of the 19th century.[713]

5.2.1.1 The Return of Productive and Unproductive

It is interesting that in his essay Mill did not visibly point to the discussion about this very subject that had been going on in France since the very beginning of the 19th century. Instead, he focused on McCulloch's view that the work of Giuditta Pasta (a great Italian soprano of the time, 1797-1865) was productive, and used this as an example of one extreme in the spectrum of the debate.[714] Musicians, other artists, administrators, and scientists, had been favorite examples in these debates for the past half-century, one of the major turnarounds culminating in the Say-Storch debate in the 1810s and '20s. But nevertheless, Mill's essay reiterated many of the main points of the debate up to that point. The fact that he had to make the point about the productivity of skill acquisition so strongly in 1844, when it was already a mainstream position in France, indicates that the debate was still very fresh in England.

Mill wrote that the way that McCulloch had used the words "productive" and "unproductive" had led to additional ambiguities in the debate that followed. Some had given the name of wealth to all things useful or of enjoyment to mankind and possessing exchangeable value (excluding the air, the light of the sun, and other things that were obtained without labor or sacrifice), whereas others had interpreted it to mean only material things, thus excluding intangibles.[715] Such an approach led to glaring problems that Mill illuminated with two examples. Firstly, according to this view, a carpenter's labor at his trade was productive, but the same carpenter's labor at learning the trade was not. In both cases, however, that the carpenter's aim was production, and indeed both were equally required in terms of creating the desired products. Secondly, Mill observed that such a definition of wealth would oblige us

> […] to say that a nation whose artisans were twice as skillful as those of another nation, was not, *ceteris paribus*, more wealthy; although it is evident that every one of the results of wealth, and everything for the sake of which wealth is desired, would be possessed by the former country in a higher degree than by the latter.[716]

Mill was therefore stating that all definitions of wealth, which saw it in a basket of cherries, gathered and then eaten immediately; but not in the skill of a pro-

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713 Mark Perlman and Charles R. McCann, *The Pillars of Economic Understanding: Ideas and Traditions* (Ann Arbor: University of Michigan Press, 1998), 274.

714 John Stuart Mill, "On the Words Productive and Unproductive," in *Essays on Some Unsettled Questions of Political Economy,* (Aldwych: Parker, [1844]1949), 76.

715 *Ibid.*, 77.

716 *Ibid.*

ductive laborer, were arbitrary, and thus not conducive for the proper classification and terminology of political economy.[717] Henri Storch had pointed out the absurdity of such a distinction already in 1815 too.[718]

Another strange line of thought concerning this issue had been to deny the productivity of any labor or expenditure where the yields did not return into the hands of the very person who had done the work, or made the investment. The example of hedging and ditching was taken from McCulloch. It was argued that this was productive only indirectly, as government expenses made for the protection of property were considered to be consumed unproductively, i.e., not as capital investments. However, Mill argued that these expenses were analogous to the wages of a hedger or a ditcher. The only difference was that, whereas the farmer paying for the hedging and ditching directly benefited, the government did not; if anything it also necessitated further expenses in policing and courts of justice.[719]

Mill wrote that the oddities and incongruities arising from such classifications were endless, and perhaps the most glaring example concerned the terms wealth and production. Nobody disputed the degree to which roads, bridges, and canals contributed (and directly) to the increase of production and wealth. But according to the theory and classification described above, the use of labor and resources in the construction would only be considered as productive if individual inhabitants of the land were compelled by law to construct that part of the road or canal which passed through their own lands.

Mill did not add very much more to this debate about the productive/unproductive nature of capital. He repeated many of the points made since Cantillon and Smith and showed, based mostly on McCulloch's texts on the debate, in what ways the material classifications of wealth and capital, based on whether expenses were private or public were lacking. Mill's only access to the French authors who had already labored on this debate for some time, was through from McCulloch who had quoted them at length.

In his *Essay on Profit and Interest*, in the same 1844 volume, Mill attacked the idea of the "productive power of capital". For some purposes it was certainly a convenient expression, but there was a danger with this, he noted, in thinking that only capital had productive powers, so he came up with a rather simple definition of capital.

> The proper view of capital is, that anything whatever, which a person possesses, constitutes his capital provided he is able, and intends, to employ it, not in consumption for the purpose of enjoyment, but in possessing himself of the means of production, with the intention of employing those means productively. Now the means of production are labour, implements, and materials. The only productive power which anywhere exists, is the productive power of labour, implements, and materials.[720]

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717 *Ibid.*

718 See section 3.2.4 on Storch.

719 *Ibid.*, 78.

720 John Stuart Mill, "On Profits, and Interest," in *Essays on Some Unsettled Questions of Political Economy,* (Aldwych: Parker, [1844]1949), 91.

This definition clearly did not include intangible goods or skills and knowledge, even though earlier he had argued that these were forms of wealth. He held to a material definition of capital too in the essay *Of the Influence of Consumption on Production*.[721]

5.2.1.2 Principles and Capital

In *Principles of Political Economy* (1848) Mill pondered once more on the nature of capital and the thorny terminology of productive and unproductive labor. This meant he revisited many of the issues discussed in the essays published in 1844. However, in *Principles* he was now citing Say when discussing productive and unproductive labor, when defending the many classes of intangible labor that had been dismissed as unproductive. Mill had picked up the idea from Say that it was wrong to focus on material objects as the main results of production, and that what was actually produced was "utility", and it was this utility that should determine whether some labor or other was "productive".[722]

However, Mill had decided that he did not want to stretch the contents of expressions that were already established (in spite of a lengthy discussion about why he did not want to stretch them).

> I shall therefore, in this treatise, when speaking of wealth, understand by it only what is called material wealth, and by productive labour only those kinds of exertion which produce utilities embodied in material objects.[723]

In a previous chapter Mill had declared that labor does not produce objects but utilities, and that labor was only productive if it produced utilities that were fixed in material objects. All other labor, no matter how useful, was classed as unproductive. He wrote that, were he constructing a new technical language, he would however base wealth on the notion of "permanence" rather than materiality because:

> […] any improvement in terminology obtained by straining the received meaning of a popular phrase, is generally purchased beyond its value, by the obscurity arising from the conflict between new and old associations.[724]

This, however, did not stop him declaring in his chapter on capital that, although capital was usually supposed to be synonymous with money, it was still only exchangeable for other goods, and everything that had this "property" was capable of contributing to production, even if in itself it was unable to assist in production.[725] This change of attitude is very similar to the one Alfred Marshall developed later with the concept of human capital, as we shall see.[726]

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721 John Stuart Mill, "Of the Influence of Consumption on Production," in *Essays on Some Unsettled Questions of Political Economy,* (Aldwych: Parker, [1844]1949), 54.

722 First published 1848, here is used the second edition from 1849. John Stuart Mill, *Principles of Political Economy*, 2 ed. (London: Parker, 1849), 55–56.

723 *Ibid.*, 60.

724 *Ibid.*

725 *Ibid.*, 67.

726 See Alfred Marshall below, section 5.2.4.

Mill had made a compromise between what his analysis suggested and the received opinion in his field at that time. Marshall too thought that the language of economics should not develop beyond the language of the market. But considering the influence they had, it is unclear whether such compromising made the issue at hand any clearer. For Mill at least, it meant that he was still labeling different kinds of labor as unproductive or productive, and so he was still stuck with the hierarchy of sectors derived from the physiocrats and Smith. In addition to this, he had to spend page after page describing different kinds of labor. His father James Mill had in fact tried to keep the inherited language of political economy intact by stating, in his *Elements of Political Economy* (1844), that labor and capital were in fact all but indistinguishable. Their separateness was lost in the actual process of production, because labor was absorbed into capital. James Mill's theory was clearly a labor theory of value in which the capitalist purchased labor through wages, and the workers sold their title to the share of the product that their labor had contributed to. Mill had thus created a new and homogenous productive factor in which labor lost its uniqueness and as well as its claim over the value of the product.[727]

This gives a new and interesting way to view the musings of J.S. Mill on political economy. In both *On the Words Productive and Unproductive* and *Principles*, he reasoned that we should decide the productiveness and unproductiveness of labor (and what is and what not wealth) differently than was currently the case; however, at the same time, this was at odds with the terminology of the day, and so it needed to be avoided. What then followed were some slightly strange conclusions – the most important thing for productivity was superior skill and knowledge.

> No illustration is requisite to show how the efficacy of industry is promoted by the manual dexterity of those who perform mere routine processes; by the intelligence of those engaged in operations in which the mind has a considerable part; and by the amount of knowledge of natural powers and of the properties of objects which is turned to the purposes of industry. That the productiveness of the labour of a people is limited by their knowledge of the arts of life, is self-evident; and that any progress in those arts, any improved application of the objects or powers of nature to industrial uses, enables the same quantity and intensity of labour to raise a greater produce.[728]

And despite the fact that he in other parts of the same chapter discussed the greater energy of labor, superiority of intelligence, honesty in the community in general, and superior security, he could not, if true to his principles of definitions, call these attributes of individuals and communities capital nor wealth. The consequences of this was that much of service production should thus be called unproductive. For instance, the expenses of a research department should be seen simply as a form of consumption, where people did unproductive work, and even if they did succeed in transmitting some useful skills or knowledge, or happen to invent something useful, neither the skills and

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727 Mark Perlman and Charles R. McCann, *The Pillars of Economic Understanding: Factors and Markets* (Ann Arbor: University of Michigan Press, 2000), 33.

728 John Stuart Mill, *Principles of Political Economy*, 2 ed. (London: Parker, 1849), 130.

knowledge, nor the inventions could be called capital or wealth, even though according to Mill it is precisely these phenomena that determine the level of productivity in society.

In *Principles*, J.S. Mill began the discussion of capital quite traditionally, stating that it was a stock of previously accumulated products of former labor. The main demarcation point was that only possessions directed to fresh production were capital, which meant that the distinction was not in the nature of the commodities but in the mind of the capitalist. The sum of all values of commodities destined for production made up the capital of the country; and a large portion of the productive capital of a country was employed in paying the wages and salaries of laborers. Mill wrote that not all of it was strictly necessary for production, because the part of it that exceeded the actual necessaries of life and health, which was a considerable share in the case of skilled labor, was not spent in supporting labor but in remunerating it.[729] This was a rather strange proposition at the time, since it in a way bypassed the labor market. To say that, in theory, it is possible to acquire one or other factor of production below the market price is like saying that it is possible to conquer the land, rob the machines, and enslave the workers, and thereby produce as much as one can with market prices. Furthermore, it is notable that Mill spoke of the "remuneration" of laborers above the subsistence level. Whereas it had been long the norm in France, for example, to see the wage level dependent on variables such as skill premium, production technology, demand, supply, risk etc., when talking about the distribution of income, Mill just noted that often they are paid more than would be necessary.

Mill wrote that one of the main tenets of his capital theory was that industry was limited by capital, which was the core idea of the wage-fund theory held to some degree already by Smith. The idea seemed obvious, but Mill claimed that the axiom was until lately almost universally disregarded by legislators and political writers. The act of directing industry to a particular employment was "applying capital" to the employment. This applying was metaphorical, since what was really applied, of course, was labor – capital being the indispensable condition for the process. Therefore the idea of the "productive powers of capital" was not exactly correct. The only productive powers, according to Mill, were natural agents and those of labor. If any portion of capital could be said to have a productive power of its own, then it was the tools and machinery, which, like wind or water, could be said to cooperate with labor.[730]

Because industry was thus limited by capital, in that there had to be existing capital to support the workers in new production, the often tried method of creating industry and additional employment through laws and regulation without at the same time creating or providing the capital, seemed to Mill, futile. At the same time, the government could claim in its statistics that new industry was being created, when in fact the aggregate capital could not have increased in any real way, as the capital and labor employed in the newly acquired

729 *Ibid.*, 68-72.
730 *Ibid.*, 78-79.

branch would have instead been withdrawn from some other industry, which would have probably employed a similar amount of labor and resources. Probably as a direct attack against Friedrich List, Mill wrote that such prohibitory laws and regulations, which could be used to hinder imports were now thankfully less common in England, but in continental Europe they still flourished.[731]

Mill repeated the supply side of his argument, that the limiting factor of wealth was never the consumers, but overall productive power. Additional accumulation of capital gave the workforce either additional employment or additional remuneration and enriched the country for all the working class. When it found additional hands to set to work, this increased the aggregate produce, and gave the workers a larger share of it. He also added that the higher remuneration would stimulate them to greater exertion thereby increasing production.[732] Furthermore, he emphasized that capital accumulation was based on saving, but whatever increased the productive power of labor created an additional fund to make savings from, and therefore enabled capital to accumulate not only through additional privations but with a simultaneous increase in personal consumption.[733]

In this chapter in *Principles* on capital, Mill is actually very close to hitting on one of the reasons why the human capital theory emerged so powerfully after the Second World War. Namely, explaining how the damage caused by natural disasters and war could be so quickly and completely replaced and rebuilt. There were two main factors in this. The first was that the common idea that most existing capital was somehow very old or inherited over many generations was false. Mill stated that the truth was that most of what existed at any given moment in England was produced within the last twelve months. The second point was that the whole issue depended very much on whether the country was depopulated or not. If not, the population with their existing skills, knowledge and industry could quickly replace and reproduce the lost wealth. The privation they had to endure during this rebuilding phase was involuntary, which was why the process was in no way opposed to the idea of saving being the overall source of capital. However, the problem was (even if Mill might not have seen it as such) that he could not call skills and knowledge capital, because he had chosen the line earlier in the same book (*Principles*) according to which productive work was only work that produced utilities embodied in material goods, that wealth consisted only of such material goods, and that capital was wealth that was used for further production of these. Thus, despite describing how industrious people with their skills and knowledge could quickly reproduce and replace, "by the mere continuance of that ordinary amount of exertion which they are accustomed to employ in their occupations",[734] their whole stock of wealth and material capital, skills and knowledge could not be called capital. The French political economists, however, did make this connection between

731 *Ibid.*, 79-80.
732 *Ibid.*, 84-85.
733 *Ibid.*, 86-87.
734 Mill stated that he had picked this idea from Thomas Chalmers (1780-1847), a Scottish minister, professor of theology and a political economist. *Ibid.*, 93–94.

human or intellectual capital and recovering quickly from war. For instance, Alfred Jourdan wrote in 1879 in his *Épargne et capital*, that it was precisely intellectual and moral capital (energy, industrious activity, all the creative faculties) that explained the sometimes remarkably fast return to prosperity after a devastating war, providing this most valuable capital had remained intact.[735]

What Mill then wrote about savants and inventors shows the difficulties he had to contend with, to retain the Smithian terminology of productive and unproductive labor.

> Inasmuch, however, as these material fruits, though the result, are seldom the direct purpose of the pursuits of savants, nor is their remuneration in general derived from the increased production which may be caused incidentally, and mostly after a long interval, by their discoveries; this ultimate influence does not, for most of the purposes of political economy, require to be taken into consideration; and speculative thinkers are generally classed as the producers only of the books, or other useable or saleable articles, which directly emanate from them. But when (as in political economy one should always be prepared to do) we shift our point of view, and consider not individual acts, and the motives by which they are determined, but national and universal results, intellectual speculation must be looked upon as a most influential part of the productive labour of society, and the portion of its resources employed in carrying on and in remunerating such labour, as a highly productive part of its expenditure.[736]

Mill seemed to be saying that the processes of research, development, and innovation should not concern political economists, as it was not their field. Speculative thinkers were, in this analysis, seen as productive only in so far as their work produced books and other useable or saleable articles. The actual results of their work, in terms of the level of science and technology for example, should be understood as more or less given and on universal or national level. For Mill, the savants and inventors were thus productive by chance, and not in a way that would allow for deliberate long-term investment.

When discussing the changes in supply and demand, he wrote that a sudden drop in demand of one particular article could mean that some manufacturer and the workers that made it might lose the *benefit* of the skill and knowledge acquired in the business or producing it. Such skills and knowledge could often be only partially of use in other trades. Here too he carefully avoided the impression that skills or capital might be considered as capital.[737] Mill was true to his classifications in *Principles,* and made no reference to the idea of human capital in the three chapters discussing capital in the book. Yet he wrote about skills and knowledge for acquiring wealth in the material sense.[738]

Following from this comes the question of how Mill could explain the influence and economic significance of skills, knowledge, general trustworthiness

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735 Jourdan cited a lecture given by Michel Chevalier at Collége de France on June 4, 1874. Alfred Jourdan, *Épargne et capital, ou Du meilleur emploi de la richesse: Exposé des principes fondamentaux de l'économie politique* (Aix: A. Makaire, 1879), 57–58.

736 John Stuart Mill, *Principles of Political Economy*, 2 ed. (London: Parker, 1849), 53. He had similar difficulties explaining whether the work of a doctor was or was not productive, p. 51.

737 *Ibid.*, 99.

738 *Ibid.*, 59.

and security. He did this by merging these with his concept of labor, which had interesting consequences, since in a way it made a productivity concept out of labor. By separating skills and knowledge from their possessor Mill was able to conveniently show that by then combining the amount of time worked, with the capital (i.e., tools and natural resources) then a certain number of goods could be produced in a certain amount of time. It was then relatively straightforward to add the intangible or human capital part in the production functions when the endogenous growth theory emerged. But Mill's approach added a quality or productivity aspect to the concept of labor, and the knowledge and skill of how to use capital and raw materials was embedded in it. One option is to see Mill's understanding of labor as institutionalism.

In a chapter explaining the factors influencing productivity, after listing the natural advantages of climate and soil, he added the greater energy of labor. In the thoroughness of their application to everyday work, the English-speaking world seemed to surpass every other people, according to Mill. This efficiency was connected with their whole character. He saw that Englishmen and Americans had no life but their work, and had little other desire than to grow richer and get on in the world. The absence of any taste for amusement, or enjoyment of repose, was common to all classes.[739] Whereas in the case of other races, the industrial spirit was to be stimulated, the English were perhaps even too industrious.

> Every real improvement in the character of the English or Americans, whether it consists in giving them higher aspirations, or only more numerous and better pleasures, must necessarily moderate the all-engrossing torment of their industrialism; must diminish, therefore, so far as it depends on that cause alone, the aggregate productiveness of their labour.[740]

Cardiff Garcia noted recently, when discussing "Engels' Pause" and the impact of automation on jobs, that Mill was not as pessimistic as Malthus when it came to wage growth and population. Rising population would not necessarily swallow all increases in material wealth if population growth could be controlled. After this, accelerating productivity might not even be desirable. As Cardiff notes, this shows that the matter of whether the Malthusian Trap still applied was still being debated in the mid-19th century.[741] As we shall see, long before Mill's *Principles* was published, many French economists saw Malthusian and Ricardian views on population and wages very much as things of the past. In comparison, Cardiff notes that even in 1919, Keynes was referring to the Malthusian trap as "that devil" in *Economic Consequences of the Peace*. Although he acknowledged that after 1870, the accessibility of food supplies from America had for the first time in recorded history eased the situation, Keynes was clearly worried that after the destruction of the Great War, it might rear up once more.

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739 *Ibid.*, 126-127.
740 *Ibid.*, 128.
741 Cardiff Garcia, "Jobs, Automation, Engels' Pause and the Limits of History," *FT Alphaville*, http://ftalphaville.ft.com/2015/03/09/2120134/jobs-automation-engels-pause-and-the-limits-of-history/ (accessed May 24, 2015).

> For half a century all serious economical writings held that Devil in clear prospect. For the next half century he was chained up and out of sight. Now perhaps we have loosed him again.[742]

Despite lacking in empirical evidence at the time of writing and despite the mounting evidence against his thesis, the legacy of Malthus thus lived on in classical economics and was incorporated into certain theoretical systems of economics. It acted as a brake on economic optimism, helped to justify wage theories of minimum cost of subsistence, and discouraged traditional forms of charity.[743] To some degree, it survived all the way through to Keynes. However, in *Economic Possibilities for our Grandchildren* (1930), such fears were a thing of a past. Despite enormous growth in the population, he estimated that the average standard of living in Europe and the US has been raised fourfold, that the "economic problem", meaning the scarcity of basic necessities, could as a whole be solved within a hundred years, and that it was thus not going to be a permanent problem of the human race.[744]

The reason the lingering Malthusian shadow in Mill and others is so relevant here, is because it might well have caused them to fear that increasing material wealth would simply end up increasing the population. Furthermore, the length of the Malthusian shadow influenced their views on the need, nature, and consequences of public education. Therefore, for classical economists who took Malthus seriously, the main task and purpose of public education was to instill moral values, i.e., understanding that the only way the working class could improve its situation was by limiting its numbers. As Bradford DeLong has put it bluntly:

> [I]n Malthus' view, what human societies needed was autocracy, patriarchy, orthodoxy: priests who would teach that premarital sex landed you in hell, fathers who would withhold their consent from their daughters' marriages until the prospective son-in-law was well-enough established to guarantee her a middle-class existence, and a strong king to keep the mob from plundering and destroying what wealth there was, and if you had all three there was a chance that you could prevent the growth of the surplus population that would land a nation in misery.[745]

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742 John Maynard Keynes, *The Economic Consequences of the Peace* (London: Macmillan and co., limited, 1919), II.0.3.

743 Kingsley Davis, "An Attempt to Lay the Ghost of Malthus," in *Kingsley Davis: A Biography and Selections From His Writings,* ed. David M. Heer, (New Brunswick, N.J.: Transaction Publishers, 2005), 249-252. In addition to preaching that all increases of material wealth for the poor would be subsumed by population growth, in his piety Malthus also was also against contraception, whereas Mills advocated contraceptive methods. Patricia James, *Population Malthus: His Life and Times* (London: Routledge, 1979), 311.

744 John Maynard Keynes, "Economic Possibilities for Our Grandchildren," in *Essays in Persuasion,* (London: Macmillan, 1931).

745 Bradford DeLong, "Domo Arigato Mister Roboto!: Cardiff Garcia Asks a Question About Growth, Inequality, Malthus, and History," *Brad DeLong's Grasping Reality*, http://delong.typepad.com/sdj/2013/08/domo-arigato-mister-roboto-cardiff-garcia-asks-a-question-about-growth-inequality-malthus-and-history.html (accessed May 25, 2015).

That the Enlightenment project, when undermining authority of the king, priests and fathers, would end in misery, was a view that Malthus held firmly his entire life.[746] On the other side were those who early on understood that the theory of Malthus was flawed, did not hold in their societies anymore, or saw that material and intellectual development progressed hand-in-hand. In addition, when it was understood that there was no need for the wage-fund theory (or "iron law of wages"), it was possible to see that education might have other functions than simply maintaining social order.

Whereas Cantillon, more than a century earlier, wrote about the economy and administration of a slave plantation from the perspective of landowners' expenses on personnel, like any other business, and Thomas Carlyle defended such practices in Mill's own time, Mill was a devout defender of the rights of slaves and former slaves.[747] His own father, James Mill, had written about the principle of capitalists owning both capital and labor, regardless of whether the latter was free or not.[748] It is possible that these were among the reasons he chose not to define and discuss acquired abilities, or human beings themselves, as capital in *Principles*. Nevertheless, he had earlier definitely discussed skills as wealth, and acquiring them as productive work; and indeed in *Essays on Some Unsettled Questions of Political Economy* (1844) he had so often cited McCulloch, whose definition of capital made no difference between persons and their acquired attributes, that it might have been one of the reasons that by the time *Principles* was published, McCulloch's name was not being mentioned so much. J.S. Mill also strongly defended the rights of women,[749] equaling the oppression of women to a kind of slavery, and this make him a link in the line of authors from Storch to Becker who have argued that unfounded hierarchies, constraints, discrimination, serfdom, or outright enslavement by the state or other individuals have always proved to be a moral, intellectual, and ultimately economic burden on individuals and humanity as a whole, not just the subjugated.

5.2.2 Henry Dunning Macleod

Macleod (1821-1902) was a Scottish economist educated at Eton, Edinburgh, and Trinity College, Cambridge. He graduated from there in 1843, having studied mathematics, and eventually became a director of the Royal British Bank in 1854, which sparked a lifelong interest in economics, money, and banking. His *Theory and Practice of Banking* (1855) went through a publishing run of five editions, and had he kept himself to writing only about banking, where his views were enough close to the reigning orthodoxy, he might have earned a proper position among British economists. However, he was against the orthodox labor

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746 *Ibid*.

747 This was an answer to Thomas Carlyle's essay *Occasional Discourse on the Negro Question* (1849) in which Carlyle defended the acceptability of using black slaves and indentured servants. John Stuart Mill, "The Negro Question," *Fraser's Magazine for Town and Country* 41, no. 242 (1850): 25-31.

748 James Mill, *Elements of Political Economy* (London: Printed for Baldwin, Cradock, and Joy, 1821), 69-70.

749 John Stuart Mill, *The Subjection of Women* (London: Longmans, 1869).

theory of value of Smith, Ricardo, and Mill. Indeed, his broader economic ideas clearly ran counter to their material concept of wealth, and met with wide opposition.[750] In the Cambridge Alumni Database, it tellingly mentions that he was "[a]n unsuccessful candidate for the Chairs of Political Economy at Cambridge in 1863, at Edinburgh in 1871, and at Oxford in 1888."[751] Macleod was influenced by the Abbé de Condillac, from the late 18th century, who he declared to have been the true founder of economics. Condillac focused on exchanges rather than wealth, and placed the origin and source of human value in the human mind instead of labor, which was the ruin of English economics according to Macleod. From Condillac, Macleod received the idea that exchange values stem from the mental desires of consumers, which then led him to a subjective theory of value. He argued that people engaged in exchange, because each of them valued what they gained more than what they gave up; otherwise the trade would not take place. Jevons recognised the worth of Macleod, along with Bastiat and Senior, as he weighed in to help against the stifling dominance that John Stuart Mill had over economics in England at the time.[752]

5.2.2.1 Profit Making Economic Quantities Are Capital

In *The Elements of Political Economy* (1858) Macleod reminded his readers that the original and primary sense of capital was to convey the circulating power of commerce, by which he meant that the object of commerce was to sell on goods for more than he had bought them (which in mercantile language meant he had turned over his capital), and to make this margin as large as possible. Because commodities had completed the turnover of capital, it was possible to apply the word capital to them in a secondary and metaphorical sense. Macleod saw no problem with this metaphorical use, and thus to make a further metaphorical extension from its original and primary meaning. As the object of everyone's labor was to gain money, everything that helped towards that goal could in a figurative sense be called capital. Macleod argued that when a man invests money as capital, i.e., aims at profit, the form in which he invests it should, in principle, make no difference.[753]

> One man invests his money in cultivating a farm, for the purpose of selling the produce; another man invests money in buying commodities, for the purpose of selling them with profit; another invests his money in cultivating his mind, by learning a profession, for the purpose of making a profit by exercising that profession. As a question of Political Economy all these modes of investing capital must be treated in the same way. They must be classed together, though they may be distinguished as far as regards species. Thus, one may be called material capital, and the other personal, moral, intellectual, or immaterial capital.[754]

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750 Murray Newton Rothbard, *An Austrian Perspective on the History of Economic Thought* (Aldershot, Hants, England ; Brookfield, Vt., USA: E. Elgar Pub., 1995), 461-462.

751 "Macleod, Henry Dunning," (accessed June 12, 2015).

752 Murray Newton Rothbard, *An Austrian Perspective on the History of Economic Thought* (Aldershot, Hants, England ; Brookfield, Vt., USA: E. Elgar Pub., 1995), 462-463.

753 Henry Dunning Macleod, *The Elements of Political Economy* (London: Longman, Brown, Green, Longmans, and Roberts, 1858), 69-70.

754 *Ibid.*

Therefore, in a general and extended sense everything with which man could trade with, and turn to profit, or which helped him gain income was capital. All qualities, instruments, and contrivances, however humble and simple, counted as capital if they facilitated labor and increased production. The education and skills of a lawyer or a doctor was capital, just as the goods, skill and, judgment of a trader were. Macleod saw that with this approach, the derived and metaphorical meaning of capital caused no loss to the understanding of the original and genuine meaning.[755]

In *Lectures on Credit and Banking* (1882), Macleod's definition of capital followed Senior's in the sense that he saw the defining principle of capital as whatever brings profit. This definition came from the Greek (κεφάλαιο) and Latin (caput), meaning the source from which any profit or revenue flows. The 'whatever brings profit' part was an elaboration so that it could be defined in as wide and general a sense to mean anything whose value can be measured in money, as in the definition of wealth.

Macleod saw that any economic quantity, his term for goods, could be used in one of two ways: (i) owners could use it for their own personal enjoyment, or (ii) they could trade with it, i.e., use it to produce a profit. When any economic quantity was traded or used to produce profit, it was to be termed capital.

> "Capital is any Economic Quantity whatever so as to produce profit."[756]

These "economic quantities" were of three kinds: (a) material things, (b) labor or personal qualities, and (c) rights. Each of these could be used as capital. When discussing personal qualities, Macleod wrote that all modern economists (mentioning Smith, Say, Senior, and Mill) agreed with the author of *Eryxias* that personal skills, abilities, energy, and character were wealth and could be used as capital. However, we know that actually, it was not quite "all", and with Mill this issue is certainly more blurred than Macleod made out. It is interesting that he chose this reference to *Eryxias* too, as these were the words Plato put in Socrates' mouth in one of the Socratic dialogues.

> Or is wisdom despised of men and can find no buyers, although cypress wood and marble of Pentelicus are eagerly bought by numerous purchasers? Surely the prudent pilot or the skillful physician, or the artist of any kind who is proficient in his art, is more worth than the things which are especially reckoned among riches; and he who can advise well and prudently for himself and others is able also to sell the product of his art, if he so desire.[757]

Was Macleod perhaps also putting words into the mouths of Smith, Say, Senior, and Mill? In Macleod's opinion, personal qualities could be used to make a profit in three ways – as labor, as credit, and through rights. Personal qualities

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755 *Ibid.*, 70.

756 Henry Dunning Macleod, *Lectures on Credit and Banking* (London: Longmans, 1882), 50-51.

757 Plato, *Eryxias*, trans. Benjamin Jowett (Adelaide: The University of Adelaide Library, 2014).

as "labor" meant that when people sold their labor and made a profit as a plowman, artisan, lawyer, doctor, or engineer, for instance, they were using their labor as capital. By doing so, one made income that was measurable and taxable in the same way as if one had made income by selling material commodities.[758] In his definition of capital as any economic quantity producing profit, Macleod was following Senior, who argued that immaterial wealth was capital, and Frédéric Bastiat, who saw that anything that could be exchanged had an economic element and that element could be capital.[759] Macleod's definition of personal qualities as credit and rights are discussed below.

5.2.2.2 Personal Qualities as Credit and Hodgson's Collateral

Macleod was a pioneer in credit theory, explaining the history of money from its starting point as a form of credit. His views on personal credit are also very interesting although they were not new at the time (see section 7.1.2 on Hildebrand). By saying that personal qualities were a form of credit, Macleod meant that a person could use his skill, character, and energy for purchasing goods, materials, or employing labor, and by giving in exchange a promise to pay at a future time. Macleod wrote that this purchasing power of character was called 'credit' in popular language already. A merchant was said to be in "good credit" when he could buy goods or labor against a promise to pay, and a trader could make profit with his credit in the same way as if he traded with money. Macleod cited Smith as saying that the credit of a frugal and thriving man increased much faster than his stock, so that his trade extended in proportion to his stock and credit. Mill too saw purchasing power as wealth and credit as purchasing power, so credit was indeed a form of wealth. The credit of a merchant, however, entered the economy only when he made a purchase with it, and then he gave a promise to pay against his purchase. It was this promise to pay that was the economic quantity, i.e., a good. It was termed credit, and could be bought and sold any number of times before it was paid off and disappeared.[760]

From this, one got to the rights concerning personal qualities. When these were used as credit, a right of action was created, and this right of action was a saleable commodity. It could be bought or sold, and used as capital. According to Macleod, who was a bank director, banks were precisely the kind of business that would trade these rights of action, and that was why they were vitally important to the economy as a whole. Also any other right could be used as capital – from the shares of a commercial company to the copyright of a successful work of literature. After this discussion, Macleod noted that there was no "absolute" capital; that is, anything that would by its very nature always be capital. Whether or not anything was capital, depended entirely on what it was actually used for.[761]

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758 Henry Dunning Macleod, *Lectures on Credit and Banking* (London: Longmans, 1882), 52.

759 Henry Dunning Macleod, "Capital," in *A Dictionary of Political Economy,* (London: Longman, 1863), 332.

760 Henry Dunning Macleod, *Lectures on Credit and Banking* (London: Longmans, 1882), 53.

761 *Ibid.*

As Hermann in the 1830s, and Hodgson in 2015 have argued (see 4.3.2.2), one could deny that human capital is capital, by setting criteria which states that capital must be sellable and act as a collateral for credit. Hodgson's criteria were whether (1) the rights of use could be owned or hired; (2) it had a market price; (3) it could be used as collateral; and (4) it could be bought or sold (alienated).[762] Furthermore, he stated that "[c]ontrary to Smith and his successors, neither wages nor wage labor can be capital—neither can act as collateral."[763] But if we play with this idea of accepting Macleod and Smith's idea that personal qualities can indeed act as a collateral for credit, i.e., the trust in a person's future purchasing power, the situation looks quite different. Although Hodgson quotes Paul Samuelson, saying that "[i]nterestingly enough most of society's economic income cannot be capitalized into private property. Since slavery was abolished, human earning power is forbidden by law to be capitalized,"[764] and mentions Schultz as having noted the same issue, it is not entirely true. For instance, Credit Union was accepting assignments of future wages as collateral at the very time Schultz was writing.[765] When looking at Hermann above (4.3.2.2), we saw that wage assignments have been used quite recently as collateral, and wage garnishment as a measure of securing repayment. This means we would only be left with the criterion of requirement that capital should be "alienable" from a person. But as we have seen when discussing Hermann, such a criterion leads to double standards, because it is then perfectly valid to buy, sell, and evaluate labor power in capital terms, in the form of companies or their stocks. Securitized human capital is therefore valid, but an individual's time and resources used to increase it (earning capacity) are not.

Yet another issue in this debate is the idea that economists would benefit from following the existing principles of accounting more closely in their dealing with concepts too. Irving Fisher raised this poin with reference to capital in 1904, as did Marshall in a later edition of *Principles*, and Hodgson in 2015.[766] This might well be good advice, but such a traditionalist view to certain abstract concepts may lead to strange results as we saw above when discussing Mill. Even though the investments in education and knowledge seemed like capital and brought profit like capital, he avoided calling them capital, even though all indicators showed that the exclusive connection between material production and productive work did not hold. Nevertheless, he continued the practice, merely softening the issue by talking about the importance of certain trades and

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762 Geoffrey Martin Hodgson, *Conceptualizing Capitalism: Institutions, Evolution, Future* (Chicago: The University of Chicago Press, 2015), 179-180.

763 *Ibid.*, 166.

764 *Ibid.*, 170.

765 Don Eastvold and Washington State Office of the Attorney General, "Credit Unions – Wage Assignments as Collateral for Loans. Ago 1956 No. 285 - Jun 13 1956," http://www.atg.wa.gov/ago-opinions/credit-unions-wage-assignments-collateral-loans.

766 Irving Fisher, "Precedents for Defining Capital," *Quarterly Journal of Economics* 17, no. 3 (1904), 16-17; Alfred Marshall, *Principles of Economics*, 8th ed. (London and New York: Macmillan and co., 1920), 787-788; Geoffrey Martin Hodgson, *Conceptualizing Capitalism: Institutions, Evolution, Future* (Chicago: The University of Chicago Press, 2015), ch. 7.1.

professions. Another case to bear in mind, and more contemporary, is that intangible capital is now accounted for in the UN System of National Accounts. In this way macroeconomic understanding is reflected in the accounting standards, not the other way round. If capital is seen as a process description for investing resources with returns evaluable in monetary terms, then it is natural that whatever it is that produces our wealth, i.e., brings profit to our investment of time and resources, is accounted for as capital investment as long as the procedures do not step over the human rights and sovereignty of individuals.

5.2.3 William Stanley Jevons

W. S. Jevons's (1835-1882) definition of capital is discussed here briefly, because he was one of the three "independent" founders of the theory of marginal utility and also a pioneer of mathematical economics. Thus his views, along with those of Léon Walras and Karl Menger were very influential, and they opened a new period in the history of economic thought. Similar to Léon Walras, Jevons seems to have defined capital as he did partly so that it would fit more easily into his mathematical and marginal framework and so neatly bypass the long and arduous 19th-century debate on the issue.

5.2.3.1 Capital as Labor Subsistence

In his article, *Brief Account of a General Mathematical Theory of Political Economy* (1866),[767] Jevons outlined his mathematical theory of marginal utility and contrasted his definition of capital to that of J.S. Mill. Whereas Mill had said that capital promoted production by offering the "shelter, protection, tools, and materials" needed to perform the work and maintain the workers, Jevons felt that capital simply covered the maintenance of the workers, and nothing else.

> Thus, I define capital as consisting of all useful objects which, in supplying a labourer's ordinary wants and desires, enable him to undertake works of which the result will be deferred for a greater or less space of time. Capital, in short, is nothing but maintenance of labourers.[768]

Jevons argued that the tools, machines, buildings etc. were certainly required in the production process, but that they were already the product of past labor assisted by capital or maintenance. They were the results of applying capital to labor at an imperfect stage. The main point of capital was that without it, one had to have immediate returns or else perish. With capital, however, one could sow in the spring and harvest in the autumn, or build roads, railways, or canals, which would pay for themselves in only a few years. He argued that most productive way to apply labor required that the enjoyment of its results be deferred.

Jevons's marginal theory entered the definition of capital as a method for measuring it. This was done by measuring the utility of the enjoyment that was

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767 William Stanley Jevons, "Brief Account of a General Mathematical Theory of Political Economy," *Journal of the Royal Statistical Society* 29, (1866): 282-286.

768 *Ibid.*, 286. Italics from the original.

deferred, and the amount of capital used was the amount of utility multiplied by the number of time units for which the enjoyment was being deferred.[769]

In this way, Jevons could argue that the interest rate of all capital on the market was one and the same and also automatically the lowest possible, because capital consisted only of maintenance. It could therefore be used anywhere irrespective of the particular industry. The material objects usually considered as capital – tools, machines and buildings etc., were usually applicable only for the single purpose they were designed and made for, which meant that the profit they brought in did not follow the laws of interest for capital, but rather laws concerning rent or the produce of natural agents. He was thus equating the existing man-made means of production with rent on land, not profit.[770]

As labor needed the help of capital (it was after all "maintenance"), the rate of interest was always determined by the ratio of a new increment of produce to the increment of capital it was produced with. As the interest ratio was uniform, the benefit that already existing capital offered to a laborer had no impact on the interest rate, as this was solely dependent on the last portion that was added or could have been added. This allowed Jevons to explain why the interest rate of capital fell rapidly when its amount increased in proportion to the labor it supported.[771]

5.2.3.2 Maintenance as Monetary Capital

It is clear that there is no question of there being any intangible or human component in Jevons definition of capital. For him, an acquired skill, or knowledge about building a machine would represent past labor already aided by capital, and therefore it would compare more favourably with rent on land, rather than any kind of interest on capital. Furthermore, Jevons's definition makes it very simple to evaluate capital in monetary terms, or consider capital as simply money that can buy labor subsistence and maintenance. Whereas Walras attempted to define capital so that it would be easy, or at least possible to put a value on all his classes of capital and their revenues, based on their cost of production and market prices in monetary terms, Jevon was in practice defining capital as money. This kind of definition of capital from the marginal theorists did not bode well for theories of intangible capital. And yet, as we shall see below with Alfred Marshall, accepting a subjective theory of value and marginal analysis did not automatically mean that one should abandon such ideas.

5.2.4 Alfred Marshall – Personal Capital

> The divergence has been a great stumbling-block to many readers of economics; so great a variation in the use of so prominent a term appears necessarily to land the science in confusion.[772]

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769 *Ibid.*
770 *Ibid.*
771 *Ibid.*
772 Alfred Marshall, *Principles of Economics* (London and New York: Macmillan and co., 1890), 133.

Some say that Alfred Marshall and his ideas on the applicability of the idea of human (or "personal" as he called it) capital in the emerging field of neoclassical marginal economics is one of the main reasons why it remained in the wings until the 1950s; when it was possible for Schultz, and Becker et al. to claim that they had come up with a novel idea. In fact, what they had done was to begin to really apply the methods of modern economics to a field that had been simply pushed to the margins because Marshall had thought "personal capital" too unrealistic a concept for the market place, even though he acknowledged it was important and valid as the description of a real world process. This point was noted and discussed briefly with the rehabilitation of the concept in the 1960s. B. F. Kiker wrote in his article *The Historical Roots of the Concept of Human Capital* (1966) that "the concept of human capital was somewhat prominent in economic thinking until Marshall discarded the notion as 'unrealistic.'[773] " To this Richard Blandy remarked that Marshall's problem with human capital was definitional, rather than conceptual, and that Marshall used the notion extensively in the *Principles* to "analyze the economic causes and effects of changes in the quality of human beings."[774] We will see that Marshall did considerably alter his discussion about capital in the later editions of his *Principles*, but on the other hand, the concept continued to live on as "personal capital" in parts of these later editions, and was also in some of his later publications.

In addition to the impact of Marshall's views on his students and followers – who were to more or less define the field of economics to come – there were also wider implications. For if an idea that had been part of the economic discourse on capital since at least Adam Smith was considered as too unrealistic for the language of the market, there could be little hope that more abstruse ideas attached to the concept of capital (such as patriotism or knowledge networks) would fare any better in this new framework. Marshall was also aware of the diversity and broadness of the intangible ideas connected to capital during the century preceding him. In a way, the return of human capital in the 1960s inversely reflects this as, with the advent of formal methods of growth accounting, an inexplicable gap was revealed, and the principal conclusion from the Solow model was that this could be where intangible (pre-1870s) or human capital (since 1960) fitted in. The accumulation of physical capital could simply not account for the vast growth in output per person over time, or the geographic differences in output per person.[775]

In the first edition of his *Principles of Economics* (1890), Marshall began his discussion on capital by noting that there was no other part of economics where there was so strong a temptation to invent completely new technical terms. When such terms are introduced, he claimed, they should have a precise and fixed meaning while at the same time cover all the various meanings given to

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773 B. F. Kiker, "The Historical Roots of the Concept of Human Capital," *Journal of Political Economy* 74, no. 5 (1966), 481, 487.

774 Richard Blandy, "Marshall on Human Capital: A Note," *Journal of Political Economy* 75, no. 6 (1967), 874.

775 David Romer, *Advanced Macroeconomics*, Mcgraw-Hill Advanced Series in Economics (New York: McGraw-Hill, 1996), 6.

the term capital in the language of the market place. But Marshall saw that the price of this kind of academic exactitude came at too high a cost, as we have seen, so his solution was to start with the ordinary usages of the term as a foundation, and add general explanations and in some cases special interpretation clauses to give the term "some measure of clearness and precision."[776] Although Marshall stated it was not possible to solve the problems related to capital by defining wealth, Irving Fisher accused him of doing just that when Marshall kept to his idea that a fund was not necessarily a stock.[777] Marshall wrote that the special importance placed on that part of a person's income that he or she received in money was a surviving prejudice from the mercantile era. Marshall wanted rid of this, and so suggested grouping things together that were fundamentally of the same kind even when the income derived was not in the form of money payments.[778]

Marshall discussed acquired abilities as "personal capital". He noted that almost all definitions of capital included, as his did also, goodwill (i.e., trust and reputation) and similar external personal goods that had exchange value. Many authors, however, went further and included personal capital. Marshall saw this personal capital as convertible to personal wealth, which he used to not only describe (1) all energies, faculties, and habits directly contributing to making people industrially efficient; but also (2) all their business connections and associations. Group 1 here consisted of internal assets, while 2 was external goods, but they were both productive, and therefore if they were considered as wealth at all, they also had to be considered as capital. Convertibility of personal wealth and capital meant that it was proper to follow the same course as with wealth and personal wealth. He proposed that when the term capital was used alone, it should be understood as including only external goods, but raised no objection to the occasional broader use if it was explicitly stated to include personal capital too.[779]

If one is to see Alfred Marshall as a figure drawing on the 19th century tradition of economics and setting it on a new path, it is quite interesting how items such as goodwill (trust and reputation), networks (connections and associations), and a clear statement on human skills and abilities were left on the sidelines for so long a period, since they include much of what we now understand as intangible capital. But Marshall changed his mind, and from the fifth edition onwards these were left out specifically from the part where capital was defined. At the same time, the *Principles of Economics* even in its eighth edition (1920) contained multiple accounts on the importance and similarity of personal capital to material capital. So in that sense, Marshall should perhaps not be held

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776 Alfred Marshall, *Principles of Economics* (London and New York: Macmillan and co., 1890), 124.

777 Alfred Marshall, "Distribution and Exchange," *The Economic Journal* 8, no. 29 (1898), 59; Irving Fisher, "Precedents for Defining Capital," *Quarterly Journal of Economics* 17, no. 3 (1904), 403.

778 Alfred Marshall, *Principles of Economics* (London and New York: Macmillan and co., 1890), 127-128.

779 *Ibid.*, 134-135.

as the prime scapegoat for explaining why these ideas were banished to the wings for so long.

For instance, in the eighth edition Marshall discussed personal capital in relation to distribution, and noted that wages and other earnings of effort had much in common with interest on capital. Indeed, the causes that governed the supply prices of both material and personal capital were generally the same.

> […] the motives which induce a man to accumulate personal capital in his son's education, are similar to those which control his accumulation of material capital for his son.[780]

So this concept, common since Cantillon, was making a guest appearance once again in later editions of Marshall's *Principles*. Even as late as 1920, in *Industry and Trade*, Marshall was discussing reputation and personal contacts as capital. When the phrase personal capital emerged again in the 1990s, Dei Ottati understood personal capital as reputation generated by repeated cooperative behavior greater than that prescribed by local customs; and such a reputation of trustworthiness could bring with it more advantageous transactions. Ottati actually cited the part in Marshall's *Industry and Trade* (1920), where he argued that the marketing reputation and connections of a business could be "a larger property (or capital)", which was more in proportion to its earnings than its fixed plant. Marshall also argued that a reputation for fairness and generosity in dealing was a property was usually acquired only with special effort and sacrifice, and was a powerful factor in the success in all business undertakings.[781] Via Ottati's work is in many ways thus a direct link from the 19th-century authors to a 1990s concept.

Marshall also discussed the futility of long debates on productive and unproductive labor and consumption:

> All the distinctions in which the word Productive is used are very thin and have a certain air of unreality. It would hardly be worth while to introduce them now. but [sic] they have a long history; and it is probably better that they should dwindle gradually out of use, rather than be suddenly discarded.[782]

Marshall used a negative version of the land improvement analogy.[783] The only people likely to really invest in developing the personal capital of a youth's abilities were his parents, and lots of first-rate ability went forever uncultivated, because those who could develop such abilities had no special interest in doing so and the effects were cumulative. But the end result was that this did not jus-

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780 Alfred Marshall, *Principles of Economics*, 8th ed. (London and New York: Macmillan and co., 1920), VI.XI.1.

781 Alfred Marshall, *Industry and Trade: A Study of Industrial Technique and Business Organization*, 3 ed. (London: Macmillan and co., 1920), 180-189. *Industry and Trade* was first published in 1919.

782 Alfred Marshall, *Principles of Economics*, 8th ed. (London and New York: Macmillan and co., 1920), 67.

783 The positive version meant that land as such was close to worthless but in cultivation it became capital and land improvements made it to produce more. See section 7.1.1 on Roscher.

tify making a fundamental difference between material and human agents of production, for much good land was also poorly cultivated, because those who would be able to cultivate it well had no access to it.[784]

5.2.5 Irving Fisher

Irving Fisher (1867-1947), an American economist called by Schumpeter the "most important of the pioneers of econometrics since William Petty" is mentioned here because it seems he might have had something to do with Marshall's change of mind noted above. Fisher's work in econometrics, statistics, and mathematics ideally suited the "program of unification of the theoretical-quantitative and the empirical-quantitative approach" in economics [785] in Schumpeter's opinion; and he was also mentioned by T. W. Schultz as one of the great economists to have understood human beings as capital and presented "an all-inclusive concept of capital."[786] The fact that he used the term "human capital" itself, has been interpreted as a sign that Fisher would have been a champion or precursor of the contemporary human capital theory.[787] But when he used it, he was in fact quoting Léon Walras,[788] and compared to the contemporary theory, Fisher had quite a different take on the issue, as we shall see. Common to other turn-of-the-century economists pursuing econometric methods and accustomed to the seemingly endless conceptual debate over the nature and definition of capital, Fisher tried to shape the concepts to serve his form of analysis, rather than the other way round. He thought of most economic phenomena, including investment in human capital, in terms of balance, and credit and debit accounts. In education, its cost was credited to the teacher and debited (in physical terms) to the pupil – because Fisher thought that all credit was based on underlying physical wealth, in this case the physical wealth was the pupil. Subjective income, the anticipation of a higher future income, explained why people were ready to study hard with a low objective income. The credit account created in the process of education was canceled when the received education started to pay itself back in the form of a higher income. Thinking in terms of these accounts led Fisher to conclude that, when production was looked at comprehensively, then it was hard to see cost of production in any objective sense at all. Costs and income were only so with respect to certain accounts,[789] and the same applied to the production and education of human beings.

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784 *Ibid.*, VI.XI.1.
785 Joseph A. Schumpeter, *Ten Great Economists, From Marx to Keynes* (London: Allen & Unwin, 1952), 223.
786 Theodore Schultz, W., "Investment in Human Capital," *The American Economic Review* 51, no. 1 (1961), 2–3.
787 Claudia Goldin, "Human Capital," in *Handbook of Cliometrics,* ed. Claude Diebolt and Michael Haupert, (Berlin: Springer, 2016), 56–57.
788 Irving Fisher, "Senses of 'Capital'," *The Economic Journal* 7, no. 26 (1897), 212.
789 Irving Fisher, *The Nature of Capital and Income* (London: Macmillan & Co, 1906), 173.

5.2.5.1 People as Wealth – Various Degrees of Freedom

In *The Nature of Capital and Income* (1906)[790], which is the work cited by Schultz, Fisher defined wealth and thus capital as material. Earlier, in *What is Capital* (1886), he had gone through dozens of different definitions of capital, so he had strong foundations on which to base his arguments. In *Precedents for Defining Capital* (1904) he argued that it was not possible to define capital by simply defining wealth; instead, capital was to be defined by wealth's relation to time.[791] Yet in 1906, he saw wealth as needing only two conditions: "*material* objects *owned* by human beings." Some authors had added the third condition of utility to materiality and ownership; and some even did away with ownership altogether, but Fisher was of the opinion that ownership of some kind was required, since otherwise it would make many natural phenomena (such as the sun) objects of wealth. Other authors had argued that the object of wealth had to be exchangeable, but in Fisher's opinion, this excluded "parks, Houses of Parliament, the Hague Temple of Peace, and much other trusteed wealth; all wealth, in fact, which happens to fall into permanent hands." So while it was essential for him that wealth should be owned, it was not essential that it should continuously change hands.[792]

Furthermore, many authors, such as Macleod (5.2.2), omitted materiality so as to include intangible wealth in the form of stocks, bonds, other property rights, and other services. Fisher's view was that while property and services were inseparable from wealth, this did not make them the same thing. He argued such an approach would lead to triple accounting: a railway, a railway share, and a railway trip all had the same point of reference and they were definitely not three different kinds of wealth; they were "wealth, a title to that wealth, and a service of that wealth." Yet some had tried to break away from concrete objects entirely (he mentioned Tuttle) by arguing that the term wealth applied to the *value* of objects, not directly to the objects themselves. Fisher saw that much could be said to defend this view, but as the question was chiefly semantic, he did not consider it wise to depart "from the prevailing usage among the economists". As we have seen, this last statement is remarkably similar to those presented by both J.S. Mill and Alfred Marshall. Nevertheless, for Fisher, it was materiality and ownership (or "appropriation") that were the criteria; and the latter did not have to be complete – few objects could be owned so "unrestrictedly" that the owner could use them in "absolute defiance of the wishes of others."[793]

Considering that Fisher saw people as material objects of wealth, both the arguments that wealth does not have to be exchangeable, and this limited appropriation argument can be seen as a riposte to the claim, for instance, made

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790 *Ibid.*

791 Irving Fisher, "What is Capital?," *The Economic Journal* 6, no. 24 (1896): 509-534; Irving Fisher, "Precedents for Defining Capital," *Quarterly Journal of Economics* 17, no. 3 (1904): 386-408.

792 Irving Fisher, *The Nature of Capital and Income* (London: Macmillan & Co, 1906), 3-4.

793 *Ibid.*, 4.

by Hermann[794] that human beings and their attributes are not wealth nor capital, because wealth had to be exchangeable and someone's property. The latter may indeed also be among Fisher's requirements too, but his point of *limited* appropriation meant that the item of wealth did not have to be wholly owned.

Fisher distinguished various classes of wealth: (a) "land", which included "land improvements" (i.e., any fixed structures upon it), and "real estate" (the two together); (b) "commodities" which meant all movable wealth; and (c) "human beings". This last category included both free people (who were their own property) and slaves. Fisher acknowledged that generally "freemen" were not counted as wealth, and there were many peculiarities in this class of wealth: they were not bought and sold like ordinary wealth; the owner usually estimated his own importance much more highly than anyone else; and finally, the owner and the material owned coincided in this case. Yet, people were still, like other wealth, both material *and* owned.[795]

However, to concede as much as possible to popular usage, Fisher offered a supplementary definition, according to which wealth was "material objects owned by man and external to the owner." This included slaves but not free people, but Fisher saw this definition as more problematic than the one above, since it required separation of people into rather arbitrary classes of those who were somewhere in between the free and enslaved. These included "vassals, indentured servants, long-time apprentices", and negroes held "in peonage". There was thus a continuum between slavery and freedom without any fixed line of demarcation which made things a bit more complicated. Fisher wrote that a man bound to service for thirty years was almost indistinguishable from a slave, and if the terms of service and the level of control was absolute enough, then any difference disappeared completely. The shorter the contract, the nearer one's condition was to freedom. Meanwhile, most workers in modern society were hired, which meant that they were bound by contract to some extent and for some period of time. Even if this was for no more than an hour, they were to that extent not free;[796] and because "appropriation" did not have to be complete, to this extent they were being owned, and were therefore wealth.

A second way Fisher's understanding of wealth differed from Hermann's was to do with property and property rights. Although wealth concerned concrete material objects, economics also had to deal with abstract services, utilities, and property rights. These were bought and sold, like material wealth, and were often regarded as "incorporeal", "immaterial", or intangible wealth. This was in Fisher's view needless and confusing. They were quite simply *not* wealth, although they were intimately related to it. Owning wealth meant having the right to use it, and this was the same as having property or property rights.[797] Fisher's understanding of services was quite similar to Walras', since he saw

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794 See section 4.3.2 on Hermann.

795 Fisher listed Davenant, Petty, Canard, Say, McCulloch, Roscher, Wittstein, Walras, Engel, Weiss, Dargun, Ofner, Nicholson, and Pareto as others who included man in the category of wealth. *Ibid.*, 4–5.

796 *Ibid.*, 6.

797 *Ibid.*, 18.

them as desirable changes effected by the means of the instrument of wealth in question. A loom, for instance, served as the means to change yarn into cloth, a plow performed the service of changing the soil, and a miner provided the service of mining coal. The services of the miner were measured by the amount of coal mined, and this amount times the price of coal per unit of measure gave the value of the miner's service.[798] Therefore, the principle was similar to that of Walras, who saw men as wealth and capital, and their labor as a service (or interest) on this capital.[799]

5.2.5.2 Capital and Income: Stock and Flow

It is good recap Fisher's main concepts "or the chief tools needed in economic study" before going on to his idea of capital. Fisher saw that wealth consisted of "appropriated" material property, i.e., having a right in these objects. In a broad sense, wealth included human beings, and property included all rights whatsoever. Services were the benefits of wealth, whereas "satisfactions" were about the enjoyment of services. Desirability and utility were about the desire for wealth, property, services, or satisfactions. Prices were the ratios of exchange between quantities of wealth, and value was the price of any of the abovementioned multiplied by quantity.[800]

But it was only when the great "independent variable" of time was added, that Fisher saw there could be any real and useful demarcating factor between wealth, capital, and income. When speaking about quantities of wealth, people were meaning either "a quantity existing at a particular instant of time" or a "quantity produced, consumed, exchanged, or transported during a period of time." The first of these was a "stock" (or fund) of wealth; the second was a "flow" (or stream) of wealth. In Fisher's opinion, the designation of "wealth" alone was insufficient to differentiate between these two magnitudes. Similarly when speaking about property or value, people could have in mind either a flow or a fund. Shares of a company owned by someone at a certain point in time was a "fund of property", while the number of shares exchanged in one week on the stock exchange was a flow. Whereas a fund was specified by one magnitude only, a flow required two, which were the "amount" and the "duration" of flow. This determined the "rate of flow". According to Fisher the rate of flow was often considered more important than the amount, because we are usually less interested in knowing about aggregate wages in someone's lifetime than about the *rate of wages* at certain points in life.[801]

Perhaps the most important, though not the only application of distinguishing between a fund and flow was to differentiate between capital and income. Capital was clearly a fund, while income was a flow. And this distinction was not the only one that the time factor brought about; almost as important was that capital was wealth and income was its service. From these, Fisher made his conclusions.

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798 *Ibid.*, 20.
799 See section 6.2.3 below on Walras.
800 *Ibid.*, 51.
801 *Ibid.*, 51–52.

> We have therefore the following definitions: A stock of wealth existing at an instant of time is called capital. A flow of services through a period of time is called income.[802]

> We have defined capital as a quantity of wealth existing at an instant of time. A full view of capital would be afforded by an instantaneous photograph of wealth.[803]

For example, the railways of a country were capital, while their services (for transportation or selling passenger tickets) were the income. Fisher noted that by no means were such definitions universally accepted. Instead of using this kind of time reference approach, economists had, since Adam Smith, usually tried to define capital as particular kinds of wealth (or as wealth restricted to a particular use). The burning question had thus been:

> *[w]hat kinds?* But the failure to agree on any dividing line between wealth which is and wealth which is not capital, after a century and a half of discussion, certainly suggests the suspicion that no such line exists.[804]

The following rather long quotation from Fisher enlightens us on how the demarcation between wealth and capital (wealth) had earlier been drawn quite differently, even when considering material or financial capital. Interestingly, Fisher also mentions quite a few of the authors we are interested in.

> Adam Smith's concept of capital is wealth which yields "revenue." He would therefore exclude a dwelling occupied by the owner. Hermann, on the other hand, includes dwellings, on the ground that they are durable goods. But a fruiterer's stock in trade, which is capital according to Smith, because used for profit, according to Hermann does not seem to be capital, because it is perishable. Knies calls capital any wealth, whether durable or not, so long as it is reserved for future use. Walras attempts to settle the question of durability or futurity by counting uses. Any wealth which serves more than one use is capital. A can of preserved fruit is therefore capital to Knies if stored away for the future, but is not capital to Walras because it will perish by a single use. To Kleinwächter, capital consists only of "tools" of production, such as railways. He excludes food, for instance, as passive. Jevons, on the contrary, makes food the most typical capital for all, and excludes railways, except as representing the food and sustenance of the laborers who built them.
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> While most authors make the distinction between capital and non-capital depend on the kind of wealth, objectively considered, Mill [meaning J.S. Mill] makes it depend on the intention in the mind of the capitalist as to how he shall use his wealth, Marx makes it depend on the effect of the wealth on the laborer, and Tuttle upon the amount of wealth possessed. Again, while most authors confine the concept of capital to material goods, MacLeod extends it to all immaterial goods which produce profit, including workmen's labor, credit, and what he styles "incorporeal estates," such as the Law, the Church, Literature, Art, Education, an author's mind. Clark

802 *Ibid.*, 52.
803 *Ibid.*, 66.
804 *Ibid.*, 53. Fisher quoted here what Senior had written already seven decades earlier: "The term capital has been so variously defined that it may be doubtful whether it have any generally received meaning." Senior's own definition was: "in popular acceptation, and in that of Economists themselves when they are not reminded of their definitions, that word signifies *an article of wealth, the result of human exertion, employed in the production or distribution of wealth.*" Italics from original. Nassau W. Senior, *An Outline of the Science of Political Economy* (London: W. Clowes and sons, 1836), 53. See also section 2.2.5 on Senior.

> takes what he styles "pure" capital out of the material realm entirely, making it consist, not of things, but of their utility. Most authors leave no place, in their concept of capital, for the value of goods as distinct from the concrete goods themselves, whereas Fetter, in his definition, leaves place for nothing else. Some definitions are framed with especial reference to particular problems of capital; many, for instance, have reference to the problem of capital and labor, but they fail to agree as to the relation of capital to that problem. MacCulloch regards it as a means of supporting laborers by wage fund; Marx, as a means of humiliating and exploiting them; Ricardo, as a labor saver; MacLeod, as including labor itself as a special form of capital.
>
> Many definitions have reference to the problem of production, but in no less discordant ways. According to Senior, Mill, and many others, capital must be itself a product. Walras, MacLeod, and others admit land and all natural agents under capital. Böhm-Bawerk, while agreeing that it must be a product, insists that it must not apply to a finished product. Marx denies that capital is productive. Böhm-Bawerk admits that it is not "independently" productive, but denies the Marxist corollary that it should not receive interest. Other writers make it coördinate with land and labor as a productive element.
>
> Most of the definitions involve some reference to time, but in many different ways. Hermann has in mind the time the wealth will last; Clark, the permanency of the fund capital as contrasted with the transitoriness of its elements, "capital goods"; Knies, the futurity of satisfactions; Jevons, and Landry, specifically the time between the "investment" of the capital and its return."[805]

Note that although Fisher claims above that most authors confine the concept of capital to material goods, of those he mentioned or cited in this discussion Smith, MacCulloch, Senior, Hermann, Roscher, Schäffle, and Macleod did *not*, in fact, confine the concept of capital to material goods. Furthermore, Fisher has ignored all the French economists except Walras. Looking at them would have given quite different results. Also he neglected to mention his countrymen Carey and Vethake, who were both early exponents of intangible capital theories about seven decades earlier.

Because of such diversity, Fisher saw that there was no point in trying to attempt any reconciliation between the concepts, although there were elements of truth in all of them. Most of them strove to express whether or not capital was "productive", "antithetical to income", a "provision for the future", or a "reserve".[806] Where they differed from Fisher was that they assumed that only part of all wealth could conform to these conditions. Yet, as also Alfred Marshall had noted, when trying to draw a line between wealth that was capital and wealth that was not, it was easy to find oneself including more and more within the term capital until there nothing left outside it. Using the simplest time reference of 'future use' did not work either, because surely all wealth was for future use. Seeing capital as a "reserve" did not really help, because future use and reserve meant the same thing. Furthermore, utility as an indicator of productive wealth did not work either, because it was evident that all wealth yielded services of some kind, otherwise there was no point in calling it

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805 Italics as in the source. Irving Fisher, *The Nature of Capital and Income* (London: Macmillan & Co, 1906), 53-57.

806 *Ibid.*, 57.

wealth.[807] Fisher compared this to the old chestnut of productive and unproductive labor.

> There was a time when the question was hotly debated what labor was productive and what unproductive. The distinction was barren and came to be so recognized. No one objects calling all labor productive. And if this productivity is common to all labor, it is equally common to all wealth.[808]

If both futurity and productivity failed as demarcation criteria between wealth and capital, so did income. That was because *all* wealth, according to Fisher, bore income, and because income consisted simply of the services of wealth. The idea that some kinds of wealth bore income and others not had, however, persisted in economic thought since Adam Smith, who understood income in money as being the only kind. In this respect, capital was the part of wealth that produced money as income; whereas housing, clothing, equipment, and food (which spent that income), were simply expenses for Smith, and as such could not be called capital.[809]

In language not unlike that of Marshall, Fisher claimed that if economists had paid due attention to practical bookkeeping, they would have perhaps saved themselves from the errors of the wage-fund doctrine, in which authors like MacCulloch and J.S. Mill had completely lost track of the fact that the "capital account" of a company represented the condition of a firm at any particular *instant* in time, whereas the "income account" described what had happened for a given period of time.[810] Basing a firm or a whole nation's ability to pay wages on the capital account gave the impression that at any given moment there was somewhere a gigantic stock of money that would pay the whole annual wage sum of an economy, whereas in fact it was representing the flow of generated income in the economy; and it was this flow, that predicted the ability to pay wages and the value of its stock of capital.

Fisher wrote that, among businessmen, wealth was included in the term capital. It was thought to mean the net value of man's wealth or, as the phrases "live on capital" or "to capitalize on something" indicated, simply a fund of wealth. Popular and business usages thus seemed to justify Fisher his simple definition (i.e., capital is the wealth existing at any given moment in time, and income is the service of this wealth), whereas he found little to back up the definitions usually found in economic textbooks. Fisher concluded that if his relatively broad definition was rejected, and economists insisted on restricting the term to a narrower meaning, then the only recourse would be to follow John Rae, and after defining capital as being a part of "stock", quietly shelve the term and proceed to analyse "stock" instead.[811] Such a rejection would also mean

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807 *Ibid.*, 57-58.
808 *Ibid.*, 58.
809 *Ibid.*
810 *Ibid.*, 59-60.
811 Schumpeter did exactly this in order for not having to add each time capital "in our sense." Joseph A. Schumpeter, *History of Economic Analysis*, ed. Elizabeth Boody Schumpeter, 12 ed. (New York: Taylor & Francis, 2006), 600, footnote 18.

that some of the terms used over the preceding century concerning the main bone of contention – i.e., "the interest on capital" (*l'intéret du capital*, *capitalzins*) – were just misnomers.[812] By saying this, Fisher was implying that the whole category of capital would then have become nothing but an elaborate play on words. Nevertheless, Fisher did hold to one fundamental demarcation point, as we have seen, and that was materiality. In the next section, I will discuss the consequences of this on his ideas concerning human capital and the possibility of there being any kind of intangible capital.

5.2.5.3 Fisher's Extreme Materialism

That all wealth (and thus capital) was material and had to be owned had interesting consequences for Fisher's theories. First, he thought that it was possible to physically measure all wealth. Often this happened in arbitrary units, but nevertheless it was possible, and in cases where it was difficult, this was because some vital information was lacking. In Fisher's framework, human beings are wealth; the value of a group of people existing at a given instant of time is "capital"; and their labor forming a flow of services is "income". As we shall see later, this principle follows the one presented by Walras three decades earlier in *Éléments d'économie politique pure* (1874).[813] The difference is that, rather than using "instant" and "flow", Walras tried to separate them in terms of whether they could be used once or repeatedly – any wealth which served more than one use was capital.[814] This was also an attempt to settle the interminable issue over the futurity and durability of capital. But both Fisher and Walras saw human capital as being material, and it was definitely not possible to separate the "skill" of a mechanic from the person of the mechanic, just as one could not separate the "fertility" of land from the land itself, or the intangible value of a product from the material product itself.

> The "skill" of a mechanic is not wealth in addition to the man himself; it is the "skilled mechanic" who should be put in the category of wealth.[815]

Furthermore, unlike Hermann, Fisher saw no problem in the fact that men working under contract were not fully owned. As mentioned above, they were "appropriated" to the degree determined by their work contract and only slaves were fully owned.[816] In Hodgson's opinion, Fisher's understanding of men as capital made explicit what had been implicit in Smith's *Wealth of Nations*.[817] On the other hand, Smith was quite explicit about what was capitalized in education or in learning skills (see 2.2.2.3 above), and he did not write about people as capital. However, it is true that Smith's material conception of wealth, means

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812 Irving Fisher, *The Nature of Capital and Income* (London: Macmillan & Co, 1906), 64–65.
813 Léon Walras, *Éléments d'économie politique pure; ou, Théorie de la richesse sociale* (Lausanne: L. Corbaz & cie; [etc., etc.], 1874). See 6.2.3.
814 Irving Fisher, *The Nature of Capital and Income* (London: Macmillan & Co, 1906), 54.
815 *Ibid.*, 9.
816 *Ibid.*, 5-6.
817 Geoffrey M. Hodgson, "What is Capital? Economists and Sociologists Have Changed Its Meaning: Should it be Changed Back?," *Cambridge Journal of Economics* 38, no. 5 (2014), 5.

that capital (as a part of wealth) should also be material. Fisher's material view also rules out knowledge as a category of capital separate from those who possess it. Patents and copyrights he saw as services of wealth to which one could have "partial" property rights, but it is not at all clear what was material about the wealth that a patent brings to its owner.[818]

As we saw earlier, Hermann made it a condition that, for something to be capital, it had to be sellable, and he considered personal capital as unsellable. He did not see different kinds of work contract as indicators of such an exchange going on. Also the labor power of a worker was not capital. Therefore, he ruled out the category of personal capital; while Hodgson, as we have seen, has also indicated that what is considered capital has to be able to act as collateral for loans. Fisher's solutions to these problems were (a) to define people as physical wealth and (b) "partial appropriation." When writing about credit, he claimed "it was impossible to have a right to any future wealth which is not also right to some present wealth as means of securing that future wealth." When a carpenter borrows, he borrows against his wealth, and with this he provides the furniture he sells, including his own person as physical capital. Therefore, owning a note for a debt falling due next year was a partial right in the person and other assets of the debtor. The note lost its value the instant the debtor was considered unable to pay. In Fisher's view, credit was therefore, like every other property right, a partial right to existing wealth, and this included people.[819] Because of partial appropriation, the work contract meant that the employer could own part of the employee, to the degree that the contract limited the freedom of the latter, and therefore Hermann's salability condition was fulfilled. Also, because people were physical wealth, they could serve as collateral.

It is difficult to say whether Fisher had thought this issue through, but he had clearly read Hermann and his definitions do get round the problems of salability and acting as collateral. "Partial appropriation" allows us to also consider skills, knowledge, useful habits, and other acquired abilities as capital without seeing the whole person as such, so workers can sell "shares" of their standard labor complemented with the human capital they have acquired.

Another curiosity that followed from Fisher's material understanding of wealth was that he did not see intangible or "immaterial wealth" such as stocks, bonds, property rights, or human and other services as wealth at all.[820] This was again in direct opposition to Hermann, who clearly saw these as a form of intangible capital. This view also seems to run counter to Fisher's emphasis on the concept of capital in business and accounting as the example for economists to follow. However, wealth and property were intricately bound together, and the total value of any concrete wealth was the total value of the property rights in it. He saw that this close correspondence gave a new method for evaluating wealth by assessing the property rights to it. The example he gave was rather

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818 Irving Fisher, *The Nature of Capital and Income* (London: Macmillan & Co, 1906), 37.
819 *Ibid.*, 33.
820 *Ibid.*, 4.

puzzling though, because it is practically the same as the one he gave in 1906. Fisher wrote that the value of a railroad operating under normal conditions is determined by adding up the values of its stocks and bonds. Because railways were seldom sold as a whole, their stock and bonds on the market constantly afforded a valuation of the whole business.[821] That an economist was declaring in 1906 that it was a "new" method to evaluate a joint-stock-company on the basis of its share value, makes one wonder precisely *how* Fisher had thought the profession of economists had drifted away from the practices of business.

A third curiosity, related to the one above, was that Fisher seemed to be saying that the value of an item of concrete wealth was the same as the total value of the property rights in it. However, he had stated earlier that economists like Tuttle, who argued that the term wealth should only apply to the value of concrete objects were wrong.

> Much may be said in support of this contention. But as the question is chiefly verbal, that is, not a question of finding a suitable concept, but of finding a suitable word for a concept, it does not seem advisable to depart from the prevailing usage among economists.[822]

After this he emphasized how all wealth was material. So in a work which meant to replace the concept of capital by showing that the 150 years had been mostly an empty play on words (because capital was really just wealth owned by somebody at a given moment of time), he suddenly conceded to prevailing practice. Although it was not possible to separate out the part of wealth that formed capital based on any objective attributes, when it came to defining wealth, it suddenly did "not seem advisable to depart from the prevailing usage among economists."

> And this value of any stock of wealth is also called "capital." To distinguish these two senses of capital, we call a stock, store, or accumulation of existing instruments of wealth, each instrument being measured in its own unit, *capital-instruments*, or capital-wealth, and we call the value of this stock, when all articles are measured in a common unit, *capital-value*. Similarly, a quantum of property rights existing at any instant is called *capital-property*, and its value, *capital-value.* As a general term to include both capital instruments and capital property, we may employ *capital-goods*, a term first suggested by Professor Clark.[823]

Although Fisher emphasized that before Smith the common understanding of capital was more along the lines of net worth, a sum of money, a principle on which interest was paid, or the value of a merchant's stock (and he cited various examples of contemporary business practice stating the same), he seems to have wanted to keep Smith's idea of material wealth and the extension of the concept of capital to the material means of production. In this sense his discussion was by no means as radical as he at some points hinted.

Yet another place where he seemed to run into difficulties with materiality was when he tried to explain brands and trademarks as somehow physical at-

821 *Ibid.*, 36.
822 *Ibid.*, 4.
823 *Ibid.*, 66-67.

tributes, and in order to fully specify the unit of any kind of wealth, one had to simply "enumerate its particular attributes, or enough of them" to distinguish it from other sorts of products. Such a physical measurement was the way through which the attributes of particular kinds of wealth entered into the consideration of economic science, not separately as an immaterial sort of wealth.[824] Perhaps it is a bit curious that another student of William Graham Sumner at Yale, namely Thorstein Veblen, had no problems with admitting the existence of tangible and intangible capital. The latter were:

> […] immaterial items of wealth, immaterial facts owned, valued, and capitalized on an appraisement of the gain to be derived from their possession. These are also assets to the amount of their capitalizable value, which has commonly little, if any, relation to the industrial serviceability of these items of wealth considered as factors of production.[825]

In a similar manner to Alfred Marshall and Irving Fisher, Veblen argued that he was basing his idea of capital on business practice, yet he ended up with quite a different definition of capital from Fisher's. And whether they liked it or not, at the time Fisher and Veblen were writing the works cited here, intangible capital was a feature of accounting in the US (it was a common definition in such documents from at least the 1880s onwards). For instance, the State of New York's system of accounts for gas companies had an entry on it.

> *Intangible capital* comprises organization, franchises, patent-rights, and all other intangible property within the definition of fixed non-landed capital as above stated.[826]

And it seems it was also a concept in social analysis; in *An Examination of Society from the Standpoint of Evolution* (1903) Louis Wallis defined intangible capital as:

> […] law, order, social organization, habits of cooperation and steady work on the part of large numbers, general and specific scientific and literary knowledge, etc.[827]

Veblen considered the difference between the market value of a piece of land or real estate and its rental value, as a tangible residue based on the intangible asset of the nature of good will, and saw good will as precisely the kind of asset he considered intangible capital.[828] Such an asset could be created through marketing, for example, and Veblen's category of intangible assets was not supposed to increase physical productivity in any way. As we have seen, there was nothing new in the idea of attaching "incorporeal" values in fixed objects, because this idea was based on the *incorporales* category of goods in Roman law

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824 *Ibid.*, 9.

825 Thorstein Veblen, "On the Nature of Capital: Investment, Intangible Assets, and the Pecuniary Magnate," *The Quarterly Journal of Economics* 23, no. 1 (1908), 105.

826 New York State. Public Service Commission. 2d District, *Uniform System of Accounts Prescribed for Gas Corporations* (New York: J.B. Lyon, 1908), 6.

827 Louis Wallis, *An Examination of Society From the Standpoint of Evolution* (Columbus: The Argus Press, 1903), 50.

828 Thorstein Veblen, "On the Nature of Capital: Investment, Intangible Assets, and the Pecuniary Magnate," *The Quarterly Journal of Economics* 23, no. 1 (1908), 117-124.

(see the beginning of chapter 4), and reputation had been considered by Roscher as a form of intangible capital (see 7.1.1). Veblen discussed distribution in terms of economic preferences, privileges, prerogatives, and different advantages and disadvantages. These made up the fabric of economic institutions and were intangible assets. He also noted that one person's advantage was often another's disadvantage,[829] so Veblen understood one's position in the fabric of these institutions as a positional good and also a form of intangible capital. Such understanding of economic conditions, privileges, and relations as capital was not new. Unlike Fisher, however, Veblen did not cite his sources or possible predecessors as much, so it is difficult to know to what degree he drew such conclusions based on his own analysis. He of course knew the European tradition, however, since he had earlier translated Gustav Cohn's *System der Finanzwirtschaft* (1889), in which ideas of immaterial and incorporeal capital were discussed.[830]

5.2.5.4 Psychic Income

Although Fisher's conceptual framework was very materialistic in terms of wealth and capital, he divided the service or income derived from them into objective and subjective. In order to make the external world effective to humankind, he considered our bodies as the last "transforming instrument". Similarly just as there was a gradual transformation of services in the processes of a farm, mill, or bakery, there was a final transformation within the human body itself. The body was thus a factory, and its products were the final "uncanceled" income of the consumer. Thus to have a complete view of the productive processes in industry and society, the human body was not to be left out of the picture any more than the machines handling wheat in its early stages. In this way, all objective income was erased or canceled as soon as we applied it to the body of the recipient. The services of such an income, for instance food or medicine, emptied out their quota into the human body. Another way Fisher put it was that the credit of the services of food canceled the debit of the human body. However, the ultimate result of such cancelation was not received before it emerged as subjective income in the stream of consciousness.[831]

Fisher defined subjective income as the stream of consciousness of any human being. The sum of a person's conscious life constituted one's subjective income. All sensations, thoughts, feelings, volitions, and all psychical events were part of this stream.[832] Fisher seemed to be saying that man was a machine whose purpose was the upkeep of a conscious mind. The body and the items with which it was nourished and protected were the capital, which produced an income of consciousness. All desirable experiences were positive items of income, or services, and all undesirable experiences were negative items, or dis-

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829 *Ibid.*, 112.

830 Gustav Cohn, *The Science of Finance*, trans. Thorstein Veblen (Chicago: University of Chicago Press, 1895).

831 Irving Fisher, *The Nature of Capital and Income* (London: Macmillan & Co, 1906), 166-168.

832 *Ibid.*, 168.

services. Fisher avoided calling these pleasure and pain, because that led to unnecessary controversy with psychologists. He also wanted to steer away from yet another age-old argument concerning the relation between body and mind. This was instead about means and ends, and whatever the cause of mental states, the human body was certainly the means by which external wealth was communicated to the consciousness of its owner.[833]

When he talked of "psychic income", Fisher was designating situations where people agreed to work with lower than normal compensation, i.e., where the valuations of objective income and subjective income were different. Whereas the services of a loaf of bread costing ten cents gave ten cents worth of immediate satisfaction, there were several situations where this was not the case. One was when the transformation within the body took a long time. The instruction an apprentice received was a service to train his body in a certain manual dexterity in order to increase his income-earning power a few years hence. Apprenticeship was therefore an investment in the body to be returned later with interest. The work of teaching the apprentice would be credited to the teacher and debited to the apprentice's body, and the final satisfactions, or cancelation of this debt, came only when the acquired knowledge came into play and was effective. The subjective income of the apprenticeship period was thus the anticipation of higher incomes in the future. This framework applied to any training or education. When law, medicine, journalism, music, or any other profession was studied, one was investing in one's person with the hope that the sums invested would later be returned with interest. The same also applied to any physical training. [834]

The other place where Fisher used this idea of discrepancy between objective and subjective incomes was when different occupations differed wildly in terms of inconvenience or gratification and their return in objective income. According to Fisher it had often puzzled economists whether allowance should be made for disagreeable trades and whether it was fair to say that a hardworking laborer's $500 was equal to a capitalist's effortless $500 from stocks and bonds. Fisher thought that his theory showed that no allowance should be made. The returns to the laborer were to be counted gross not net despite so-called mental anguish or painful feelings. The reason was that objective income stopped at the threshold of the laborer's body, and did not follow beyond this point and include what the body communicated to the mind.[835] Going beyond objective income accounting, however, the net income of the inconvenience or gratification of certain professions could be accounted by subtracting the subjective satisfactions from subjective efforts of attainment. In effect, this meant how much income a person would give up to not have to do inconvenient work; how much more one would have to be paid to do something inconvenient; or how much

833 *Ibid.*, 168-169.
834 *Ibid.*, 169-170.
835 *Ibid.*, 171.

more one would be willing to work in order to keep up one's employment in an enjoyable profession.[836]

5.2.5.5 Fisher, Marshall, and Schultz

As a conclusion on Fisher, from our perspective of human and intangible capital, it is clearly rather curious that he has become cited as a precursor of contemporary human capital thought (by Schultz and later Goldin for instance). In *Investment in Man: An Economists View* (1959), Schultz suggests that the main reason for the negligence of human wealth by economists had been the conventional restriction on the concept of capital, and arguments such as Mill's that man could not be wealth, because man is the reason for which wealth exists. Then, in a series of papers and in the "grossly neglected" *Nature of Capital and Income* (1906) Fisher had presented an all-inclusive concept of capital which included human beings; but the problem was that the prestige of Alfred Marshall and his followers had been so great, that his ideas on the issue prevailed, Schultz argued.[837]

As we saw above, before Marshall changed his mind about personal capital in later editions of the *Principles*, his ideas about it were much closer to the post-1960s understanding of human capital than Fisher's. This was because he saw the skills and knowledge gained through studying and training as capital, as well as a person's business relations, network, and goodwill. It was *not* the whole person as with Fisher.[838] And after a more restricted definition in later editions, Marshall's idea of education as a capital investment appears many times in *Principles*.

> For there is a general correspondence between the causes that govern the supply prices of material and of personal capital: the motives which induce a man to accumulate personal capital *in* his son's education, are similar to those which control his accumulation of material capital *for* his son.[839]

Furthermore, in *Industry and Trade* he considered that reputation and a network of contacts could be considered as capital.[840]

So whereas Marshall's notion of personal capital allows us to observe and treat tools, education, skills, and networks (that make the person industrially efficient) as capital, in Fisher's framework this is not possible. For Fisher, the acquired attributes of humans are not wealth or capital, the humans themselves are. As we shall see, this was also the stance that had been taken by Walras and Pareto previously. Another interesting feature of Fisher's framework was that, though it was not possible to abstract a person's skills or education for separate

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836 *Ibid.*, 170-172.

837 Theodore W. Schultz, "Investment in Man: An Economist's View," *Social Service Review* 33, no. 2 (1959), 111.

838 Alfred Marshall, *Principles of Economics* (London and New York: Macmillan and co., 1890), 134. See also section 5.2.4 on Marshall.

839 Alfred Marshall, *Principles of Economics*, 8th ed. (London and New York: Macmillan and co., 1920), 660–661.

840 Alfred Marshall, *Industry and Trade: A Study of Industrial Technique and Business Organization*, 3 ed. (London: Macmillan and co., 1920), 180-189.

analysis as capital, it was nonetheless possible to partially own a person. As we have seen, this partial appropriation also happened to fulfill Fisher's condition (needed elsewhere in his theories) for wealth and capital to be owned. On the other hand, Fisher's definition of human capital also required it to be physical capital so it could also act as physical wealth or collateral for loans. There is thus nothing metaphorical in his understanding of humans as wealth and capital, and were we to borrow a name for labor market from Fisher's definitions, it would be a "human capital market".

As we saw earlier, Senior and Rossi had already argued that since wealth existed for human beings, people were not capital, and therefore the maintenance of people was not capitalized in them. What was capitalized, however, was the effort, expenses, and costs in acquiring education, skills, relations, trust, etc. which increased the industrial faculties of the person in question, increased one's productivity and/or demand on the labor market, and yielded interest in the form of higher wages. This view has the benefit that one could still have all the analytical benefits of human capital theory without having to treat people as property, wealth, or capital. It also allowed economists to grant that slavery and exploitative forms of contracting are crimes against humanity or simply criminal activity, without having to give up on human capital theory. Thus adopting Senior and Rossi as conceptual forerunners would have saved many economists, including Schultz, from basically having to say that 'yes this is terrible, but still we have to do it'.

> The mere thought of investment in human beings is offensive to some among us. Our values and beliefs inhibit us from looking upon human beings as capital goods, except in slavery, and this we abhor. We are not unaffected by the long struggle to rid society of indentured service and to evolve political and legal institutions to keep men free from bondage. These are achievements that we prize highly.[841]

Schultz saw many beneficial consequences if human resources were treated explicitly as capital. By investing in themselves, people would widen the choices available to them. By seeing human resources as capital, economics could finally get rid of the patently wrong notion from classical economics that labor was a capacity to do manual work requiring little skill or capacity. Furthermore, the acquisition of knowledge and capital of economic value had made every laborer into a capitalist. This knowledge and skill was mostly the result of investment and, combined with other human investments, it accounted for the productive superiority of the technically advanced countries.[842] But as we have seen above, this kind of thinking was practised by economists like Say, Blanqui, Senior, and Storch in the early 19th century, and in the mid-century it was a mainstream position in France. Therefore, it is curious that one should pinpoint for instance Fisher as an early precursor of human capital theory, who in following Walras had made impossible many of the distinctions these earlier authors had devised.

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841 Theodore Schultz, W., "Investment in Human Capital," *The American Economic Review* 51, no. 1 (1961), 2.

842 *Ibid.*, 2–3.

In addition, Fisher's categories in *The Nature of Capital and Income* made it impossible to think of knowledge as property, or as a universally available category or stock of capital, because all wealth and capital were material. Property too was the rights of use to material wealth. With Fisher's concepts, we were obliged to think of the stock in an economy of applicable knowledge available to companies as a service or income derived from the stock of material human capital – educated people. The chain of production in a way stops at the borders of materiality, and all that is intangible is service. This makes it difficult to appreciate accumulating knowledge or pieces of knowledge as inputs in creating more knowledge and income.

To accommodate Fisher's requirement of materiality, perhaps we would have to follow Paul Romer's human capital micro-foundation and think of pieces of knowledge and ideas as neuronal patterns stored in our brains, occasionally called to consciousness, and communicated and sometimes traded verbally or in writing, and interpret these neuronal patterns as physical. Romer sees that human capital H has no externalities, it is perfectly excludable, but it can also be used to create knowledge A. How H can be transferred as A to the brain of another person to create H there and be used to create more A, is a round-trip that should clearly interest growth theory economists. In human history, speech, printing, and digital communication can be seen as efforts to make the H→A→H round-trip progressively easier to achieve.[843] Romer sees that without copyright legislation, the information in books and other media is a non-excludable good (i.e., not protected).

> Suppose also that it is costless to copy books. […] This codified knowledge is a non-rival good. The pages of the book can be copied many times. Then many people can use the information in the text at the same time. And what might they do with it? They will go through the reverse transformation, one that I did not try to capture in my model. They will use A to produce H so they can be better carpenters. Or better mathematicians.[844]

If there is copyright legislation in place that partially protects the A in books, then the A in them can thus be considered as property. It would be interesting to know whether this would suffice Fisher to fulfill his conditions for capital to be both owned and material. Even patents and copyrights, the embodiments of protected and therefore excludable knowledge, were seen as services by Fisher, and the property rights that provided the rights of use to them could have got their value from some underlying material wealth.[845] One would have to think that either the value came from having rights of use to the brain of the patented item's creator, or that the value was based on anticipated future income from the patent or copyrighted item. The subjective psychic income of the investment period would compensate for the lack of objective income until the investment started paying itself back.

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843 Paul M. Romer, "Human Capital and Knowledge," *Paul Romer's Blog*, http://paulromer.net/human-capital-and-knowledge/ (accessed October 7, 2015.

844 *Ibid.*

845 Irving Fisher, *The Nature of Capital and Income* (London: Macmillan & Co, 1906), 37.

But there is at least one further caveat in seeing human beings as capital in their entirety, instead of just their acquired abilities. If a new technology renders some previously valuable skills as economically redundant, then the two views will have very different outcomes. If acquired abilities and faculties as tools (similar to physical capital) have lost their value, this still leaves the inalienable human value untouched. But if they are inseparable from the human being who possesses them, as Fisher, Walras, and Thünen would have us believe, then this reduces the value of the whole human being who happened to possess those suddenly redundant skills. Another caveat becomes apparent if we look once more at Thünen's cannon example, cited in 4.2.4.2 (Thünen was also another author highlighted by Schultz). In this case, he argues that the production cost plus expected future earnings of a certain number of soldiers would be so high that it would make no sense to squander them to rescue a relatively easy to replace cannon. However, what would happen if the item to be saved was a Lockheed Martin F-35 Lightning II – an all-weather stealth multirole fighter with a price tag of $98 million?

Although Schultz gave credit to Fisher and von Thünen for considering human beings as capital investments, it may be that their insistence, especially Fisher's, that human beings were inseparable from their capital did more harm than good for the cause. To substantiate this argument, however, would require a more detailed study of the issue than we have room for here. As both Marshall and Fisher argued that the concept of capital should be closer to the everyday business practice and language of the market, it is curious that Marshall chose to narrow his concept of capital to exclude education and skills in the later edition of *Principles* for this very purpose, while Fisher thought seeing people as material entities of wealth would better serve such an end.

Nevertheless, economists seemed to have been generally overwhelmed by the endless attempts to classify capital, which Fisher had already noted quite bluntly in 1897, not to mention the cyclical debate on productive and unproductive labor. Although he saw the many distinctions that had been made as possibly useful for descriptive economics, for analytical economics a new path was clearly needed.

> I will here only observe that classification has never been an efficient instrument of scientific analysis. It comes forward in what Bacon called systems or pseudo-sciences. Physical science among the Greeks was classificatory; modern physics is analytic. The former was barren, the latter is progressive. Analysis was not aided by classifying the world into light and heavy objects; it required instead the conceptions of density and weight. "Natural history" gained little from drawing the distinction between plants and animals. It began to be a science when Darwin introduced the abstract ideas of variation, heredity and selection. In economic science itself the greatest progress has been made in those departments where analytic distinctions have been put uppermost and the least where classificatory distinctions have been depended on. The conception of marginal utility has borne rich fruit. The distinctions between productive and unproductive labour and between " capital and other wealth" have borne little or none.[846]

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[846] Irving Fisher, "Senses of 'Capital'," *The Economic Journal* 7, no. 26 (1897), 213.

All in all, along with Schmoller, Menger, Böhm-Bawerk, Walras, and Jevons, Fisher was yet one more of the very influential economists of the last third of the 19th century and the turn of the 20th who closed the door on the possibility of there being an *intangible* conception of capital, even if, like Walras, he was content to see human beings as capital.

As one final point on Fisher, it is interesting to note that in his framework for what defines capital and wealth, the usual arguments against human and social capital backfire, as Fisher had made them material, with attributes such as a high level of education being just service of the true capital – well-educated people. As Kenneth Arrow has argued,[847] social capital is not capital here because the term capital must imply (a) an extension in time; (b) a deliberate sacrifice of the present for future benefits; and (c) alienability. But in Fisher's books, none of these are defining characteristics of capital, because capital is not separate from wealth. If we put aside Fisher's materiality requirement, for a moment we have only the condition that wealth must be owned. This meant that someone had the right of use to service of this wealth. In Fisher's view even the right to "life, liberty, and the pursuit of happiness" was a property right, a right to certain uses of one's own person.[848] And as we saw above, partial appropriation or excludability was enough for him. In Fisher's view, Arrow's (a) does not hold, because much of what is considered as wealth on a day-to-day basis is not produced by people, and as means of separating capital from other wealth it fails too, because it would require separating a person's skills and talent from the actual human being and the fecundity of land from the land as material object. Arrow's (b) does not hold, because if something is not consumed right now, it is automatically saved for later, and this concerns wealth in general; so all wealth has an aspect of futurity in it. Finally, for Fisher there was no point in (c), as wealth did not have to change hands constantly to remain wealth and nor could alienability separate capital from wealth. Arrow emphasized especially (c) when criticizing the idea of social capital, because the essence of social networks was that they were built for other reasons than their economic value; therefore, he saw no intentionality there. However, we constantly use both material and intangible goods in ways they were not intended to be used, and such constant reorganization and reformulation might be considered to be one of the main sources of growth and any kind of development. Although Fisher's framework did not allow for ideas of human capital, social capital, or intangible capital in any other sense than as services of a certain kind of capital (physical human beings), his framework nevertheless also caused most traditional arguments against concepts of intangible capital to founder.

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847 Kenneth Arrow, "Observations on Social Capital," in *Social Capital: A Multifaceted Perspective,* ed. Partha Dasgupta and Ismail Serageldin, (Washington, D.C: World Bank, 2000), 4.

848 Irving Fisher, *The Nature of Capital and Income* (London: Macmillan & Co, 1906), 21.

5.3 It is Important, but is it Capital?

J.S. Mill understood very well the importance of education and bringing up children as both a private investment and from a social point of view, but he chose to keep himself within the language of materialist wealth and capital, and productive and unproductive labor. Thus he could not discuss education and other similar investments under the heading of capital, but as qualities of labor and as conditions conducive to productivity. In some ways his analysis resembled his father's idea (that it is not possible to separate labor from capital in the production process), except in J.S. Mill's case it was the qualities of labor from laborers; but at the same time one can see he was putting an institutional emphasis on how best to bring about suitable conditions.

In *The Pillars of Economic Understanding: Factors and Markets* (2000), Mark Perlman and Charles McCann cite passages by Mill to counter Mark Blaug's argument that the birth of human capital theory was announced in 1960 by Theodore Schultz, two years before the publication of the article *Investment in Human Beings* in the *Journal of Political Economy.*[849] But even though Mill may have understood the importance of the issues that are now being discussed within the framework of human capital, it is surely going too far to say that he was an advocate of what was to become the human capital theory, when he explicitly made a conscious decision *not* to consider such phenomena as capital. He knew that it would have been possible, and some were already doing so in Britain as were many more on the continent, but he chose not to. Contrary to what both Blaug said (that Mill carried the theory little further), and what Perlman and McCann said (that he "emphasized the role of human capital formation")[850], it should be pointed out that, in fact, he argued *against* such a theory of capital and actually slowed it down if anything. This becomes abundantly clear when we compare his position to others, especially the economists on the continent who saw that intangible, intellectual, or immaterial capital was at least as important as material capital, if not more so; and who did not have the slightest qualms about saying so. It is perhaps a bit ironic that around the time of Mill's passing (1873), the tide in Germany and Austria was, however, turning strongly against such theories, as we shall see in chapter 7.

Both Blaug as well as Perlman and McCann credit Alfred Marshall as an important figure in the development of human capital theory. The first by stat-

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849 Mark Blaug, "The Empirical Status of Human Capital Theory: A Slightly Jaundiced Survey," *Journal of Economic Literature* 14, no. 3 (1976), 827. Note that Blaug's starting point for human capital theory had moved few years back from his earlier argument emphasizing Becker's 1964 book. See subchapter 2.4 and Mark Blaug, "The Economics of Education in English Classical Political Economy: A Re-Examination," in *Essays on Adam Smith,* ed. Andrew S. Skinner and Thomas Wilson, (Oxford: Clarendon Press, 1975).

850 Mark Perlman and Charles R. McCann, *The Pillars of Economic Understanding: Factors and Markets* (Ann Arbor: University of Michigan Press, 2000), 100.

ing "that he began to do justice to the theme of human capital"[851] and the latter by citing two passages from the eighth edition of his *Principles of Economics*.

> The older economists took too little account of the fact that human faculties are as important a means of production as any other kind of capital […].

This statement holds, in my opinion, only for the narrow set of English classical economists until Mill, and in a broader sense holds only after the tide turned in the last third of the 19th and turn of the 20th centuries in German and Austrian neoclassical economics, as we shall see in sections on Karl Knies (7.2.1), Gustav von Schmoller (7.2.3) and Eugen Böhm von Bawerk (7.2.4). Also the Marxist exploitation theory of capital had its role in this development.

The passage from Marshall continues, and this is not cited by Perlman and McCann, where he rejects the ideas contained in Malthusian wage theory and the wage-fund theory:

> […] and we may conclude, in opposition to them, that any change in the distribution of wealth which gives more to the wage receivers and less to the capitalists is likely, other things being equal, to hasten the increase of material production, and that it will not perceptibly retard the storing-up of material wealth.[852]

This can be read, for instance, as a direct answer to Malthus, cited on 118, who saw that all expenditure for the workers, save for education, promoting abstinence and moral restraint, reduced total wealth and production as well as the position of the workers.

Perlman and McCann went on to quote the following from Marshall:

> [t]he growth of general enlightenment and of a sense of responsibility towards the young has turned a great deal of the increasing wealth of the nation from investment as material capital to investment as personal capital.[853]

Marshall therefore noted the massive development in training, schooling and education, and considered them as capital investments. I will again cite how the passage continues, for it shows an interesting statement concerning the consequences of such investments.

> There has resulted a largely increased supply of trained abilities, which has much increased the national dividend, and raised the average income of the whole people: but it has taken away from these trained abilities much of that scarcity value which they used to possess, and has lowered their earnings not indeed absolutely, but relatively to the general advance; and it has caused many occupations, which not long ago were accounted skilled, and which are still spoken of as skilled, to rank with unskilled labour as regards wages.[854]

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851 Mark Blaug, "The Economics of Education in English Classical Political Economy: A Re-Examination," in *Economic History and the History of Economics,* (New York: New York University Press, 1986), 155.

852 Alfred Marshall, *Principles of Economics*, 8th ed. (London and New York: Macmillan and co., 1920), 229.

853 *Ibid.*, 681.

854 *Ibid.*, 681-682.

Marshall saw that productivity and average income had risen due to increased supply of trained abilities, in his language due to an increase in "personal capital". The relative wages in some professions were, however, lower due to the required skills now being less scarce; nevertheless, real wages kept growing. This is, in fact, just what Henri Baudrillart and Paul-Leroy Beaulieu were arguing in the 1850s and 1860s. Baudrillart saw in every innovation a seed for new innovations and fortunes (6.2.1), and Beaulieu presented the consensus view that through education, the consequent rising tide of productivity would lift all boats without this conflicting with both rising wages and profits (6.2.2). As we have seen above, Blanqui also discussed the issue in these terms in the 1830s (3.2.7). All of them discussed the issue within a capital investment framework, and all were also aware of the workings of demand and supply on the labor market. Hence not all the earlier economists paid so little attention to investing in human faculties.

Although Irving Fisher has been highlighted as a precursor of the contemporary human capital theory, the view that emerged among the early marginalists like Walras, Pareto, and Fisher was that they considered human beings as physical capital and their acquired faculties could not be abstracted from the people who owned them. This therefore actually fits quite poorly with the contemporary theory of human capital. A much better match for it are the actuarial cost of production approaches to producing human beings, rather than the research traditions focusing on education, health, and training. Fisher's definitions also make it impossible to think of a stock of knowledge as capital; therefore the idea of intangible capital and assets as a complementary concept to human capital is not necessary.

6 INTANGIBLE CAPITAL IDEAS IN FRANCE AFTER 1848

> Le capital personnel est celui qui se trouve investi sous forme de forces physiques, intellectuels et morales et de connaissances techniques dans les individus qui coopèrent à la production, les uns comme entrepreneurs ou directeurs, les autres comme employés et ouvriers. Ce personnel de la production aussi bien que le matériel qu'il met en œuvre, doit être produit, entretenu et renouvelé, et les sommes qu'il coûte à produire, à entretenir et renouveler constituent ses frais de production.[855]
>
> Gustave de Molinari, 1891

6.1 Intangible Capital Solves the Social Question

French authors were ahead of others during the *Sattelzeit*, in developing an analytical and theoretical framework based on intangible capital and similar terms that would change how economics was done for good. It was largely due to this innovation that the debate about capital in its classical form could finally be pushed aside. A key moment was when the Italian-born engineer author of *Corps des ponts et chaussées,* Jules Dupuit introduced a curve of diminishing marginal utility in his 1844 article about deciding the optimum toll for a bridge. Dupuit's insights, however, took some time before they began to properly percolate through from within the field via established authors. In the meantime, most political economists continued to operate within the existing conceptual framework.

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855 "Personal capital is that which is invested in physical, intellectual, and moral strength, and in technical knowledge of those individuals who cooperate in production, some as entrepreneurs or managers, others as employees and workers. The personnel used in production, as well as the materials they put to use, must be produced, maintained, and renewed, and the amount it costs to produce, maintain, and renew them are their production costs." Translated by the author. Gustave de Molinari, *Notions fondamentales d'économie politique et programme économique* (Paris: Guillaumin, 1891), 206-207.

The idea of intangible capital itself had become so common that it was discussed and defined in dictionary entries, and yet the definition and nature of capital as a framework was still very much under dispute. *Dictionnaire de l'économie politique* published in 1852, and edited by Charles Coquelin and Gilbert Urbain Guillamin had entries by Frédéric Bastiat, Henri Baudrillart, Maurice Block, Michel Chevalier and Charles Dunoyer among others, and it certainly was a mainstream publication. What was common to most of these authors, its article on capital noted, was that however great their dissent seemed, all saw capital not only as an asset acquired by previous work and savings, but also as a lever that must increase energy, power, and the productiveness of future work. But after that, the problems mounted about whether all "values", or just those destined to provide for further production, should be considered as capital. In fact, the debate about this definition had started to discredit the whole field of political economy, because for all of the economists mentioned, the idea of reproduction was inevitably linked to the idea of capital, and yet they could not agree on its contents. The said dictionary article on capital spanned 16 pages. The article discussed the everyday meaning of capital shortly, but then moved on to the scientific and the "real economic language" (*langage vraiment économique*), which stated that capital was a combination of all values created by past labor and with which society had enriched itself, through accumulation and saving, and had available for future work.[856]

The idea of intangible capital was applied in other articles in the dictionary. For instance, the article on fine arts discussed how fine arts could contribute directly to augmenting the capital of a nation, both in a tangible and intangible sense, the latter meaning here the faculties of the population (physical, moral, and intellectual). Fine arts were considered productive to the same degree and in the same way as all other branches of human activity, and artistic production operated similarly with help of previous accumulations, i.e., capital and labor.[857]

Another good example is the *Dictionnaire universel théorique et pratique du commerce et de la navigation* edited by Leymarie (1859). Capital was seen as saved work; while work resulted from putting the tangible or intangible intellectual faculties of man into action. It was thus necessary to recognize two kinds of capital, which corresponded to the two kinds of labor – intangible and tangible. Science, arts, and skills constituted *capital immatériel,* possessed especially by doctors, lawyers, astronomers, men of letters, painters and musicians. The practical knowledge, specific and general education and skills of a business manager were considered as his *capital intellectuel.* Reputation and honesty, however, were not considered as capital, because they were not seen as the result of past work and saving but as innate attributes. This distinction between natural en-

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856 Charles Coquelin and Gilbert Urbain Guillamin, eds., *Dictionnaire de l'économie politique: Contenant l'exposition des principes de la science. 1. A-I*, 2 ed., 1/2 (Paris: Guillaumin, 1852), 273.

857 Gustave de Molinari, "Beaux-arts," in *Dictionnaire de l'économie politique: Contenant l'exposition des principes de la science. 1. A-I,* ed. Charles Coquelin and Gilbert Urbain Guillamin, (Paris: Guillaumin, 1852), 152.

dowments and the results of investment of time, effort and other resources was expanded to also include health and physical force.[858] As practical instances from the same volume, in agriculture one required three kinds of capital: *capital foncier,* i.e., arable land and infrastructure; *capital d'exploitation,* i.e., tools, draft animals and money; and *capital intellectuel,* i.e., the skills and knowledge of how to farm, consisting of experience and theory. Elsewhere, the clientele of a business was discussed as capital.[859]

Also social capital appeared in some new contexts. The background in the literature of the time, as in Lalor's *Cyclopedia of Political Science* below, was that social capital meant the total capital of a company or, in some cases, a nation. Thus the analogy of understanding public goods as those held in common (if you can call shared past a good), was not that far-fetched.

> A nation is a soul, a spiritual principle. Two things which, in truth, make only one, constitute that soul, that spiritual principle. One is in the past, the other in the present. One is the possession in common of a rich legacy of memories; the other is the actual consent, the desire of living together, the disposition to continue to give value to the undivided inheritance they have received. Man is not improvised. The nation, like the individual, is the outcome of a long past of efforts, sacrifices and devotion. The worship of ancestors is the most legitimate of all; our ancestors have made us what we are. An heroic past, great men and true glory are the social capital on which the idea of a nation is based.[860]

The citation above shows how social capital or similar terms were used in a similar context to the one they are used in today. In other words, such terms describe a bond, in this case common history, which binds a group of people together and gives meaning to their actions. However, in 19th-century political economy, the specific term "social capital" was most often used alongside the term "national capital". For instance, Böhm-Bawerk (1851-1914), an Austrian theorist of capital and interest, used it as a purely economic category to describe the means of production of a nation;[861] and Karl Marx's usage was similar (translated from *gesellschaftliches Kapital*). A citation from Willford Isbell King from 1915 expresses these views too.

> Social Capital includes all those products of past industry used in the further production of social wealth.[862]

This usage has little to do with the current usage of social capital, except if it is seen as a collective good and as means of production, when an analogy might be possible.

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858 A. Leymarie, "Capital," in *Dictionnaire universel théorique et pratique du commerce et de la navigation. Tome premier, A-G,* (Paris: Guillaumin, 1859), 525–526.

859 See articles *Agriculture* and *Clientèle* in Leymarie's dictionary.

860 Ernest Renan, "Nation," in *Cyclopedia of Political Science, Political Economy, and the Political History of the United States,* ed. Joseph Lalor, (New York: Maynard, Merril, and Co, 1899).

861 Eugen von Böhm-Bawerk, *The Positive Theory of Capital*, trans. William A. Smart (New York: Strechert & Co., 1923), 62-63.

862 Willford Isbell King, *The Wealth and Income of the People of the United States* (New York; London: The Macmillan Company Macmillan & Co., ltd, 1915), 10.

There are, however, some mentions of social capital with a more modern flavor from the 19th century. For example, Pierre Joseph Proudhon (1809-1865) used the term to describe the social aggregate of talent in individuals;[863] although Proudhon is perhaps regarded as more of an anarchist (albeit self-declared) than a political economist. Proudhon saw talent in individuals as well as science as some kind of public good. In *Qu'est-ce que la propriété?* (1840) Proudhon wrote that the talent of a doctor was a collective property for which the doctor had not paid and remained therefore perpetually a debtor. The principle behind this was that all instruments of production were the results of collective force. The talent and science of mankind were the products of universal intelligence and slowly accumulated knowledge resting on the shoulders of many masters, and built up with the help of a multitude of lower industries. When a graduating doctor paid for his professors and training, he had not yet paid for his talent. Such a talented and skilled person had certainly contributed in making himself an instrument of utility; but he was a co-owner rather than the proprietor of himself or his skills and knowledge. He was at the same time a laborer and a piece of accumulated social capital. Similarly as a laborer using a machine, the doctor used his skills and knowledge, not for himself but for others.[864]

But the term "social capital" was sometimes used in a more metaphorical sense to mean things binding a people or a nation together too, as we can see in the citation from *Lalors Cyclopedia*. And yet perhaps the usage closest to the modern meaning was in the fiction of the time. For instance, Josiah Gilbert Holland (1819-1881), an American novelist and poet, described a scene where a couple with "unquestionably good descent" and impressive hobbies were a "source of social capital to all of humbler origin".[865] Here social capital was clearly something gained through a network of acquaintances. These uses were also common in newspaper articles of the time at least in the US.

Hungarian Antal Mátyás wrote, in 1980, that the emergence of subjective economics could perhaps be explained with changes that had occured in the endeavors of the bourgeoisie. Unlike with the French economists for example, who propagated freedom of trade and occupation, freedom from feudal duties, and freedom from excess regulation and state intervention, the task was no longer to fight against obsolete social relations but to show how to behave rationally under the newly established capitalist relations. Theories abounded providing guidance on how to optimize resource use and reduce the costs of

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863 *Capital social*, in translation social capital. Pierre-Joseph Proudhon, "What is Property? An Inquiry Into the Principle of Right and of Government," in *The Works of P. J. Proudhon, Vol 1*, (Princeton, Mass.: Tucker, 1876), 143-144.

864 Pierre-Joseph Proudhon, *Qu'est-ce que la propriété ? (1840)*, Nouvelle ed., Œuvres Complètes de P.-J. Proudhon, vol. 1 (Paris: Lacroix, Verboeckhoven & Co, 1867), 114-115.

865 Josiah Gilbert Holland, *Sevenoaks: A Story of Today* (New York: Grosset & Dunlap, 1875), IX.3. Also, "their acquaintance was really part of her social capital," in Francis Hopkinson Smith, *The Fortunes of Oliver Horn* (New York: C. Scribner's Sons, 1902), 217.

production, and thereby gain the largest possible profit.[866] But it is another matter whether the subjective theory of value and emerging marginalism were actually contributing to understanding intangible production factors as capital. Added to this, was the publication of Marx's *Das Capital*, which one could argue also took the main line of economic thinking (and more importantly its critique) yet further away from our specific subject.

Nevertheless, as we saw earlier, Jevons defined capital in a novel way to accommodate his marginal theory and mathematical methods, and similar reasons were probably behind Léon Walras' definition too, as we shall see in 6.2.3. The other economists discussed in this chapter are Henri Baudrillart, Paul Leroy-Beaulieu, and Gustave de Molinari. In Leroy-Beaulieu's work, he argued that investments in intangible capital increased labor productivity and solved the past problem of antagonism between profits and wages.

TABLE 6 Examples of intangible capital concepts in French after 1848

author	Henri Baudrillart (1821-1892)	Pierre Paul Leroy-Beaulieu (1843-1916)	Léon Walras (1834-1910)	Gustave de Molinari (1819-1912)
main designations	human capital, immaterial capital, moral capital, intellectual capital	intellectual capital	personal capital	immaterial capital, personnel capital
in French	capital humain, capital immaterial, capital moral, capital intellectuel	capital intellectuel	capitaux personnels ou personnes	capital immatériel, capital personnel
definitional breadth	physical, moral, and intellectual faculties	intellectual and moral faculties	human beings	physical qualities, intellectual qualities, moral qualities, technical knowledge
main levels of analysis	economy	distribution of income, intellectual state of workers	social wealth, theory of interest, wages, rent	inventions, intellectual property, firms
functions (benefits)	increases productivity, innovation, means of existence, i.e., technological level, narrows social gap	productivity, higher wages, sense of worth	labor (labor was the revenue of personal capital)	inventions, competitiveness
service producers are productive	no	yes	yes	yes
human beings as capital	no	no	yes	yes
foundational publications (year)	1857, 1860	1863	1874	1852, 1861, 1891, 1893, 1896
*Selected authors.				

866 Antal Mátyás, *History of Modern Non-Marxian Economics* (Budapest: Akadémiai Kiadó, 1980), 18-19.

6.2 Scope of this Enquiry in French Language Texts (after 1848)

6.2.1 Henri Baudrillart

> Le capital immatériel porte en lui-même une puissance productive indéfinie. Chaque découverte est comme le germe d'une découverte ou d'un perfectionnement à venir. Chaque richesse sert à en créer une autre.[867]

Henri Baudrillart (1821-1892) was a professor of political economy at the Collège de France, working there with Michel Chevalier. He edited the *Journal des èconomistes* from 1855 to 1864. In 1863, he was elected to the Académie des Sciences Morales et Politiques, and in 1881, he was appointed professor of political economy at the École Nationale des Ponts et Chaussées. In his works, his interests included the history of economic thought, the economics of French agriculture, moral philosophy, and education.[868] Baudrillart's work shows how commonplace the concepts discussed here had become at the beginning of the second half of the 19th century. In his *Manuel d'économie politique* (1857) he used the terms *capital intellectuel et moral*, *capital humain* and *capital de connaissances et d'habitudes favorables à la production matérielle*[869] as various terms to denote forms of intangible capital. He also happened to use the direct translation of human capital when writing about the physical, intellectual, and moral attributes of humans, although he more often wrote as "intellectual and moral capital".

6.2.1.1 Intellectual and Moral Capital

As well as accepting that there were two kinds of capital – fixed and circulating – Baudrillart also agreed with the commonly held distinction, since Smith, between tangible and intangible capital (*capital immatériel*). Baudrillart wrote that the sciences were a form of real capital that could accumulate in a similar way to tangible capital. In political economy this was presented more as an indirect condition and instrument of material production than as an integrated element. In this sense, it was proper to say that good habits, in the same sense as acquired talents, were moral capital. Furthermore, Baudrillart saw that intangible capital carried unlimited productive power. All inventions had the seeds of further inventions and future improvements in them, and wealth would served to create more wealth. In addition, intellectual and moral capital contributed to the accumulation of tangible material capital in the form of, for example, applied sciences, diligence at work, and care with resources. The day the intellec-

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867 Henri Joseph Léon Baudrillart, *Manuel d'économie politique*, 3 ed. (Paris: Guillaumin et cie, 1857), 120. "Intangible capital carries in itself unlimited productive power. Each discovery is a seed of another discovery or future improvement. Wealth is used to create more wealth." Translated by the author.

868 Robert Leroux and David M. Hart, eds., *French Liberalism in the 19th Century: An Anthology*, (New York: Routledge, 2012), 220.

869 Capital of knowledge and habits favorable to material production.

tual and moral capital of a nation disappeared, would be the day it could no longer increase its material capital.[870]

This was pretty much how the issue had been received from Adam Smith, Pellegrino Rossi, Nassau Senior, and other prominent economists. Baudrillart noted that they only saw one result of saving – that it would lead to greater riches later. And although Jean-Baptiste Say may have used the term more broadly, Baudrillart wanted to return to the previous idea that epitomized the whole concept – capital is the sum of values that advances production.[871] Baudrillart probably made this explicit statement with the work of MacCulloch in mind, as he saw his ideas as harmful. The problem was, said Baudrillart, that when reading MacCulloch, one searches in vain for something that is *not* capital. The maintenance and nourishment of laborers was not exactly *advancing* industry, i.e., capital investment; it was more a condition of their existence. Seeing the food served to laborers as a capital investment was nonsense in Baudrillart's opinion. It confounded revenue and consumption with capital.[872] When arguing against MacCulloch, Baudrillart's understanding of capital was broad, and it did not matter whether the values advanced to further production were attached to tangible or intangible factors. Baudrillart argued that one could to high degree judge the moral state of a people based on the growth of its capital. The formation of capital required a high level in many virtues: energy (as the basis for forming a common fund), temperance, and clear ideas and behavior. To capitalize, in the true sense of the word, was to provide nurture, shelter, recreation, education, independence, and dignity for future generations.[873]

Discussing Baudrillart's *Manuel* of 1857, and following J.S. Mill's lead about only tangible goods being productive, Macleod claimed that Baudrillart had placed intangible goods outside the sphere of political economy.[874] Yet, in *Des rapports de la morale et de l'économie politique* (1860), Baudrillart was very much discussing them in that context. Firstly, he was agreeing with Say that Smith (and followers) had failed to distinguish between work and its results. Even if professions of utility did work that vanished the moment it was executed, the utility they produced was accumulated as it was obtained. Secondly, Baudrillart added that it was wrong to say that the products of professors, lawyers, comedians, or musicians were not attached to anything. Just as the products of manual workers were realized in physical things, then products of service producers were realized in people. It was also wrong to say that it was impossible to sell such services, because their price was often determined by supply and demand on the market like anything else. Furthermore, the values fixed in human beings through instruction and acquiring skills were real capital and could accumulate. He also went against the argument that investing in such

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870 Henri Joseph Léon Baudrillart, *Manuel d'économie politique*, 3 ed. (Paris: Guillaumin et cie, 1857), 120.
871 *Ibid.*
872 *Ibid.*, 121.
873 *Ibid.*, 123.
874 Henry Dunning Macleod, *A Dictionary of Political Economy* (London: Longman, 1863), 250, 334.

capital would be disadvantageous, because usually such investment responded to real needs. Furthermore, expenses for such investments were not to be treated as categorically unproductive, because acquired skills were often worth more than the wealth they consumed to be acquired. Finally, the argument that such services do not add anything to the national capital was unfounded. Capital in knowledge, skill, and beneficial habits were not worth any less than capital tied up in money, especially if the nation also had other needs than simply physical ones to satisfy. Baudrillart also noted that the understanding of production had itself become increasingly intangible, or "spiritualized" (*spiritualisée*) as the masters of political economy argued about it.[875] Based on these ideas, Baudrillart stated that the problem of the present era was to find the best conditions for a morally beneficial environment that would provide labor and capital with the optimal conditions for creating greater productivity.[876]

Baudrillart wrote in 1857 that capital had recently been presented as the tyrant of labor, but this was, he stated, a mindless and contradictory statement for an economist to make. Neither labor nor capital could function without the other. When wages decreased, he argued it was due to rarity of capital. This was caused by insufficient encouragement of entrepreneurial spirit, which meant a smaller share of active people, and a momentary diminuation in wealth at that time.[877] He also saw the impact of automation in productivity as positive, as for society as whole the benefits would be great, and the workers who had been replaced by machines would actually benefit in the long run.[878]

6.2.1.2 Human Capital and the Argument Against Malthus

Baudrillart understood technology and knowledge to be the defining constraints of human existence. This meant that he did not think very highly of Thomas Malthus' population analysis. He wrote that instead of considering human individuals as perfectible capital, Malthus had regarded them as purely numerical units and was preoccupied with questions of quantity instead of quality. Instead of Malthus' "fantastical" quest (*chimérique*) to find a fixed relationship between the number of people and the means of existence, Baudrillart argued that there was a clear relationship between human capital and the means of existence for all to see.[879]

> As is the man, so is the industry. Where human capital is mediocre, that is to say, in those countries where the physical, intellectual and moral attributes of men are so to speak atrophied, or where the human faculties have lost their way in an unproductive direction, then Malthus's claim gains strength. But where this capital is in full force and follows a fruitful direction, it loses it.[880]

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875 Henri Joseph Léon Baudrillart, *Des rapports de la morale et de l'économie politique* (Paris: Guillaumin, 1860), 239-241.

876 *Ibid.*, 267–268.

877 Henri Joseph Léon Baudrillart, *Manuel d'économie politique*, 3 ed. (Paris: Guillaumin et cie, 1857), 121-127.

878 *Ibid.*, 157.

879 *Ibid.*, 426-427.

880 "Tant vaut l'homme, tant vaut l'industrie. Où le capital humain est médiocre, c'est-à-dire dans ces pays où l'homme physique, intellectuel et moral est pour ainsi dire

Baudrillart was thus arguing that it was human ingenuity that had more influence in determining the extent of human existence than just a simple equation regarding the fixed resources of the land.

6.2.2 Paul Leroy-Beaulieu – Early Human Capital Consensus

One of the strongest and most detailed arguments in political economics for (a) understanding intellectual capacity, intelligence, and moral behaviour as capital, and (b) seeing education as a tool for increasing this capital among the whole population, came from Paul Leroy-Beaulieu in his book, *De l'état moral et intellectuel des populations ouvrières et de son influence sur le taux des salaires* (1868).[881] The same ideas had won him a prize from the Académie des Sciences Morales et Politiques in 1867, and the title tells the crux of the matter – "On the moral and intellectual state of the working population and its influence on the level of wages". The book was divided into two main parts: one examined the relation of morals to the level of wages, while the other focused on intellectual conditions and the wage level of the working population. Some of his other works also dealt with issues now discussed in human capital literature too, such as the cost of war in human life and money, distribution in the modern economy, the position of workers, and the participation of women in the labor force. Although Leroy-Beaulieu is chiefly known as a defender of orthodox political economy, this no longer meant justifying the "laws" set by Malthus, Ricardo, Turgot, or J.S. Mill on population, land rent, and wages. Leroy-Beaulieu wrote that their principles on these issues were not universal nor did they have the characteristics of economic laws. Instead, they were at best contingent and temporal truths which fitted a certain time and place.[882] Despite using the language of evolution in his works, Leroy-Beaulieu's idea of an individual or society was not biologically determined. A human being was a free and intelligent force contributing to production according to one's intelligence and will.

It is quite striking that in his introduction to *De l'état moral et intellectuel*, Leroy-Beaulieu could present the idea of intangible capital (in all its forms) as the consensus view of French political economists, although his tone was a bit doubtful in some places. He presented the issue as a dichotomy between the classical canon and French liberal economics. But the real focus of the debate for his book was to find evidence that intellectual improvement really did increase productivity, and to convince the audience of the immense benefits of a proper public education for the laboring classes. Leroy-Beaulieu ridiculed the classical implication that the only thing the working class could do to improve its lot and

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atrophié, ou bien encore où les facultés humaines s'égarent dans des directions improductives, l'assertion de Malthus reprend ses droits. Où ce capital est en pleine vigueur et suit une direction féconde, elle les perd." *Ibid.*, 427.

881 Paul Leroy-Beaulieu, *De l'état moral et intellectuel des populations ouvrières et de son influence sur le taux des salaires* (Paris: Guillaumin, 1868).

882 Paul Leroy-Beaulieu, *Essai sur la répartition des richesses et sur tendance a une moindre inégalite des conditions*, 2 ed. (Paris: Guillaumin, 1883), 15-24.

increase wage levels was to limit its own numbers.[883] So the starting point for Leroy-Beaulieu's book was that the political economy of his time no longer saw any fundamental controversy between labor and capital. The wage level was a more complicated affair than Mill and Malthus' equation between demand (capital) and supply (population). By citing Passy, Chevalier, and Wolowski he made the point that all epochs had their own rewards and dangers, but the current problem was that there was a vast social class that were unable to share in the rewards. The only solution to the problem was that those who felt like this must have the opportunities to improve their lot, and according to Leroy-Beaulieu, contemporary economists were largely agreed on this. In his opinion, industrialists and workers, just as producers and consumers were united in their interests (*solidaires*).

High wages, which was a necessary consequence of better morals and education in the workforce, as was higher productivity, would prevent neither high profits nor good markets. He cited from Wolowski a passage which stated that nothing is easier to reconciliate than the two interests of high wages and cheap labor. The solution was to improve the quality of work, through transforming the industrial faculty of each worker. According to the new science, it was not just a question of the number of workers to the amount of circulating capital which determined wage level, but more the relation of the population in general to the production process. The elevation of all classes was connected to the development of productive power.[884] French mainstream economic thought had progressed quite far from the static accounts of the 18th and turn of the 19th centuries, that had emphasized the amount of land and fixed quality of labor as insurmountable determinants of the standard of living. But according to Leroy-Beaulieu, no one had yet attempted to demonstrate the universally accepted and proclaimed thesis that high wages were compatible with high profits in a scientifically systematic manner, and so this was the task he set himself.[885]

In the process, Leroy-Beaulieu demolished some of the most liberalist fantasies about how the process of perfect freedom would educate and cultivate the laboring classes almost automatically. Although most children already went to school in the 1860s, when he was writing *De l'état moral et intellectual*, he nevertheless argued that attendance was irregular, unpredictable, and not long enough – they were rushed to their first communion and then their education ended there. Leroy-Beaulieu quoted a government report stating that after this purely nominal attendance the children were unfortunately left completely devoid of intellectual education.

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883 Paul Leroy-Beaulieu, *De l'état moral et intellectuel des populations ouvrières et de son influence sur le taux des salaires* (Paris: Guillaumin, 1868), 2-3.
884 *Ibid.*, 10-11.
885 *Ibid.*, 11.

> Le capital intellectuel est comme tous les autres capitaux : si on ne l'entretient, il se dégrade et s'évanouit; il faut s'en servir pour qu'il dure : il faut qu'il produise pour se conserver.[886]

Intellectual capital had to thus be constantly maintained and used, and without a substantial and solid effort made to improve education, which would raise morale and develop character, all other legislation would go to waste. Education would be the key means for workers to avoid fraud and other injustices.[887] Considering the use of concepts such as intellectual capital, however, Leroy-Beaulieu was quite reserved. Although he discussed at length the effects of education and better morals on wages, and in his other works emphasized how productivity could be increased by improving the knowledge, skills, and moral prowess of workers and entrepreneurs, he seldom discussed these as "capital".

In his emphasis on knowledge, Leroy-Beaulieu's views were very close to how, for example, James Bessen describes the role of knowledge in the history of industrialization in his *Learning by Doing* (2015):

> Knowledge is what allows most people to benefit from technology. Workers with valuable knowledge earn high wages; firms with knowledgeable employees earn high profits. From this perspective, the Industrial Revolution launched an era in which society developed new institutions and organizations to create and share technical knowledge on a large scale, and these advancements were central to the tremendous growth in living standards over the last two centuries.[888]

Bessen also cites Joel Mokyr's *The Gifts of Athena* (2002)[889], in which Mokyr describes how the Industrial Revolution paved the way for the new "knowledge economy". But it is worth noting that it was already well understood by 19th-century economists what was going on, and what was required. As Leroy-Beaulieu noted, his starting point was the consensus view of French economists preceding him, and he was just making their point in a more systematic manner to make the argument more solid.

Leroy-Beaulieu began his systematic analysis of how knowledge instruction should best be carried out by dividing it into the general and specialized. The general education would prepare and harmonise the faculties that would help people plan and execute with precision what was in their interests, whatever situation they found themselves in. The specialized instruction would develop some faculty or organ that served some specific goal or task. [890] In the introduction to *De l'état moral et intellectuel* he addressed the idea, which was quite widely held, that by claiming laborers' skills, knowledge, diligence and trustworthiness are in fact capital, the theory dilutes the fundamental social contro-

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886 "Intellectual capital is like all other capital: if not maintained, it goes bad and disappears; it must be used for it to last: it must produce something to remain intact." *Ibid.*, 148.

887 *Ibid.*, 241.

888 James Bessen, *Learning by Doing: The Real Connection Between Innovation, Wages, and Wealth* (2015), IX.3.

889 Joel Mokyr, *The Gifts of Athena: Historical Origins of the Knowledge Economy*, eBook ed. (Princeton N.J.: Princeton University Press, 2005).

890 Paul Leroy-Beaulieu, *De l'état moral et intellectuel des populations ouvrières et de son influence sur le taux des salaires* (Paris: Guillaumin, 1868), 140.

versy between labor and capital. In many places he tried to show that the problem was actually a bit more complicated than the most avid proponents of intellectual capital theories would have liked to believe. But two decades later, Leroy-Beaulieu wrote that legislation had indeed become more egalitarian (between capitalists and laborers). He also noted that economic growth had brought an unprecedented level of well-being, leisure, freedom of spirit, morality, and happiness. It seemed that this growth and the broader distribution of its fruits did not undermine moral and intellectual development.[891] On the other hand, the competition in liberal professions and the value of their capital diminished as education expanded.[892]

Unlike quite a number of his contemporaries, Leroy-Beaulieu did not see bourgeois virtues as biologically delivered. For him, it was the home and family which shaped personality traits. Disordered, undisciplined, careless, impatient, and frivolous human nature could be tamed by the influence of the home. Schooling alone was not enough to stifle these innate faults and substitute for them civilization's virtues.[893] He was a devout defender of bourgeois virtues, but what is especially interesting is that for individuals, as for society and the economy in general, he saw these as the result of a Darwinian process of selection and preservation. According to Leroy-Beaulieu, bourgeois virtues of order, prudence, calculation, organization, distribution, conservation and expansion were ridiculed by drop-outs, bohemians, decadents and skeptics, but it was precisely these attributes that ensured the richer segments of society fulfilled the economic functions bestowed them by their fortunes. In the middle strata of society, there was a constant process of elimination and selection where the most clever, active, and strong-willed members of the working class were being recruited. At the same time it cast off those elements that had lost their original strength and become corrupt or unsuitable for the function they were born into originally. It was this cultural and social evolution that legitimated the rule of the bourgeoisie.[894]

6.2.3 Léon Walras

Léon Walras (1834-1910) is usually mentioned as one of the three fathers of marginal theory of value (along with Jevons and Menger) – though Dupuit was already discussing the idea, as mentioned at the start of this chapter.[895] But another theory that Walras pioneered was "general equilibrium". In Schumpeter's opinion, he was one of the greatest economists of his time, being instrumental

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891 Paul Leroy-Beaulieu, *Essai sur la répartition des richesses et sur tendance a une moindre inégalite des conditions*, 2 ed. (Paris: Guillaumin, 1883), 564–565.

892 *Ibid.*, chapter xiii.

893 Sharif Gemie, "Politics, Morality and the Bourgeoisie: The Work of Paul Leroy-Beaulieu (1843-1916)," *Journal of Contemporary History* 27, no. 2 (1992), 349.

894 *Ibid.*

895 Robert B. Ekelund and Robert F. Hébert, *Secret Origins of Modern Microeconomics: Dupuit and the Engineers* (Chicago: University of Chicago Press, 1999).

in the birth of modern economic statistics, the modern theory of economic equilibrium, and the modern theory of money.[896]

Walras addressed our theme very early on his career; in an essay about a book on intellectual property by Frédéric Passy, Victor Modeste and P. Paillottet (*De la propriété intellectuelle,* 1859). The book, in which they argued for perpetual copyright for authors, was published after a congress dealing with international copyright legislation in Brussels in 1858. Although at this point Walras was generally favorable towards the idea of intellectual property and the perpetual rights of authors to their work, he seems to have later changed his mind, seeing it as an artificial monopoly created by legislation. Jérôme Lallement, however, has argued that he did not change his mind, but had in fact always been critical of the rights lasting forever.[897]

The debate on the subject in the middle of the 19th century was so wide and rich that it can be only mentioned briefly here. Nevertheless, intellectual property rights are of course quite important to our subject, since on an individual and company level, at least, the regulations concerning intellectual and intangible rights have a huge influence on the returns of what is considered intellectual or intangible capital. Then again, from a national or global perspective, some have claimed that property rights make no difference to the economy and may even be a hindrance to the diffusion of innovations and thus the overall level of social wealth (Proudhon, for instance, was against the whole concept of intellectual property).

As we saw in 3.2.8.2, social wealth was also the key to Léon's father's ideas on capital too:

> […] all things material or immaterial (it does not matter which in this context), that are *scarce,* that is to say, on the one hand to useful to us and, on the other hand, only available to us *in limited quantity*.[898]

This idea was the anchor in Auguste Walras' works like *De la nature de la richesse et de l'origine de la valeur* (1831) and *Théorie de la richesse sociale* (1849). Van Daal and Jolink have argued that whereas the father's point of departure was the nature and origin of property, Léon focused on the exchange of social wealth.[899] In fact, the idea that the value of social wealth was based on scarcity instead of utility was the overarching feature of his writings on wealth.

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896 Joseph A. Schumpeter, *History of Economic Analysis*, ed. Elizabeth Boody Schumpeter, 12 ed. (New York: Taylor & Francis, 2006), 1047.

897 Jérôme Lallement, "La propriété intellectuelle selon Walras, entre monautopole et majorat littéraire," *Œconomia* 2011, no. 03 (2011): 393-435.

898 Modified translation and quote from Jan van Daal and Albert Jolink, *The Equilibrium Economics of Léon Walras* (London; New York: Routledge, 1993), 13. Originally from Léon Walras, *Éléments d'économie politique pure; ou, Théorie de la richesse sociale* (Lausanne: L. Corbaz & cie; [etc., etc.], 1874), section 21.

899 Jan van Daal and Albert Jolink, *The Equilibrium Economics of Léon Walras* (London; New York: Routledge, 1993), 13.

6.2.3.1 Social Riches, Social Capital, and Revenues

As Léon had defined social riches as being combinations of the tangible and intangible that were scarce, i.e., useful but limited in quantity, he also saw that the capital and the revenue from which such riches were derived could also be both tangible and intangible. Tangibility was thus of as little importance to the definition of capital as to the definition of wealth. Thus material capital could create intangible revenues just as easily as intangible capital could create material revenues. This was important to note so as to be able to differentiate between capital and income. It was in the essence of capital to generate revenue as it was in the essence of revenue to emerge directly or indirectly from capital. Walras wrote that capital, by definition, survives its first use, and several successive usages after this were in fact successions of revenue. Land grows a harvest every year, and similarly a house shelters us in the winter. The productivity of land and the shelter the house offer were, so to speak, the annual revenues of land and the house. Similarly with a worker, lawyer, or doctor, their work and consultations were the revenue streams they generated. The same was true of machines, instruments, tools, furniture, and clothes. Walras wanted to make this clear in plain language, because he saw that so many authors were confounding capital and its revenue in their analysis.[900]

To separate them, Walras wanted to call the revenue streams of different kinds of capital "services"; and there was either the private or public consumption of services. These ranged from the shelter provided by a house, or the consultations of a lawyer or a doctor, to the use of furniture or clothes. Walras called them consumable services (*services consommables*). On the other hand, there were services that could also be transformed via agriculture, industry or trade into capital and revenue, in other words made into products. Examples of these services included the productivity of land, the work of a laborer, and the use of machines, instruments, and tools. This distinction Walras said corresponded approximately with the traditional division between the unproductive and productive (*reproductive*).[901]

Using such definitions of capital and revenue, he then divided these up into four principal categories – three for capital and one for revenue. When they were put together they formed the totality of social wealth. The first category of capital was land, in the broadest sense, and consistent with the definitions discussed above. For example, the pleasantness and view of a park or a garden were their revenues; the crops produced per year was the revenue of agricultural land; the space available for building was the revenue of a plot of land destined for construction; and the facilities offered for traffic was the revenue of a street. Walras called this category *capitaux fonciers ou terres*, and the revenue it provided took the form of *services fonciers*, or "rent".[902]

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900 Léon Walras, *Éléments d'économie politique pure; ou, Théorie de la richesse sociale* (Lausanne: L. Corbaz & cie; [etc., etc.], 1874), 214.

901 *Ibid.*, 215.

902 *Ibid.*, 217.

The second category of capital was more pertinent to our topic, as it concerned people (*personnes*), although the above instance of land is illustrative, since the logic is the same. This category included all those who did nothing other than traveled and entertained themselves as well as those who were in the service of others. The coachmen, cooks, valets, chambermaids, public officials in the service of the state, administrators, judges, soldiers, workers, and all the liberal professions from lawyers through doctors to artists were all considered as capital. Men or ladies of leisure taking a stroll (*flâner*) one day, would also stroll the next; and the blacksmith finishing his day's work would have many more to do; just as the lawyer leaving the court would come back time and again for another case. Walras saw that all these people survived on the premier service they offered, and the series of services offered constituted their revenue. He called people as capital, *capitaux personnels* or *capitaux personnes*, and the revenue from this capital was called *services personnels*, or work (*travaux*).[903] Therefore, in short, people were the capital and their labor was the revenue they produced.

The third category of capital was perhaps closest to what had ordinarily been called capital previously, including machines, buildings, means of transport etc. This Walras called *capitaux mobiliers* or just *capitaux*, and it yielded *services mobiliers,* or more commonly *profits*.[904]

These three classes of capital, *capitaux fonciers*, *capitaux personnels*, and *capitaux mobiliers* produced revenue, of which there were two kinds: objects of consumption, and raw materials. Walras thought that with these new categories and definitions, it was possible to save the terms, land (*terre*), labor (*travail*), and capital for the purposes of mathematical and rational deduction, which had been his point of departure for the whole venture all along. This way the common names were still acceptable, and yet they were now based on the real nature of things, he argued.[905]

6.2.3.2 People as Capital

When discussing the classes of capital, Walras wrote of there being either natural or artificial capital (i.e., land or manufactured products), and consumable or non-consumable capital. People were natural capital, but also consumable, because they could die 'on the job' and perish in accidents. People as individuals disappeared, but as a community, they reproduced themselves generation after generation. Their quantity, however, was not constant, and in certain conditions they were susceptible to an unlimited growth in numbers. As he considered people natural capital, Walras made a point of noting that it was becoming increasingly unethical to accept slavery. One might have thought that it was useless, he wrote, to include people in a theory of determining prices; but even if personal capital was outside the market, personal revenue was most definitely

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903 *Ibid.*
904 *Ibid.*, 218.
905 *Ibid.*, 211-213, 218.

inside it – after all, labor was offered and in demand everyday in the market. Thus one needed to be able to evaluate its source – personal capital.[906]

Furthermore, he reminded his readers that political economy was originally founded as a discipline so as to be able to discuss these matters exclusively from the point of view of exchange values rather than justice or countless other interests. The conclusion from these arguments was that Walras was making it clear that he would continue to talk about the price of work and the price of people without this having any bearing on whether slavery was justified or not.[907]

Armed with these categories of capital (land and their revenues, and combined with an explanation of how current prices were formed (as a mathematical function of the three kinds of service) through free competition in an economic society, Walras set out to create a set of equations based on rents, wages, and profits at its roots. Rent was the service from land; wages the service of people and their faculties; and profit or interest, the service of capital. Because there were already five or six theories of rent in political economics, in his opinion this meant there was no proper theory at all of rent nor were there proper theories of wage or interest, and this is probably why he had set himself such an ambitious task.[908]

So one reason why Walras defined people as capital, and their labor as the revenue of that capital, was that he wanted to bring these into his mathematical analysis of supply and demand, and the law of production costs.

6.2.3.3 Walras and Pareto's Ideas on Producing People

Although Walras had noted the ethical dilemma of considering people as capital and analyzing them within the same framework as that of draft animals or other items of capital, one wonders whether these views could really avoid any political implications. In 1893, Walras' successor to the Chair of Political Economy at the University of Lausanne was Vilfredo Pareto. His *Cours d'économie politique professé à l'université de Lausanne* (1896)[909] included many similar features to Walras' understanding of capital, but seemed quite sparing when it came to ethical considerations.

Pareto, very influential for economics, but also for fascism and theories of totalitarianism, thought that it was not possible to separate the effects of innate talent from the effects of instruction, and thereby there was no point in discussing intangible human capital. Instead, his first volume of *Cours d'économie politique* contains a ninety-page chapter on personal capital, meaning in his case people considered as capital and discussed in connection with demographics.[910]

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906 *Ibid.*, 218–219.
907 *Ibid.*, 219–220.
908 *Ibid.*, 221.
909 Vilfredo Pareto, *Cours d'économie politique professé à l'université de Lausanne. Tome premier*, vol. 1/2 (Lausanne, Paris, Leipzig: F. Rouge, Pichon, Dunker, 1896); Vilfredo Pareto, *Cours d'économie politique professé à l'université de Lausanne. Tome second*, vol. 2/2 (Lausanne, Paris, Leipzig: F. Rouge, Pichon, Dunker, 1896).
910 Vilfredo Pareto, *Cours d'économie politique professé à l'université de Lausanne. Tome premier*, vol. 1/2 (Lausanne, Paris, Leipzig: F. Rouge, Pichon, Dunker, 1896), 75-162.

Pareto, in fact, thought that it was similarly impossible to separate the share of instruction from the share of innate talent, when considering for example a doctor's income, as it was to separate the natural state of the land from the results of land improvements.[911] Land improvements had been quite a common analogy for education and instruction throughout the 19th century. Furthermore, because Pareto held that there was a universal law of (statistical) distribution of incomes based on the innate abilities of individuals and the social laws of society, he could not see that education would fundamentally change anything.

One further consequence of combining the Walrasian understanding of capital to Pareto's certainty about the law of distribution of income and wealth (i.e., that 20% will own about 80% regardless of time and place) was that the benefits of popular public education or democracy became less clear. Although Smith and his followers had largely managed to wriggle out of the mercantile era idea that the population was wealth, it made a forceful comeback in the work of Pareto, who was writing about population as *capital personnel* and the cost of producing people.[912]

It is also worth noting that Walras, as one of the pioneers of the marginal revolution and the Lausanne School, together with Pareto as his follower and a representative of the second generation of neo-classical economics, seemed to abandon the notion of human and intangible capital, even though all of the ingredients were available. In fact, it seems that all those in the front line of the marginal revolution seemed to abandon them, each in their own different way.

6.2.4 Gustave de Molinari

Gustave de Molinari (1819-1912) was a Belgian liberal economist mostly working and publishing in France. Molinari stands out from many of the other authors discussed in this volume, as he was a staunch believer in private business and in free or almost anarchic competition. His viewpoint was often that of a private firm, and also his concept *capital personnel* had a human relations or human capital management perspective in the sense that it was capital of the personnel in a firm, rather than the individuals in it, and at the same time it was focused on a macro-level on the personal capital of Alfred Marshall. Molinari proposed that political authority should be transformed into a commercial company, which pushed the liberal logic of the market to the extreme while at the same time feeding Say's dream of society without a state (in the conventional understanding). Bernardo Faccarello has said that, while authors like Say and Dunoyer knew that their liberal dream of life without the state was just that, Molinari and Émile Girardin took the idea more literally. Molinari had a very long career in economics; he was already participating in the debate about the role of the state and the defense of free trade as a disciple of Frédéric Bastiat

911 *Ibid.*, 391.
912 *Ibid.*, first chapter.

around 1848, yet he was still publishing in 1911.[913] His resilience in the field is also illustrated by the fact that he originally proposed the founding of labor exchanges (*la bourse du travail*) in 1843, then 14 years later he founded a journal dedicated to the issue in 1857, and was still very much around 30 years after that in 1887 when the first such exchange was actually founded in Paris. *La bourse du travail* was based on mutuality and combined features of an employment office, unemployment insurance, and occupational accident insurance. They soon spread across France, until by 1892 there were 14, and by 1908 as many as 157. They later proved to be a means for helping striking workers and also a tool of propaganda in favor of creating unions and cooperatives.[914]

Molinari has been connected more recently to Social Darwinism because of the way he applied the concepts of evolution, struggle, and competition to political economy. The modern economic state as an international system of production and exchange and its continual progress comprised a regime of unlimited competition, where the penalty for nations and industries of remaining stationary was ultimately destruction. Applied to individuals and societies alike, he saw that economic competition would replace war as the selection mechanism by eliminating the less intelligent, less industrious, and less principled races. Each society evolved as the least able individuals slipped to the bottom of the social hierarchy. Molinari considered economic competition as a far better selection mechanism than war, because it was more universal in its scope.[915]

6.2.4.1 The Fine Arts

Molinari discussed intangible and human capital in various works; one of the earliest was his article on the fine arts in the *Dictionnaire de l'économie politique.* Molinari gave credit to J.-B. Say for understanding the inadequacy and arbitrariness of Adam Smith's focus on durable physical products. Say had noted that such an approach would somehow make a painter productive but a musician unproductive. However, Say also had his faults according to Molinari, who criticized him for claiming that musicians and other service providers were sterile in terms of increasing the national capital, just because their products were consumed at the same instant as they were created, and to the same degree.[916] Molinari asked why should immediate consumption have anything to do with the ability to increase a nation's capital, and even if such trade of services was not increasing the external capital of a nation (meaning its relative wealth compared to other countries), should it nevertheless be considered to be at least increasing its internal capital, which Storch had defined as physical, intellectual

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913 Gilbert Faccarello, "Bold Ideas. French Liberal Economists and the State: Say to Leroy-Beaulieu," *The European Journal of the History of Economic Thought* 17, no. 4 (2010), 721-723, 744.

914 Jean-François Sirinelli, ed., *Dictionnaire de l'histoire de France*, (Paris: Larousse, 2006), 101.

915 Mike Hawkins, *Social Darwinism in European and American Thought, 1860-1945: Nature as Model and Nature as Threat* (Cambridge; New York: Cambridge University Press, 1997), 131.

916 Gustave de Molinari, "Beaux-arts," in *Dictionnaire de l'économie politique: Contenant l'exposition des principes de la science. 1. A-I,* ed. Charles Coquelin and Gilbert Urbain Guillamin, (Paris: Guillaumin, 1852), 151.

and moral faculties. Molinari, in fact, cited Storch at this point, and wondered whether a nation deprived of priests, administrators, musicians, poets, and their services would do as well as a nation where a proper education in religion, politics and arts was taken care of by such people. He also asked whether this might in fact be the best example of man being both capital and an agent of production. Molinari wrote that Charles Dunoyer had perfectly demonstrated in *De la liberté du travail* (1846) that consumption of the tangible and intangible products of the fine arts develop precious and essential faculties in people. From this it followed that artistic production, whether tangible or intangible, should definitely *not* be considered sterile.[917]

With Italy as an example, Molinari explained how artists there produced products and services for export; how part of their products and services were consumed in Italy, providing education for the Italian people and polishing up their own culture and moral principles; and how artists received tangible goods as payment for their intangible services, and were therefore part of the economy as any other trade. For this reason the fine arts could directly contribute to both varieties of national capital, the tangible capital that existed externally on the ground, and intangible capital that resided internally in the physical, moral, and intellectual faculties of the population.[918]

6.2.4.2 *Capital Immatériel* as a Factor of Invention

In his textbook on political economy, *Cours d'économie politique* (1855), Molinari's starting point was that human beings have three kinds of needs: physical, intellectual, and moral. Life was a case of satisfying our needs on these three levels.[919] However, in both the first and second editions of *Cours d'économie politique* (1855, 1863), Molinari discussed physical, intellectual and moral faculties in a J.S. Mill fashion under the label of labor, not capital. Nonetheless, technical knowledge and the processes required for production were described as capital.[920]

Where Molinari was much more explicit, was in the debate with Fréderic Passy in the pages of *Journal des économistes*, about inventions being intellectual property.[921] Molinari also discussed this issue further in the second volume of *Questions d'économie politique et droit public* (1861). At this point, the debate was focusing on the theory of *monoautopole* by Jobard, which argued for perpetual copyright protection, based on Locke's argument for the permanent and natural right to man's work.[922] Molinari was an advocate of perpetual copyright too,

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917 *Ibid.*, 151-152.
918 *Ibid.*, 152.
919 Gustave de Molinari, *Cours d'économie politique. Première partie. La production et la distribution des richesses*, vol. 1/2 (Paris: Guillaumin, 1855), 33.
920 *Ibid.*, 40; Gustave de Molinari, *Cours d'économie politique. Tome I. La production et la distribution des richesses*, 2 ed., vol. 1/2 (Bruxelles, Leipzig, Paris: Guillaumin, 1863), 43-44.
921 Last articles of the debate: Frédéric Passy, "Question de la propriété des inventions," *Journal des Economistes* novembre, (1855): 262-268; Gustave de Molinari, "La propriéte des inventions, réplique à M. Fréderic Passy," *Journal des Economistes,* février, (1856): 133-136.
922 J.B.M. Jobard, *Nouvelle économie sociale* (Paris: Mathias, 1844).

because he saw that property was the basis on which the mechanisms of production and distribution were built. He therefore thought that any infringements of property rights would necessarily lead to diminishing production and problems in distribution. He also held this to be the view of all economists. The socialists, jurists (*légistes*), and communists seemed hold a diametrically opposite view. Molinari argued that this was based on their confused and inexact conception of how property was created, and how production and the distribution of wealth really functioned. In his opinion, they seemed to think that society as a whole should own both the tangible and intangible elements that the Creator had bestowed on mankind, and thus the exclusive appropriation of any of these was seen by them as theft from the community.[923]

Molinari's views on private property, however, are not our focus here; we are more interested in how he thought inventions were created. Molinari argued that inventions were produced in the same way as any other industry produced goods. They required labor and capital, the latter including the appropriate natural agencies. The proportion of these factors also depended on the nature of each innovation and discovery.[924] There were two kinds of capital involved – tangible (*matériel*) and intangible. The intangible capital consisted of the scientific knowledge needed to make improvements to the processes, methods, or machines required. This intangible capital grew increasingly significant as the sum total of knowledge acquired became bigger. This innovation also required tangible capital: (i) for the materials and machines necessary for testing out new procedures and for building prototypes; (ii) for the maintenance of equipment and personnel; and (iii) for marketing the new product-invention and assuring its property rights. So the idea that scientists, savants, and inventors somehow had privileges in relation to other producers, in that they somehow did not need labor and capital for their work was a fallacy.[925]

Molinari argued that it was common to think that inventions were a matter of chance, when in fact they required conscious development, resources, and labor. Unlike Senior, Molinari also thought that overuse of the intellectual faculties was actually dangerous, and such overstretching without due rest and relaxation (as other producers also required) could well cause longstanding damage to people's creative and inventive faculties.[926]

6.2.4.3 The Personal Capital of Personnel

Later on in his career, in both *Notions fondamentales d'économie politique et programme économique* (1891) and *Précis d'économie politique et de morale* (1893)[927] Molinari noted that the personal capital of personnel had a fundamental role to play in the production process and economic competition. From FIGURE 6, we

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923 Gustave de Molinari, *Questions d'économie politique et de droit public. Tome II*, vol. 2/2 (Paris: Guillaumin, 1861), 341-354.

924 *Ibid.*, 345.

925 *Ibid.*, 348.

926 *Ibid.*, 345–347.

927 Gustave de Molinari, *Notions fondamentales d'économie politique et programme économique* (Paris: Guillaumin, 1891); Gustave de Molinari, *Précis d'économie politique et de morale* (Paris: Guillaumin et cie, 1893).

can see that the phrase *capital personnel* peaked around 1890. The reason is that Molinari published seven monographs between 1887 and 1893 of which at least three, possibly more, discussed the issue. In the same way as "mobile" and "immobile capital" were values or productive powers invested in things, the personal capital of personnel was composed of the values and productive powers invested in people. These powers were physical, intellectual, and moral among others, and covered the knowledge necessary for production. They were also the same powers that were developed in education. Knowledge was thus a product of technical education adapted to serve the productivity of a particular individual. The precise form this knowledge had to take varied from individual to individual and nation to nation. Molinari considered it a gap in official statistics that the value of populations was not accounted for, because the value invested in people generally surpassed the value of a country's material stock, and so the capital of a nation's personnel should take a more prominent place in national accounting.[928]

The selling or renting price of a slave, or the remuneration (salary, commission, share of profits) for a contracted free man gave the personal capital value of personnel. These prices varied according to fluctuation in supply and demand, but the price gravitated continuously towards a "necessary rate" (*taux nécessaire*) which paid not only for the maintenance of personnel in terms of food and lodging, but also for their family (*réproduction*). In this way, there was a sufficient profit to share with personnel to ensure their engagement and intergenerational continuance in the service of production.[929] This idea Molinari clarified with an instance of what was invested in a person as one went through childhood, ten to twelve years of school, and five years of higher education. All this parents usually paid if they could, and then this investment was remunerated in terms of the next generation of producers. At their most productive age personnel would be able to secure their own subsistence, accumulate resources in case of possible unemployment and retirement later on, and to cover the costs of raising and educating their offspring.[930]

6.3 From Intangible to Physical Human Capital

In French economic thought, the last half of the 19th and the turn of the 20th centuries witnessed an interesting shift in the nature of human capital theories. Whereas the earlier French discussion had emphasized the intangible and acquired nature of skills, knowledge, and ethical principles, during the last third of the century a more physical and deterministic view gained ground. Whereas Henri Baudrillart and Paul Leroy-Beaulieu invoked intangible or human capital in arguments related to overcoming Malthusian checks, increasing productivity,

928 *Ibid.*, 105-106.
929 *Ibid.*, 106.
930 *Ibid.*, 107-108.

and solving the social question through investments in education, research, and ethical principles, León Walras, Vilfredo Pareto, and Gustave de Molinari treated the issue from quite a holistic and physical angle. In figure 6, we can see that Molinari's *capital personnel* peaked around 1890 in an Ngram search, whereas the term *capital humain* became more and more common from the early 1880s onwards. Gallica finds 97 hits between 1881 and 1890, 125 hits between 1891-1900, and 187 hits between 1901-10. In the latter period, a Gallica search reveals that 117 books and periodicals mentioned *capital intellectual* and 64 mentioned *capital moral,* which indicates that both Ngram and Gallica reflect the same underlying trends. In Molinari's work both the intellectual and physical properties of the working population, *capital personnel,* were important factors in the competition between firms and nations, within a framework of global economic competition. Meanwhile *capital humain* was more tightly connected to demographic and national health themes.

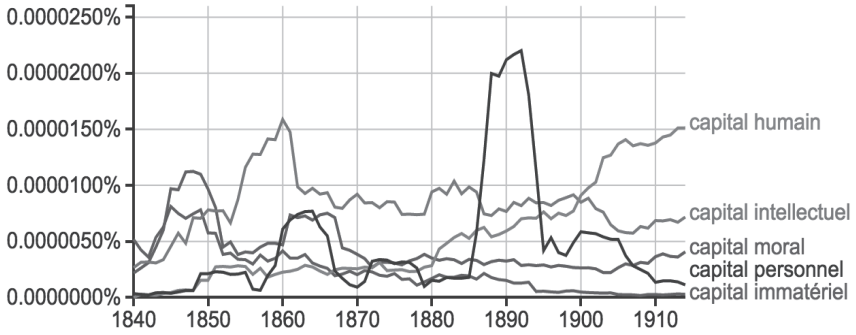

FIGURE 6 Examples of French IC concepts, 1840-1914

One intellectual reason for this shift to a physical determinst view was the idea, presented already by Léon Walras' father Auguste in the 1830s, when he pointed out that Say was wrong to argue that wealth and capital were 'produced' by wealth. The productivity of land was a natural quality just as the attributes of people were, and as both were limited in supply, these natural features had an influence on the value of such wealth. If eithe land or people were separated from these natural features, both were worthless. Thus the idea represented by, for example, Senior and Rossi earlier, that it was possible to abstract the attributes of human beings as a separate class of capital was abandoned, as was the idea of J.S. Mill's that human beings were the reason for which wealth existed. The other idea, also from Auguste Walras, was that capital and the service it provided were entirely different things. For León Walras this meant that labor was the service (or interest) of human capital. From the value of this labor it was then possible to estimate the value of the capital in question. Thus León Walras, Vilfredo Pareto, Gustave de Molinari, Irving Fisher, and many others developed more holistic and physical views of human capital. But if one still saw that capital was only about the man-made means of production, yet took

seriously the inseparability of people from their attributes, another option was to stop treating skilled and knowledgeable labor as capital, because it was necessarily partly down to nature, or *natürlichen*, as Adolphe Wagner argued in 1907.[931]

931 Adolph Wagner, *Theoretische Sozialökonomik oder Allgemeine und theoretische Volkswirtschaftslehre* (Leipzig: C. F. Winter, 1907), 138-139.

7 FROM GLORY TO OBLIVION: GERMAN ECONOMISTS AFTER 1848

> Und wie dürfte man wohl das Eingeständnis verweigern, dass wenn selbst unter hervorragenden Männern der Wissenschaft der Eine nur die mit Hilfe menschlicher Arbeit hergestellten sachlichen Produktionsmittel unter Kapital begreifen will, während ein Zweiter auch die Grundstücke in ihrer natürlichen Beschaffenheit hinzurechnet, ein Dritter auch Vorräte von Genussmitteln, ein Vierter auch die Kenntnisse des Gelehrten, ein Fünfter auch die Stimmmittel einer Sängerin, ein Sechster alle menschlichen Arbeiter, ein Siebenter auch den Staat, die National-ehre eines Volkes u. s. w.[932]
>
> Karl Knies in *Das Geld*, 1885

7.1 Historians, Austrians, and Outsiders

In the German speaking lands and France, the processes and pressures of industrialization, first from abroad and then at home, sparked of a long-lasting and serious debate on trade and tariff policies. This was also true in Britain too, but it was in a slightly different position to Germany and France, who saw British industry and its exports as the major problem. A big part of the discussion about the economy was thus dominated by these issues of industrial production, international trade, and tariffs. And there was still the question of what was real wealth, and what measures would increase it the most.

The economists of the historical school (GHS) dominated economic research in Germany from the 1850s to the 1940s. There were, however, considerable differences in how the older and younger representatives of the school regarded and discussed intangible and human factors of production. Whereas Roscher was still receptive to the idea of intangible capital, Gustav Schmoller had already published in 1863 an article in which he argued against such ide-

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932 Karl Knies, *Das Geld: Darlegung der Grundlehren von dem Gelde* (Berlin: Weidmann, 1885), 24–25.

as.[933] There is an interesting puzzle here, in the sense that during the period in which Germany was becoming an industrial giant of Europe and at the same time as its empire was taking shape, its economists turned away from explaining the impact of knowledge, education, and innovation on the concept of capital. When Carl Menger published an article trying to clarify matters on the subject in 1888, it became apparent that the Austrian economists too had joined in this process of simplifying or at least materializing the concept of capital.[934]

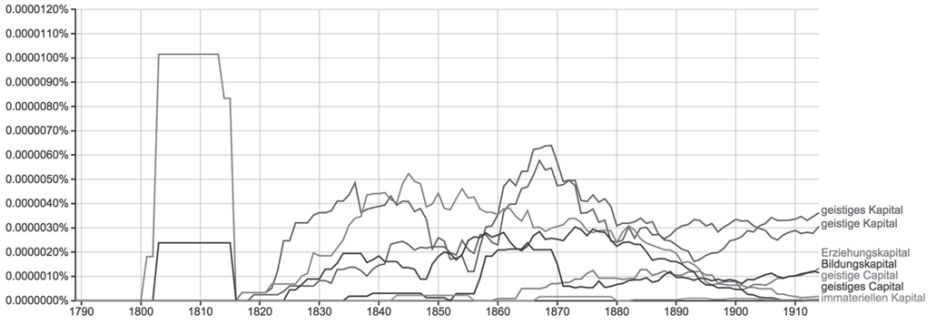

FIGURE 7 Intangible concepts in German language publications, 1789-1914[935]

FIGURE 7 shows some of the terms that were used in German language publications during the 19th century. Perhaps most notable is the peak in usage of the term *geistiges Kapital* in the 1860s and '70s. Note that in German the Ngram searches are quite useless, because the spelling and capitalization used by different authors was so varied that many terms appear in various forms. Intellectual capital, i.e., geistiges Kapital in German, appears in more than four variants. Furthermore, many terms, such as Roscher's *unkörperliche Kapitalien* do not appear at all.

In order to grasp the peculiarities of the GHS compared to mainstream political economics in Britain and France, a short introduction will follow, starting with the observation below from Bruce Caldwell.

> It is also that, especially today, when a single paradigm reigns apparently unchallengeable in economics, it is wise to consider the eventual fate of another school whose hegemony was once equally complete.[936]

The school had its foundations in the German revolution that took place in philosophy. Kant's argument that knowledge cannot have content without refer-

933 Gustav Schmoller, "Die Lehre vom Einkommen in ihrem Zusammenhang mit den Grundprincipien der Steuerlehre," *Zeitschrift für die gesamte Staatswissenschaft,* 19, no. 1/2 (1863): 1-86.

934 Carl Menger, "Zur Theorie des Kapitals. Separatdruck aus den Jahrbüchern für Nationalökonomie und Statistik," *Jahrbüchern für Nationalökonomie und Statistik* (1888): 135-183.

935 Google Books Ngram Viewer, "geistiges Kapital, geistige Kapital, Erziehungskapital, geistige Capital, geistiges Capital, Bildungskapital, immateriellen Kapital," https://books.google.com/ngrams (accessed June 13, 2015).

936 Bruce Caldwell, "There Really Was a German Historical School of Economics: A Comment on Heath Pearson," *History of Political Economy* 33, no. 3 (2001), 654.

ence to experience, and Hegel's version of historical development were keystones in the philosophy of the school. Hegel also criticized the idea of a self-regulating market, since he saw the state as necessary for economic, social, and political cohesion.[937] The school also derived some of its central features from German historicism, i.e., positivism, relativism, and a socio-cultural focus.[938] The school has also been interpreted not only as a reaction to rationalism and the Enlightenment; but also to British classical economics (especially its allegedly universal theories), and to Marxist and neo-classical economics.

TABLE 7 Examples of intangible capital concepts in German-speaking lands after 1848

author	Johann Heinrich von Thünen (1773-1850)	Wilhelm Roscher (1817-1894)	Bruno Hildebrandt (1812-1878)	Karl August Dietzel (1829-1884)	Karl Richter (1838-1878)	Albert Schäffle (1831-1903)
main designations	educational capital	incorporeal capital, personal capital	mental capital	intangible capital	intellectual capital	intangible capital, personal capital
in German	Erziehungs-kapital	unkörperliche Kapitalien, personliche Kapitalien	geistiges Kapital	Immaterial-capitale	geistiges Kapital	Immaterial-capitalien, personliche Kapitalien
definitional breadth	investments in upbringing and education, health, dexterity, academic skills, knowledge	education, skills, reputation, clientele, networks	education, moral attributes, trust	state, relations, conditions, power, honor, innovations, trade secrets	education, copyrights, governance, science, health, art	state, law, order, security, bourgeois order, acquired abilities
main levels of analysis	nations, individuals	individuals, firms, society, the state	society, economy	state, production	individual, family, state, industry, commerce	society, state
functions (benefits)	higher productivity, health, independence of action	wage premium, customers, transactions	fourth factor of production	higher revenue	individual earnings, social position	intangible public goods
service producers can be productive productive	yes	yes	yes	yes	yes	yes
human beings as capital	yes, cost of production approach	yes, not in modern society	no	no	no	no
foundational publications (year)	1850	1854	1848	1855	1863, 1867	1861, 1864, 1867

*Selected authors.

937 Lewis H. Haney, *History of Economic Thought: A Critical Account of the Origin and Development of the Economic Theories of the Leading Thinkers in the Leading Nations* (New York: Macmillan, 1920), 485; Geoffrey Martin Hodgson, *How Economics Forgot History: The Problem of Historical Specificity in Social Science* (London; New York: Routledge, 2002), 56.

938 Heinz Rieter and Peter Dobias, "Historische Schulen," in *Geschichte der Nationalökonomie,* ed. Otmar Issing, (München: Vahlen, 2002), 123.

The historical school was particularly focused on institutional, ethical, national and social policy. The school is often divided into three phases, with the first usually consisting of Roscher, Knies, and Hildebrand, but there is some disagreement about when it really started. Wilhelm Roscher is often credited with having founded the school, whereas Geoffrey M. Hodgson sees the publication of Friedrich List's *Das nationale System der politischen Ökonomie* (1841) as the start of the GHS, and ends it with the death of Werner Sombart in 1941.[939]

For others, it is also debatable whether Roscher, Knies, and Hildebrand were actually part of the school. Indeed, Schumpeter thinks their views were neither different enough from other economists nor uniform enough among themselves to warrant the label.[940] Heath Pearson and David F. Lindenfeld are two others who claim this first phase was not really the GHS. Pearson presents Roscher's historical method as a plea to Schumpeter's authority and a masterstroke of marketing that hitched his own research program to the coat-tails of the GHS in jurisprudence.[941] Meanwhile, Lindefeld sees that only by providing unifying concepts, such as 'historical economics,' 'culture' or 'society' on which the next generation forged its methodologies and research programs, could the older historical school be said to prefigure the younger in any way.[942] Erik Grimmer-Solem makes the point in his comprehensive account of the different usages of the word 'school', that it is so vague and of little use in a systematic, critical context, that he ends up using the phrase 'historical economics' instead.[943]

Nevertheless, Mark Blaug is one person who has seen a commonality among the first phase of the historical school, and he lists their common denominators as follows:

1. a belief that the clear exposition of the aims and methods of economic inquiry must predominate over the development of any doctrine;
2. all economic truths are relative and valid only for a set of national and historical circumstances;
3. economics must proceed by vigorously criticizing the past;
4. economic development moves through stages similar to biological development;
5. a variety of social policies are needed to help the working class and to stop the spread of socialism.[944]

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939 Geoffrey Martin Hodgson, *How Economics Forgot History: The Problem of Historical Specificity in Social Science* (London; New York: Routledge, 2002), 58.

940 Joseph A. Schumpeter, *History of Economic Analysis*, ed. Elizabeth Boody Schumpeter, 12 ed. (New York: Taylor & Francis, 2006), 507–508 and 808–809.

941 Heath Pearson, "Was There Really a German Historical School of Economics?," *History of Political Economy* 31, no. 3 (1999), 547–562, passim.

942 David F. Lindenfeld, "The Myth of the Older Historical School of Economics," *Central European History* 26, no. 4 (1993), 416.

943 Erik Grimmer-Solem, *The Rise of Historical Economics and Social Reform in Germany, 1864-1894* (Oxford, New York: Clarendon Press, Oxford University Press, 2003), 19-36.

944 Mark Blaug, *Great Economists Before Keynes: An Introduction to the Lives & Works of One Hundred Great Economists of the Past* (Brighton: Wheatsheaf, 1986), 207.

In addition, Bruce Caldwell has pointed out in his article, "There Really Was a German Historical School of Economics: A Comment on Heath Pearson", that almost all schools of economics include differing lines of thought. He also argues convincingly against Pearson's implications, though he does not try to deny his premise for doing so.[945] In addition, Hodgson has noted that with Pearson's strict criteria for demarcating a 'school,' it would then be difficult to "identify any single school in the history of the subject."[946]

In addition to looking in the rest of this subchapter at the GHS economists of Roscher, Hildebrand, Knies (from the first phase), and Schmoller (from the second); the next (7.2) looks at Albert Schäffle and Karl Dietzel, who operated more within the classical framework than their contemporaries, as well as Austrian economists Eugen Böhm-Bawerk and Carl Menger, who opposed the idea of human capital; as did Marx (covered in 7.2.2).

7.1.1 Wilhelm Roscher

Wilhelm Roscher (1817-1894)[947] is usually regarded as the founder of the historical school and its methodological mentor. Roscher was looking for the natural laws of political economy, but in his view these laws were always relative to an ever-changing set of institutions. He admitted that what was general to economics, was in many ways analogous to the mathematical sciences – that is, when studying complex economic phenomena, it was proper to assume that other factors were constants so that if one changed, the other would also, and the objective was to find out in what way. However, he reminded his readers that formulas achieved this way were in the end only abstractions, and therefore, in the transition to practice (as in finished theories), the infinite variety of real life had to be taken into account. Roscher saw that political economy was about what is, and how it came to be so. For him, normative analysis and ideal systems were transitory and conflicting, because they were of quite a different nature and based on distinct social configurations. Therefore, the task of eco-

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945 Bruce Caldwell, "There Really Was a German Historical School of Economics: A Comment on Heath Pearson," *History of Political Economy* 33, no. 3 (2001), passim.

946 Geoffrey Martin Hodgson, *How Economics Forgot History: The Problem of Historical Specificity in Social Science* (London; New York: Routledge, 2002), 56.

947 Wilhelm Georg Friedrich Roscher was born on October 21, 1817, and moved to Göttingen in 1835 to study antiquity and history. His teachers in Göttingen were Friedrich Christoph Dahlman (1785-1860), the leader of the Göttingen Sieben; Georg Gottfried Gervinus (1805-1871), author of the five-volume *Geschichte der poetischen Nationallitteratur der Deutschen;* and Karl Otfried Müller (1797-1840). Following his graduation, he continued his studies in Berlin at the guidance of August Boeckh (1785-1867) and Leopold von Ranke (1795-1886). After a brief period as Professor of Political Science at Leipzig, he taught history and political science in Göttingen. He also started to teach a course in political economy (die Nationalökonomie). After becoming a professor in 1844, he was appointed to a post at the University of Leipzig in 1848, where he stayed despite offers from Munich, Vienna, and Berlin. He died on June 4, 1894, in Leipzig. Klaus-Gunther Wesseling, "Roscher, Wilhelm Georg Friedrich (1817–1894)," in *Biographisch-Bibliographisches Kirchenlexikon,* (1994).

nomics was to describe the anatomy and physiology of the social or national economy.[948]

7.1.1.1 Goods and Capital

Roscher saw the history of the concept of capital as a curious instance of confusion that was a result of scientific concepts being used in daily life. In a footnote of more than two pages long he offered a litany of references to works that had discussed capital, dating from Ancient Greece to his own time, trying in the process to sort out what was currently relevant. He saw that, just as the public of his own times confounded the concepts of money, capital, interest, and the price of money, so the same was true of earlier writers.

Roscher divided all economic commodities into three classes: (a) people and personal services; (b) movable and unmovable items; and (c) relations between persons and items. From these, (a) and (c) are most concerned with his views on capital and human capital. With people and personal services Roscher meant that every individual could be seen as a means to satisfy another's needs. He stretched this view to cover slavery and even cannibalism, but stated that it was mostly addressing services or skills and abilities in modern society. In addition, the totality of person's services and skills for a short period belonged to this category.[949]

The relations between persons or between persons and things Roscher explained by referring to differentsorts of clientele and the different types of contracts and conventions people have in life. For example, in the long run, a firm benefited financially if its customers had trust and confidence in it. Roscher saw that through the advancement of a culture, these valuable relationships would multiply and become more important.[950] With this definition, Roscher was actually quite close to what is now called social capital if we take it to refer "to the intangible elements of human relations embodied in levels of trust and the quality of social networks" and as being also linked to political and economic performance.[951]

Because the abovementioned goods could be used for production, they became part of Roscher's concept of capital. All products used for further economic production or stored for later use were capital. He divided the capital of nations into ten commodity classes.[952] From these classes, intangible or incorpore-

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948 Robert B. Jr. Ekelund and Robert F. Hébert, *A History of Economic Theory and Method*, 3 ed. (New York: McGraw-Hill, 1990), 252–253.

949 The first edition of Roscher's *Grundlagen* was published in 1854. Wilhelm Roscher, *Die Grundlagen der Nationalökonomie: Ein Hand- und Lesebuch für Geschäftsmänner und Studierende*, 1 ed., System der Volkswirtschaft, vol. 1/5 (Stuttgart: Cotta, 1854). Here are also used the 12th and 24th editions from 1866 and 1906. Wilhelm Roscher, *Die Grundlagen der Nationalökonomie: Ein Hand- und Lesebuch für Geschäftsmänner und Studierende*, 12 ed., System der Wolkswirtschaft, vol. 1 (Stuttgart: Cotta, 1866); Wilhelm Roscher, Grundlagen der Nationalökonomie, 24 ed., System der Volkswirtschaft (Stuttgart: Cotta, 1906), 6–7.

950 *Ibid.*

951 R. W. Jackman, "Social Capital," in *International Encyclopedia of the Social & Behavioral Sciences,* ed. Neil J. Smelser and Paul B. Baltes, (Oxford: Pergamon, 2004).

952 (1) Bodenmeliorationen; (2) Bauwerke; (3) Werkzeuge, Machinen und Geräte; (4) Arbeits- und Nusstiere; (5) Verwandlungstoffe; (6) Hilfstoffe; (7) Unterhaltsmittel; (8)

al capital (*unkörperliche Kapitalien* or *Quasikapitalien*) is the most interesting to us. With intangible capital, Roscher was not only referring to relations such as "customership" (*Kundschaft*), but also "human work contribution" (*menschlichen Arbeitskraft*), "acquirements or skills" (*Fertigkeiten*) from experience or education (*wissenschaftliche Studien*). The state and many institutions such as the Church fell into this category too.[953]

However, in the long footnote mentioned earlier, he also noted that it was a backward step for Say, McCulloch, and Canard to include the labor force (*Arbeitskraft*) in their concepts of capital[954], yet in the main text, Roscher kept their definition. In the same footnote he had good word for Adam Smith, but made no mention of the fact that Smith was actually the one who had first brought skills and acquired abilities to the concept of capital. Roscher's footnote is actually an excellent source for the history behind the idea of capital. When writing about trust, goodwill, or reputation as capital, he cited Ganilh, and when writing about the capital of a state being well-organized and governed, he cited Dietzel. And in the first edition of *Grundlagen* he cited Ganilh in connection to *unkörperliche Kapitalien*.[955]

Roscher divided all capital classes according to whether they were used to produce "material commodities" (*sächlicher Güter*) or "personal commodities and useful circumstances" (*persönlicher Güter, nützlicher Verhältnisse*). This division was thus similar to the one made in commodities mentioned above. The first three capital classes (see footnote 952 above) were "productive capital" (*Produktivkapitalien*) and the rest "working capital" (*Gebrauchskapitalien*). However, all capital classes could serve in the production of material commodities, personal commodities, and useful circumstances. Therefore productive capital and working capital interacted in manifold ways. Roscher used a library as an example; from the viewpoint of private property, a library was productive capital, but for a nation as a whole it was working capital.[956] Like others, he also divided capital into fixed and circulating capital.[957]

Handelsvorräte; (9) Geld; und (10) Unkörperliche Kapitalien (Quasikapitalien). Wilhelm Roscher, *Grundlagen der Nationalökonomie*, 24 ed., System der Volkswirtschaft (Stuttgart: Cotta, 1906), 122-124.

953 Wilhelm Roscher, *Die Grundlagen der Nationalökonomie: Ein Hand- und Lesebuch für Geschäftsmänner und Studierende*, 1 ed., System der Volkswirtschaft, vol. 1/5 (Stuttgart: Cotta, 1854), 63–64; Wilhelm Roscher, *Grundlagen der Nationalökonomie*, 24 ed., System der Volkswirtschaft (Stuttgart: Cotta, 1906), 122-124. Roscher saw that the state was fundamental for economic activity. Churches, theaters, and museums certainly had an economic function (*Zweck*), but their other functions were as a rule more important. This was said in a footnote 8 on page 127 in the 1906 edition which referred to Knies's *Geld und Kredit* (1873). This footnote is missing from the 12th edition (published 1875) and naturally from previous editions.

954 He cited from McCulloch's *Principles* II (1825): "Jedes erwachsene Individuum kann als eine Machine betrachtet werden, die zwanzig Jahre emsiger Aufmerksamkeit und eine beträchtliche Summe von Bauausgaben gekostet hat."

955 Wilhelm Roscher, *Die Grundlagen der Nationalökonomie: Ein Hand- und Lesebuch für Geschäftsmänner und Studierende*, 1 ed., System der Volkswirtschaft, vol. 1/5 (Stuttgart: Cotta, 1854), 64, 67, footnote 5.

956 Wilhelm Roscher, *Grundlagen der Nationalökonomie*, 24 ed., System der Volkswirtschaft (Stuttgart: Cotta, 1906), 128. "Ein Hauptunterschied zwischen Gebrauchs und

Although saving was the means usually cited for accumulating capital, Roscher cited Hermann, who argued that capital could also grow out of cultural development (*Kulturfortschrifte*). This meant that a change in social and economic conditions could render existing property classes or resources much more valuable than before. These might be broad changes to the underlying economy or changes that were the result of economic cycles. The idea was basically the same as a house doubling in price when a new busy street grew up close to it.[958] In another footnote, citing Friedrich List this time, Roscher argued that most of the time it was in a public global or economic context that "absolute" capital was formed, whereas in private economies capital formation was largely of a relative kind. This was especially the case with privileges, which clearly included some while excluding others.[959]

Roscher's intangible capital (*unkörperliches Kapital*) was a wide-ranging concept. Roscher used soil enrichment as a way to illustrate this concept in two ways. Firstly, in the same way that soil enrichment increased the ground rent of land, the capital used in education increased the wages of a person by endowing them with skills and abilities. In this calculation, Roscher was one of those economists who also counted the subsistence costs of the students from the beginning of studies to the point when they received full pay. The costs of these studies clearly had to be also compensated in wages to be worthwhile. For instance, the salaries of theologians were lower than those of doctors or lawyers, firstly because of the additional income they received (*Zubrotekommen*) during their studies, and secondly because the cost of their education was lower.[960]

Roscher's other example was also connected to education and land. Scientific studies and confidence from experience helped farmers improve the yield of their land.[961] It was thus possible and worthwhile for a farmer to invest his time and money in studying productivity-raising farming techniques to increase his intangible capital in terms of experience, knowledge, and skills concerning farming.

Furthermore, because Roscher included people and personal services in his classification of goods, and as goods used for further production were capital, then people and personal services could be counted as capital. Though for services, this required usually a transformation of form, which meant that a person, whose products (here services) were transitory had to capitalize his products through exchange to gain some material capital.[962] In another example,

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Produktivkapital liegt darin, daß sich jenes, auch bei zweckmäßigster Benutzung, nicht so unmittelbar wie dieses in seinem Ertrage selbst ersetzt."

957 *Ibid.*, 131.

958 Wilhelm Roscher, *Die Grundlagen der Nationalökonomie: Ein Hand- und Lesebuch für Geschäftsmänner und Studierende*, 1 ed., System der Volkswirtschaft, vol. 1/5 (Stuttgart: Cotta, 1854), 71.

959 *Ibid.*, 72, footnote 5.

960 Wilhelm Roscher, *Grundlagen der Nationalökonomie*, 24 ed., System der Volkswirtschaft (Stuttgart: Cotta, 1906), §. 167, 497–500. See specially footnotes 7 and 10.

961 *Ibid.*, 124.

962 *Ibid.*, 132.

Roscher used a doctor who by developing his professional skills treated his customers better, gained more customers, and received a higher income.[963]

Roscher's view made it also possible to see whole individuals with their abilities as capital to someone else, to a state, firm, or an individual. Yet he stated that to see a whole person only as a means to satisfy one's needs was averse to humanitarianism. In a modern society individuals could only be seen as capital (through a combination of the effort they made and their abilities) in terms of the services they offered for a defined period of time.[964] Therefore, Roscher was unlike Nassau William Senior, who could see human beings as capital, and asserted that there was little difference between talking about the value of a slave or of a free man, for the only difference was that the latter sells himself for a certain period, while the slave is sold for his lifetime. And yet like Roscher, Senior mostly referred to skills and acquired abilities.[965]

Roscher clearly saw an intangible and intellectual element in the most effective labor.

> […] the hand and reason make a man what he is. For sure it also concerns economic work, as any other, that it becomes more effective, the more the mind prevails over the matter in it.[966]

Indeed, pursuing the topic further, he divided labor into six classes, with the first being discovery and invention. [967] He also distinguished services that produced personal and intangible goods. Examples of these kinds of producers were doctors, teachers, artists, clergy, and judges, who produced and maintained intangible goods intimately connected with the smooth running of institutions such as the state and Church. These people, like all skilled workers, had what Roscher called *geistiges Kapital*, i.e., mental or intellectual capital. Here he cited Senior's estimation that if a doctor or a lawyer earned £4000, then £3000 pounds could be attributed to his unusual talent and success, £960 was payment of interest on his intellectual capital, and (for Senior) only £40 pounds of this was wage.[968] Roscher's views on intangible capital were not monolithic throughout his long career, however.

7.1.1.2 Of Things that Cannot Be Touched

Roscher derived from Roman law his category of goods referring to not only relations between people, but also between people and things. He mentions *res*

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963 *Ibid.*, 26.

964 *Ibid.*, 6.

965 B. F. Kiker, "The Historical Roots of the Concept of Human Capital," *Journal of Political Economy* 74, no. 5 (1966), 486.

966 "[…] die Hand und die Vernunft machen den Menschen zum Menschen. Doch gilt es von der wirtschaftlichen Arbeit, wie von jeder anderen, daß sie um so wirksamer wird, je mehr der Geist in ihr über die Materie vorherrscht." Wilhelm Roscher, *Grundlagen der Nationalökonomie*, 24 ed., System der Volkswirtschaft (Stuttgart: Cotta, 1906), 105.

967 (1) Discovery and invention; (2) occupation of natural resources; (3) production of raw materials; (4) secondary production (processing of raw materials); (5) allocation of goods (i.e., trade); and (6) services. *Ibid.*, 105-106.

968 *Ibid.*, 498–499., §. 167. See footnote 5..

incorporales, which in Roman civil law meant things that cannot be touched – like rights, and things that the mind alone could perceive. He believed that it was usually possible to evaluate these goods in the same way as material goods. Customership, different contracts between various actors in the economy, and trust between these actors were examples of such goods. When explaining the worth of relationships, Roscher pointed out that when an entrepreneur bought a newspaper company, he did not simply buy the machines and buildings, but above all he bought the existing relationships with employees and subscribers. Similarly he saw that a theatre director's relationship to a good actor was useful for both, and thus also part of both the director and actor's wealth. When describing the worth of trust (*Vertrauen*), Roscher saw that a big part of a trading firm's value was in the confidence and trust that it instilled in its customers, thereby saving them from undue trouble and worry. In perhaps a slightly stranger descriptive argument, he noted how an army commander could do wonders with an army he had himself trained up and knew, but quite possibly be worthless with a foreign army in a foreign country. Roscher saw that with the progress of culture, people would become more and more sociable, and so the number of these valuable relations would multiply.[969] When used commercially or as a means of production, these economic goods were capital. Trust was also vital for personal credit as much as it was in savings, in so far as savings associations put those funds to productive use that would reap rewards.[970]

In connection with trust, relations, and reputation as capital, Roscher wrote about the Greek orator and statesman Demosthenes, who discussed good reputation as intangible capital. Demosthenes called his capital either ἀφορμὴ or ἔρανος. According to Roscher, the Roman concept of *peculium* also had similar features.[971] The state, and other institutions such as the judiciary, and Church were also intangible goods, creating favorable circumstances and sustainability for the economy, and this meant they were also intangible capital. The state was in fact the most important economic good and the most important form of intangible capital.[972] When writing about useful relations as economic goods or as intangible capital, Roscher saw the state as the best form of managing public affairs.

Roscher's notion of useful relations and trust being capital has an important connection to modern notions of social capital, because Roscher saw that these relations could be either an advantage for all or have an exchange value only for the individual. In this respect, these relations could be seen as either public goods (*Gemeingut*) or private goods.[973] If one compares Roscher's category of goods referring to relations, with his views on public goods such as

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969 *Ibid.*, 7., §. 3. General's relation to his soldier could also have an exchange value. Roscher used Italian mercenaries of the 15th century as an example, see footnote 6.

970 Wilhelm Roscher, *Die Grundlagen der Nationalökonomie: Ein Hand- und Lesebuch für Geschäftsmänner und Studierende*, 1 ed., System der Volkswirtschaft, vol. 1/5 (Stuttgart: Cotta, 1854), 145-149.

971 Wilhelm Roscher, *Grundlagen der Nationalökonomie*, 24 ed., System der Volkswirtschaft (Stuttgart: Cotta, 1906), 124., §. 42, see footnote 1.

972 *Ibid.*, 106 and 124. About the state as an economic good, see pp. 7–9.

973 *Ibid.*, 133, §. 45. See also footnotes 6 and 7 on page 9, §. 3..

the state or Church, or his views on cooperative economies with the most influential definitions of social capital, this thread is tre to all. Robert Putnam saw social capital as "features of social organization, such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated actions." Meanwhile, Pierre Bourdieu has concluded that social capital is "[…] the sum of resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition", and James Coleman has defined social capital as a useful resource available to an actor through his or her social relationships.[974] In all these definitions the nature of social capital possibly being both a public and private good is clearly seen too.[975]

7.1.2 Bruno Hildebrand

Bruno Hildebrand (1812-1878)[976], was the only one of the GHS, in Max Weber's opinion, that really implemented historical methods.[977] He developed a historical stage theory, which examined the area common to all economies, namely distribution; and his understanding of "mental capital" was connected to the highest level of development in this theory. *Vertheilung* (allocation or distribution), as opposed to production and consumption, was the real social element in society, which made the division of labor possible. It tied together the two economic spheres of production and consumption, and was not dependent on labor, climate, or the nature of the land. Instead allocation or distribution were the basis for determining three kinds of economic model – known as the natural, the money, and the credit economies.[978] Hildebrand's concept of capital intertwined with these models or stages, and was particularly pertinent when it came to the preconditions for raising the economy to a higher stage.

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974 Citations and Coleman's definition from John Field, *Social Capital* (London: Routledge, 2003), 4, 15, and 23.

975 About public and private advantage see also Paul Dekker, "Social Capital of Individuals: Relational Asset or Personal Quality," in *Investigating Social Capital: Comparative Perspectives on Civil Society, Participation and Governance,* ed. Sanjeev Selle, Prakash and Per, (London: Thousand Oaks, 2004), 88.

976 Bruno Hildebrand was born on March 6, 1812, in Naumburg. In 1836 he began as a private lecturer in Breslau University and in 1836 became an associate professor there. Two years later he was appointed as professor to Philipps-Universität in Marburg. There he published his *Xenophontis et Aristotelis de occonomia publica doctrinae illustratae* (1845) and his main theoretical work *Die Nationalökonomie der Gegenwart und Zukunft* (1848). Hildebrand was politically active but after the disturbances of 1848 had to flee to Switzerland for ten years. There he established the first cantonal statistical office. After his return to Germany, he started the internationally influential *Jahrbücher für Nationalökonomie und Statistik,* later known as *Hildebrands Jahrbücher.*

977 Gerhard Kolb, *Geschichte der Volkswirtschaftslehre: Dogmenhistorische Positionen des ökonomischen Denkens* (München: Vahlen, 2004), 111.

978 Bruno Hildebrand, "Naturalwirtschaft, Geldwirtschaft und Creditwirtschaft," *Jahrbücher für Nationalökonomie und Statistik* II, (1864), 3-4. Direct trade of goods in natural economy, money as a medium of exchange in money economy, and trade through credit and credit as a medium of exchange in credit economy.

7.1.2.1 The Three Stages of Economy

In a natural economy, capital was not yet one of the factors of production: economy was stagnant, the people were bound to the soil, and land and labor were the only sources of goods – man was in many ways a slave to nature, and had to live on a day-to-day basis around that. Only after an economy produced more than it consumed, could capital begin to gradually accrue from the surplus, at which point the usage of money started to become more common.[979]

Money changed everything. In a money economy, it was the general measure of value and the medium of exchange, but, above all, it freed consumption from a particular time and place. Money could store the surplus from production for future use and elsewhere too. In itself it thus became the basis and driving force behind the development of national capital; tying the production factors of nature and human labor with this new factor in production – capital. Via capital, the money economy revolutionized the whole process of production, but this economic model also had a societal effect. It freed people from the yoke of farming and created a new social class of capitalists which, unlike previous elites, was open to all.[980]

Money made possible the accumulation of capital. As well as liberating people's physical and mental labor force, it created a process of circulation and competition, which Hildebrand argued could endlessly increase the productive powers of society. Financial capacity (*Kapitalkraft*) was able to interact more closely with science, which had the effect of changing people's whole way of life and working. But capital, now roaming free, also had its negative side effects. It destroyed small enterprises, centralized industries, and built new monopolies, which were as harmful as state monopolies had been in pre-industrial times, although centralization had its benefits for some too. Hildebrand suggested that the productive power of capital grew in geometrical relation to its quantity.[981]

Similar to Knies, Hildebrand saw that there had been an important change in the focus of political economics. Hildebrand attributed this change to Adam Smith, who had for the first time placed man and society above nature and raw materials as the chief source of wealth. Hildebrand compared this change to that caused by Kant with his *Kritik der reinen Vernunft* (1782). According to Hildebrand, before Kant there was either pure empiricism based on experience, or then there was dogmatism based on reason, but Kant saw that man, with his reason and inner experience together, was capable of finding the truth (*Wahrheitserkenntnis*).[982] Kant thus created a synthesis of the rational and empirical views of epistemology.[983]

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979 *Ibid.*, 9-11.
980 *Ibid.*, 12-14 and 17.
981 Bruno Hildebrand, "Die gegenwärtige Aufgabe der Wissenschaft der Nationalökonomie, zweiter Artikle," *Jahrbücher für Nationalökonomie und Statistik,* I, (1863b), 10-16.
982 Bruno Hildebrand, *Die Nationalökonomie der Gegenwart und Zukunft und andere gesammelte Schriften* (Jena: Fischer, 1922), 14, §. 3.
983 Herwig Blankertz, *Die Geschichte der Pädagogik: Von der Aufklärung bis zur Gegenwart* (Wetzlar: Büchse d. Pandora, 1982), 26.

In Hildebrand's opinion, the money economy turned the production process inside out, in so far as it formed a society in which people could look for a job best suited to their abilities and ambitions, and it brought free competition to society. Furthermore, it gave people room to develop their faculties and talents and started a process in which moral and mental characteristics such as industriousness and intelligence became productive. The abovementioned tight interrelationship between science and technology in industry led to innovations, and mechanical work started to move from men to machines, leaving them more free to innovate. A wide diversity of human production powers was thus able to replace constancy and uniformity, and talent started to shape the hierarchies of society.[984] Rapidly accumulating capital and the development of science remodeled not only the processes of production, but also everyday life.[985]

This gradually put more emphasis on the "mental capital" of people, which was key to the third stage of the economy. Hildebrand also saw this as the fourth factor of production, and so we must touch on this before coming back to the credit economy.

7.1.2.2 Mental Capital as the Fourth Factor of Production

Hildebrand spoke of moral and mental characteristics (or faculties and talents) as capital, and saw them as objects of cultivation and perfection, though the focus was on the mental capital of nations, rather than individuals.[986] This cultivation could nevertheless yield profit in terms of the social position and living conditions of an individual within their society. This mental productivity influenced the world of material goods, just as those goods could in turn affect mental productivity. Hildebrand saw cause and consequence as intertwined in political economy, and thus the growth of an economy was a cyclical process, in which every consequence became a cause in itself.

> Human labor produces comestible goods that produce and maintain more human labor. The mental powers of a nation produce science and education that increase economic powers, and these produce physical welfare that further produces mental powers.[987]

Therefore Hildebrand saw mental powers as important factor of production and that it was possible invest in them. In many ways his view that this effect worked both ways was similar to Friedrich List's.

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984 Bruno Hildebrand, "Naturalwirtschaft, Geldwirtschaft und Creditwirtschaft," *Jahrbücher für Nationalökonomie und Statistik* II, (1864), 16-17.

985 Bruno Hildebrand, "Die gegenwärtige Aufgabe der Wissenschaft der Nationalökonomie," *Jahrbücher für Nationalökonomie und Statistik* I, (1863), 11.

986 Bruno Hildebrand, "Die gegenwärtige Aufgabe der Wissenschaft der Nationalökonomie, zweiter Artikle," *Jahrbücher für Nationalökonomie und Statistik,* I, (1863b), 141-142.

987 Bruno Hildebrand, *Die Nationalökonomie der Gegenwart und Zukunft und andere gesammelte Schriften* (Jena: Fischer, 1922), 61–62. "Die Arbeitskraft des Menschen schafft Nahrungsmittel und die Nahrungsmittel schaffen wieder Arbeitskraft. Die geistigen Kräfte einer Nation erzeugen Wissenschaft und Bildung, diese vermehren Wohlsein, und durch dieses werden wieder geistige Kräfte produziert." 'Bildung' should be perhaps translated here as 'civilized culture.'

> The augmentation of the national material capital is dependent on the augmentation of the national mental capital, and vice versa.[988]

Hildebrand's concept of mental capital was probably related to Adam Müller's views. Hildebrand wrote his *Die Nationalökonomie der Gegenwart und Zukunft* (1848) as a textbook, in the sense that it introduced the main currents of economic thought beginning from with mercantilism and ending with socialism. When discussing Müller, he emphasized those elements that featured in his own idea of mental capital. However, although Müller's interpretation of Adam Smith's concept of capital was lacking, Hildebrand did not fill in these gaps. For example, Müller did not seem to pick up on the acquired and useful abilities of all the inhabitants or members of society, which Smith saw as fixed capital.[989] In a chapter named "Müllers Kritik der Smithschen Theorie", Hildebrand cites Müller's somewhat mistaken view of Smith.

> Finally, Smith knew only one form of capital, material, external capital. But beside it there is at least equally important or even more important intellectual capital.[990]

And yet Hildebrand did not point out his mistake either here or later on, when he otherwise delivered a sharp criticism of Müller.[991] It seems strange, when we consider that Knies, at least, regarded Smith as the one to blame for opening up the concept of capital to interpretations, that Hildebrand simply went on to restate Müller's views here.

> First is presented and developed through the common commodity of money, the second through the common commodity of speech. In speech grows the capital of national wisdom, the experience and the ethos from generation to generation and forms for all times the biggest lever of national economy, a lever, which during the latest centuries has been left entirely without attention.[992]

Even if Hildebrand did not see Müller's failure to offer a full review of Smith's concept of capital, one has to note that Hildebrand's description of Müller´s views goes somewhat beyond Smith's notion of skills and abilities as capital. Skills and abilities were certainly important in Smith's opinion, in so far as they enabled the production of goods and affected the individual's productivity, but Müller's interpretation seemed to elevate this *geistiges Kapital* beyond this to something very wide-ranging and abstract which penetrated the whole culture.

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988 Friedrich List, *The National System of Political Economy*, ed. J. Shield Nicholson, trans. Sampson S. Lloyd (London: Longmans, Green, and Co., 1909), II.19.20.

989 Bruno Hildebrand, *Die Nationalökonomie der Gegenwart und Zukunft und andere gesammelte Schriften* (Jena: Fischer, 1922), 5-15.

990 "Endlich kennt Smith nur eine Kapitalart, das physische, äußerliche Kapital. Neben diesem gibt es aber noch ein wenigstens ebenso wichtiges oder noch wichtigeres geistiges Kapital." *Ibid.*, 33.

991 *Ibid.*, 41-45.

992 "Jenes wird durch das Gemeingut des Geldes, dieses durch das Gemeingut der Sprache repräsentiert und entwickelt. In der Sprache wächst das Kapital der Nationalweisheit, der Erfahrung und Gesinnung von Generation zu Generation und Bildet zu jeder Zeit den größten Hebel der Volkswirtschaft, einen Hebel, der gerade in den letzten Jahrhunderten ganz außer acht gelassen worden ist. " *Ibid.*

Despite this high level of abstraction, Müller saw his mental capital as the fourth factor in production alongside common labor, land, and nature.[993] In his critique of Müller's views, Hildebrand saw that the merits of Müller's theory lay in his intention to replace Smith's idea of material capital's roots in bourgeois society with one that emphasized a more public spirit, as well as the importance of intellectual or mental culture in the national economy.[994]

However, this was not to say that Hildebrand was ignoring the material side of the economy. Far from it; he saw that humankind was going towards a future, in which machines did all the mechanical and soul-destroying work, and this would largely free up individuals so that they could increasingly satisfy their physical needs via mental and intellectual education.[995]

> Credit is trust in the fulfillment of an existing contract, and at the same time the sum of those attributes, on which this trust is based.[996]

In the above quote, Hildebrand actually gives a formula for estimating the value of trust between two actors. For him, trust was equal to credit. This relates back to the final phase in Hildebrand's stage theory: the credit economy. Hildebrand argued that credit was something given not only to those who *had* something but to those who *were* something. He saw a person's moral attributes as a possible debt guarantee, and therefore there was actually a revenue in trust – a trust in the person's future achievements.[997] This was how Hildebrand connected personal qualities to the concept of capital, and to the credit economy.

> The moral worth of man gains the power of capital.[998]

If this personal moral credit was cultivated and realized through banks and credit institutions, it was possible to remove the monopoly of capitalists, and the gulf between the propertied classes and those who had nothing but their labor and moral character. He considered banks as the heart of the societal organism, which could amass all the financial capacity of a society, and immediately distribute it to those areas most in need. Banks and credit institutions were to be the mediator between the rich and the poor. The former were the educators of the poor and carried the moral obligation that was imposed on them by property and proprietorship.[999]

When writing about mental faculties in connection with credit, Hildebrand used capital more in a metaphrical sense to represent the combination of mental, moral, and social attributes of individuals that could bring returns. It

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993 *Ibid.*, 39.
994 *Ibid.*, 41.
995 "geistiger Bildung" *Ibid.*, 186.
996 "Credit ist das Vertrauen in die Erfüllung eines gegebenen Versprechens, und zugleich die Summe von Eigenschaften, welche dieses Vertrauen begründen." Bruno Hildebrand, "Naturalwirtschaft, Geldwirtschaft und Creditwirtschaft," *Jahrbücher für Nationalökonomie und Statistik* II, (1864), 19.
997 *Ibid.*, 22.
998 *Ibid.* "Der moralische Werth des Menschen erhält die Kraft des Capitals."
999 *Ibid.*

was possible to invest in these attributes, and they would yield a profit both socially and materially; so they had the power of capital, but they were not clearly called capital by Hildebrand. So it is hard to say that Hildebrand spoke of human capital *per se*, but he certainly spoke of something, which works like capital and which clearly resembles what other writers were writing about as mental, human, or scientific capital. Moreover, when writing about moral powers of people outside the individual context, and as a nation (*Volk*) instead, he used the term "mental capital" without hesitation.

To Hildebrand, moral worth and the credit economy had a social meaning too, similar to the idea of "social glue" used in contemporary social science[1000]. The money economy had brought a wider financial capacity (*Kapitalkraft*) to people and a new way of life, but it had created an egocentric interest economy and atomised society. The credit economy, however, would bind people again through mental and moral bonds:

> […] it connected the highest mobility to inner stability, universalized the financial capacity of the nation, worked for the removal of the proletariat and thereby gave rise to an economic way of life, which combined the advantages of both the earlier epochs of economic development.[1001]

This was something that could not be done by a single institution alone. Hildebrand saw credit as a mental and moral force on a par with science. Honesty, conscientiousness, mutual trust, and public morality of people were its building blocks. If these were not available, then institutions such as banking could not help, because they were the only existing organs of credit.[1002]

Muhammad Yunus from Bangladesh developed an interesting modern application of something similar to this idea in the 1970s. This idea was "microcredit", in which applicants for a loan would form "solidarity groups" acting as co-guarantors. This has since spread to dozens of countries. Hildebrand's idea of credit as an instrument of social and economic development has thus been proven in practice, though Muhammad Yunus hardly got the idea from Hildebrand. In his Nobel lecture, Yunus stated that profit maximization can isolate firms from political, social, emotional, and mental dimensions. Yunus felt this new kind of social entrepreneurship with goals closer to the people involved was more relevant and gave a new definition to entrepreneurship.[1003]

In fact, Roscher gave a similar role to his savings associations (*Vorschußvereine, Volksbanken*) as Hildebrand did to credit via banks. Savings associations were mediators between capitalists and the small needs of capital.

1000 John Field, *Social Capital* (London: Routledge, 2003), 5.

1001 Bruno Hildebrand, "Naturalwirtschaft, Geldwirtschaft und Creditwirtschaft," *Jahrbücher für Nationalökonomie und Statistik* II, (1864), 22. "[…] sie vereinigt die grösste Beweglichkeit mit der innern Festigkeit, sie veralgemeinert die Kapitalkraft der Nation, sie Arbeitet an der Beseitigung des Proletariats und ruft so eine ökonomische Lebensordnung hervor, welche die Vorteile der beiden früheren wirtschaftlichen Entwicklungsepochen miteinander verbindet."

1002 *Ibid.*, 22-23.

1003 FAZ, "Yunus fordert „neues soziales Unternehmertum"," Frankfurter Allgemeine Zeitung, 2006.

For instance, a craftsman, whose only pledge was his ability to work, might have difficulties getting credit, as unexpected sickness or death could destroy this pledge. Cooperative organizations and associations (*Verein*) that were big enough to carry such risks could thus help individual members get credit.[1004]

James Coleman has also pointed to "the rotating-credit associations of Southeast Asia and elsewhere" as an example of the value of a trustworthy environment and saw them as efficient institutions amassing savings for small capital expenditures. He also talked about credit as one way to represent the obligations, expectations, and trustworthiness of social structures, which for him were the components of social capital.[1005] Credit associations as an example of cooperation and trust can also be found in Putnam.[1006]

Hildebrand argued that economic freedom was not enough in itself to bring about the economic success of nations, but it was definitely an important factor in the process, as it fostered moral vigor and helped to fulfill conditions for the growth of moral fortitude in people. Hildebrand saw public morality as something that generally corresponded with intelligence, so that more intelligence would lead to greater overall morality, since he ruled out natural laws from the sphere of political economy. This intelligent morality would become the soul of every national economy, as it increased diligence, entrepreneurship, endurance in work, a sense of duty, mutual trust, and self-sacrifice for the common good. This moral power also empowered individuals to rise up from the restrictions of their individual worlds to look towards the common good instead. It made people conscious of the connection between their actions and national work, and thus gave all their activities a higher purpose, which further gratified them in their work and improved their performance.[1007]

Hildebrand described the powers that this ethical fortitude could bring as mental capital, but its creation was by no means easy. Neither economic institutions nor administrative measures alone could create it, since it was the result of a long history full of experience; full of intensive national culture; and it required a stable and free government. Where the state was based on distrust; where the government extended its centralized bureaucracy into every sphere of life; and where everything was made subject to license, there could be neither mutual trust nor personal or moral vigor, and public spirit would wither away. Hildebrand believed in the self-government of individuals and nowhere else than in Britain was the participation in public affairs and right to self-government and self-help so common. What was most important, was when the state trusted its citizens and protected their rights as sacred, because then people could identify with the needs of society as a whole, and they could have

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1004 Wilhelm Roscher, *Nationalökonomik des Handels und Gewerbfleisses*, 7 ed., System der Volkswirtschaft, vol. 3 (Stuttgart: Cotta, 1899), 962-963, §. 156.

1005 James S. Coleman, "Social Capital in the Creation of Human Capital," *The American Journal of Sociology* 94, no. 1 (1988), 102-103..

1006 Robert D. Putnam, *Bowling Alone: The Collapse and Revival of American Community* (New York: Simon & Schuster, 2000), 167-171.

1007 Bruno Hildebrand, "Die gegenwärtige Aufgabe der Wissenschaft der Nationalökonomie, zweiter Artikle," *Jahrbücher für Nationalökonomie und Statistik,* I, (1863b), 138-142.

affection towards the system of government. Mental capital was thus the point of contact between the national economy and the whole state organism.[1008]

Hildebrand saw that trust bred greater trust in society. "The state harvested the fruits of its sowing."[1009] It is interesting that he saw Britain as the best instance of, not only self-government, but also of mutual trust and efforts for the public good. In this admiration there was probably an in-built, though not explicit, criticism of the political and economic circumstances of the German states at that time.

As with his theory of the credit economy (also linked to the notion of mutual trust), there are in Hildebrand's view of moral power (as the social soul of the economy) some points of contact with the more modern notion of social glue. It even seems that Hildebrand saw similar characteristics in Britain, as Alexis de Tocqueville saw in the US, when traveling throughout the country in 1831. Tocqueville emphasized the number of vibrant associations, and the social interaction that went on in voluntary organizations as a major stimulus for American democracy and economic strength. Indeeed, they provided the social glue that helped bond individual Americans together, whereas in the Old World, the formal bonds of status and obligation held together more traditional and hierarchical relationships.[1010] These Tocquevillian ideals – civic virtue, active citizens, and strong community associations – seem to again be currently quite relevant, not only in sociology, but also in politic; and similarly they were important for Hildebrand.

The main function of Hildebrand's mental capital was its power to raise people from their egotistical worlds of self-interest. By giving meaning to their work and actions, it gave an impetus to efficiency, self-sacrifice, and collaboration. Hildebrand was looking at this from a national perspective; mental capital was "*ein geistiges Capital der Völker*." Despite the principles of laissez faire and hypotheses based on natural law that aspired to remove this moral power, it was, according to Hildebrand, precisely the soul of every healthy national economic organism.[1011] In short, Hildebrand's mental capital is the special ingredient that facilitates cooperation. This is also the role that James Coleman gives to his social capital, but Coleman's theory has as its ancestry partly in "laissez faire" and those hypotheses that Hildebrand would have seen as being based on natural laws. Coleman's theory is in fact based on a rational choice theory of economics, which sees individuals as rationalists in the process of constantly maximizing their interests. Here cooperation is thus an exception to the rule, and if it happens at all, it is in the interest of the actors. Coleman's expectations and obligations, i.e., social capital, "arose as an unintended consequence of their pursuit of self-interest."[1012]

1008 *Ibid.*, 141-143.
1009 *Ibid.*, 141. "Staat erntet die Frucht seiner Saat."
1010 John Field, *Social Capital* (London: Routledge, 2003), 5.
1011 Bruno Hildebrand, "Die gegenwärtige Aufgabe der Wissenschaft der Nationalökonomie, zweiter Artikle," *Jahrbücher für Nationalökonomie und Statistik*, I, (1863b), 140-141.
1012 John Field, *Social Capital* (London: Routledge, 2003), 24-25.

Hildebrand thus saw public morals as a form of mental capital; and that the core of the national economy was not self-interest but the common good. It was moral power (his mental capital) that unified people to work towards common goals, and that political economy was thus, in the end, a form of ethical science. It is not an overstatement to say that Hildebrand spoke of a unifying social ethic, in which the state could create greater social trust by increasing freedom and allowing self-government and public participation in the different spheres of society.

Hildebrand's accounts of education were predominantly rather vague statements about the worth and importance of culture, education, and science. These were intertwined once more with his concept of moral power. In his texts, education and culture are always described in an affirmative light, although the effects are more often than not discussed from the viewpoint of humanity or society rather than that of an individual.[1013] His argument was, nonetheless, that on the level of individuals, talent was to become the most important hierarchical factor of society.

When one considers Hildebrand's views on development and the progressive economic stages of culture, one might ask whether it is possible to speak about investment at all. Like many of his contemporaries, Hildebrand wrote about cultural and economic development as the irrevocable perfection of humanity. This brings teleological features to some of his views, as observations of society and economy are used as evidence of this progressive development. For example, he saw that as the culture of mankind was rising to new heights, so would the economic life of man. This cultural progress demanded education (*Erziehung*) of the people, not only in religion and other intellectual fields, but also in national economic fields.[1014] Here development seemed somewhat inevitable and education was only a readjustment to this process. Hildebrand's view can be seen as somewhat similar to a technocratic approach to human capital, which states that the more technologically advanced a society becomes, the more demand there is for technical, managerial, and professional workers. Seen this way, the high skills economy is thus a product of the evolutionary process of technological innovation.[1015]

When discussing innovation, Hildebrand's stress on mental conditions and institutions came to the fore; he tried to show that science and education were substitutable, up to a point, with right institutions, mainly with the principle of self-government. Or it is perhaps more descriptive to say that without proper institutions and moral character, science and education could not alone create innovative environment. Here he again used England as an instance: al-

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1013 Bruno Hildebrand, "Die gegenwärtige Aufgabe der Wissenschaft der Nationalökonomie, zweiter Artikle," *Jahrbücher für Nationalökonomie und Statistik,* I, (1863b), 144-145.

1014 Bruno Hildebrand, "Naturalwirtschaft, Geldwirtschaft und Creditwirtschaft," *Jahrbücher für Nationalökonomie und Statistik* II, (1864), 24.

1015 Phillip Brown and Hugh Lauder, "Human Capital, Social Capital, and Collective Intelligence," in *Social Capital: Critical Perspectives,* ed. Stephen Baron, John Field, and Tom Schuller, (Oxford: Oxford University Press, 2000), 226-227.

beit they were lagging behind in science, he saw that nationalism, freedom, and self-government could up to a point compensate for the difference.[1016] It is thus possible to see Hildebrand's mental capital as a complement to human capital, i.e., science and education, in the same way as social complemented human capital for James Coleman, though Hildebrand was more interested in this at the national level.[1017]

Hildebrand saw that what was behind Britain's success in industry and manufacturing was not so much science or technology but moral, political and administrative characteristics and talents. The public government and administration together with political freedom had created a national feeling and patriotism in every individual that had forged a strong community spirit, which kept British industry alive and all hands on deck. In this there was also a balance struck which held in check private interests, party politics, and strikes. Diligence, endurance, entrepreneurship, concentration of powers, conscientiousness, and mutual trust were the "moral levers" of British industry, created by the ideas of community (*Gemeinwesen*) and state nurtured in the hearts of every self-governed citizen.[1018] And it was particularly this notion of self-government, which had, according to Hildebrand, "enormous effects" on the economy. Innovation, or in this case inventions and improvements (*Erfindungen und Verbesserungen*) sprang from the fact that individual workers were motivated to contribute.[1019]

7.1.3 Karl Dietzel

In *Das System der Staatsanleihen* (1855) Karl Dietzel (1829-1884), professor of political economy in Marburg from 1867, started his treatment of capital by noting that the material way of understanding national economics had so far prevented the right definition from emerging. Another thing wrong in most of the classical accounts was that they started from the complex conditions of businesses (*Gewerbebetriebes*) of the time and thereby overlooked their simple beginnings and natural development into their present forms. He was referring to the theory of production factors (*Produktionsquellen*), which understood the sources of goods for these firms as being more or less independent productive powers without paying attention to the other forces that affected them. Capital was one such phenomena, and Dietzel further emphasized the problem by quoting Goethe from Faust.

> Dann hat man die Theile in seiner Hand, Fehlt leider nur das geistige Band.[1020]

1016 Bruno Hildebrand, *Die Nationalökonomie der Gegenwart und Zukunft und andere gesammelte Schriften* (Jena: Fischer, 1922), 75–77, §. 20.
1017 John Field, *Social Capital* (London: Routledge, 2003), 9.
1018 Bruno Hildebrand, *Die Nationalökonomie der Gegenwart und Zukunft und andere gesammelte Schriften* (Jena: Fischer, 1922), 75-77.
1019 *Ibid.*, 77.
1020 Karl Dietzel, *Das System der Staatsanleihen im Zusammenhang der Volkswirtschaft betrachtet* (Heidelberg: J.C.B. Mohr, 1855), 33-34. The poem English with preceding

In order to better understand the complexity of these modern enterprises (and capital), it was necessary to go back to their rude beginnings, Dietzel thought.

Dietzel wrote that Adam Smith's work gave no reason for there to be such a mechanistic understanding of national economics, for the main theme throughout his work was stated in its very first sentence.

> The annual labour of every nation is the fund which originally supplies it with all the necessaries and conveniencies of life which it annually consumes, and which consist always either in the immediate produce of that labour, or in what is purchased with that produce from other nations.[1021]

Seeing *annual* labor as the fund already marked a transition from the older practice of regarding the wealth of a nation as an accumulated fund. Following the physiocrats, Smith saw that the important thing was how much could be produced in a given time.[1022] It was his successors who had stepped away from this path. In Dietzel's opinion even J.-B. Say, though appreciating the role of labor, had gone too far in his precision towards seeing surplus over expenses as somehow productive in itself when listing industrial faculties and other productive funds from which all national wealth came. Dietzel thought that for the practical-minded English, this direction was relatively rare, but the French in their search for systems, and the Germans in their need for classification were more prone to this over-precision. Rau and Roscher, for instance, were mentioned in this respect.[1023]

Furthermore, Dietzel described how new innovations could be private property and be kept as trade secrets. When the better products received higher prices from the market, the nature of such innovations being intangible capital was indisputable.[1024] Compared to Mill's *Principles* (1848), for instance, where the work of savants and researchers was seen as principally outside the scope of political economy, this marks quite a different position (see section 5.2.1 on Mill). Dietzel is very interesting in the sense that, although he saw the state and the many attributes of its citizens as capital, he polemicized the idea of an individual's labor force as being capital only from the individual's point of view, even if for others (on its own) it was not. From the national economy perspective, however, the labor force of individuals could be seen as capital when aggregated. Albert Schäffle was one critic who noted that this led to considerable problems with the concept and terminology regarding capital.[1025]

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lines: "One who would know a living thing, Tries first to drive its spirits out, Then with the pieces in his hand, He lacks its unifying bond."

1021 Adam Smith, *An Inquiry Into the Nature and Causes of the Wealth of Nations*, ed. Edwin Cannan, 5 ed. (London: Methuen & Co., 1904), I.I.1I.I.1.

1022 *Ibid.*, I.I.1, Cannan's note 1.

1023 Karl Dietzel, *Das System der Staatsanleihen im Zusammenhang der Volkswirtschaft betrachtet* (Heidelberg: J.C.B. Mohr, 1855), 33-34. For Say's productive industrial funds, see subsection 3.2.3.3.

1024 *Ibid.*, 74.

1025 See Albert Schäffle belwo and Albert Schäffle, "Die Konkurrenz der Organe des Staatslebens; Beiträge zu einer Revision der Grundbegriffe der Neueren Staatslehre. Zweiter Artikel," *Zeitschrift für die gesammte Staatswissenschaft,* 20, (1864), 169.

For *Immaterialkapitales* on a national level, Dietzel focused on the state, by which he meant a beneficial system of government and business regulations (*Verkehrosordnung*). No less important than intangible capital was the development and perfection of the labor force (*Arbeitskraft*), which was as important in modern cultures as land improvements had been at earlier stages in history. In both cases, the process was about transforming (*Umformung*) value so as to reach a permanent increase in production. The increased impact of the labor force was based on the internal perfection of itself, but also in removing all the obstacles that stood in the way of its optimisation. This was especially about removing the outmoded and unnecessary institutions of social order,[1026] so that an improved labor force would ensure that the nation's intangible capital would have a greater effect.[1027]

Dietzel cited Smith and noted that he had already considered the labor force of individuals as their capital, but that it was inconvenient, because such a designation prevented the correct understanding of economic interrelations. Labor was the starting point of all economies as it was the basis of production. Nature and natural objects were just objects, raw materials, or tools of labor. Nature was giving, and in itself developing in relation to labor and production, and it was therefore the direct opposite to capital, which was *always* something produced and created consciously by labor. Dietzel argued that one should not identify the Creator with the created, just as one should not identify labor with capital. Although the development of the workforce could be directed and promoted only by the action of others and with the expenses of other goods, the results of this investment were bound by a persons natural gifts and could not be separated. Similarly the improvement of land depended on the piece of land and its natural qualities. Just as the land followed the laws of ground rent instead of capital interest, so did the remuneration for improvements in individual labor force depend on the original labor force – the very same fruitful investments with one person could be lost on another. [1028]

Yet in broader aggregates, Dietzel considered it perfectly legitimate to consider labor force directly as a form of capital, and all investments that were targeted to increase its value were thus capital investments. As wages were always part of production costs, consumers were buying labor force to convert their money into a means of satisfying their needs. From the point of view of the consumers (as a group), or the national economy (as a whole), the labor force was therefore to be considered as capital. In a similar way to the general system of government, this capital had been amassed by previous generations for the good of their offspring. They had to then invest in the maintenance and improvement of this capital. After this, Dietzel described how such investments in skills, knowledge, morals, and health were made, and what kind of factors were relevant and constrained such investments. But the major point here, for

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1026 "unzweckmäßigen Institute der socialen Ordnung" Karl Dietzel, Das System der Staatsanleihen im Zusammenhang der Volkswirtschaft betrachtet (Heidelberg: J.C.B. Mohr, 1855), 106.

1027 *Ibid.*

1028 *Ibid.*, 107.

us, was that the method to increase the labor force and productivity lay in higher expenditure on the education of people in an intellectual and moral sense; and on the maintenance and perfection of their physical strengths.[1029]

7.1.4 Karl Richter

Karl Thomas Richter (1838-1878) was a political economist and an aesthete from Bohemia. He served as a professor of political economy at the University of Prague from 1868 until his death in 1878. In two books written before his thirtieth birthday, *Kunst und Wissenschaft und ihre Rechte im Staate* (1863) and *Kunst und Wissenschaft in Gewerbe und Industrie* (1867), he laid out an economic basis for copyright legislation and emphasized the fundamental importance of intellectual work and capital for industrial, commercial, and economic development. But Richter's starting point was the intellectual property rights in literature and art; and he denounced the common practice of exploiting the rights of intellectual workers. Richter's discussion of intellectual property rights is discussed here on the general level of principles, but his works and ideas were tightly connected to the German and Austrian traditions of jurisprudence. Nevertheless, the relation, significance, and impact of Richter's ideas on legislation are outside the scope of this study.

7.1.4.1 Intellectual Work, Capital, and Property

Richter's starting point for his discussion of intangible capital were his critiques of theories of property and wealth and especially of intellectual property and wealth set against the social conditions of his time. His critique of the theory of property led him to view intellectual work and capital from rather interesting angles, such as that of hereditary nobility and inheritance. Richter's defense of the rights of intellectual property was topical at the time, but when the books discussed here came out, he was on the losing side. In the annual meeting of the *Kongress Deutscher Volkswirthe* in Dresden in 1863 (when the first book came out), German economists accepted by an overwhelming majority a resolution which declared that patents hindered the progress of invention, hampered the use of inventions, caused more harm than benefit to inventors, and were also harmful to the common good.[1030] To make matters worse, Prussia opposed the adoption of patent law by the North German Federation, and in 1868 Chancellor Bismarck announced his objections to the principle of patent protection in general. At the same time in Switzerland (1863), the legislature renewed its opposition to the patent system, while in Holland the anti-patent free trade movement also managed to get the patent laws repealed in 1869.[1031]

1029 *Ibid.*, 108-109.

1030 Fritz Machlup and Edith Penrose, "The Patent Controversy in the Nineteenth Century," The Journal of Economic History 10, no. 1 (1950), 4. Of course, as in Britain, part of the argument was that the patenting system functioned so badly that it caused more harm than benefit.

1031 In Switzerland too, one of the arguments against the patent system was that some of the greatest political economists had considered it pernicious and indefensible. *Ibid.*

Richter saw that such a separation of personal rights (*persönlichen Recht*) and the law of property (*Vermögensrecht*) would lead to what legal speculation usually leads to, namely the mixing up of rights and legislation with moral standpoints. From this confusion could never emerge the kind of legislation that the commercial and social life of the state required.[1032]

7.1.4.2 Intellectual Capital as a Source for Intellectual Acts

In Richter's thought, the predisposition of an individual was a gift of nature. These were developed via "education" in the family, society, and the state to become an intellectual force, which in independent analysis was called "intellectual capital" (*geistiges Kapital*). Owning such intellectual capital developed and fulfilled its task when its use in civic life transformed into wealth in the traditional sense. In use, it maintained itself and became an independent "means for earning" (*Erwerbskraft*) for its owner in life and in business.[1033] This means of earning in the personal sphere became "earning capacity" (*Erwerbsfähigkeit*) once it was used in the public. Earning capacity was also built into society in the civic legal sphere, and was at the same time a prerequisite for gaining positions within the state. Via these positions in the state, the nation was given the validity of the claims of individuals who knew how to protect this earning capacity, since it was the condition of the existence of their class and whole way of life. In society, both the "means for earning" and the "earning capacity" of intellectual capital made themselves visible in intellectual work and in the form of an intellectual act (*That*).[1034]

It is clear that Richter saw intellectual capital both as a productive and positional good in the public sphere. Although intellectual capital and its interest was usually bound to the general level of economic activity, Richter saw that free intellectual capital in art and science could rise above the laws of economic life and create absolute value without being conditioned by the reciprocity of exchange, where its production force depended on the consumption force of others, which defined economic life in general.[1035]

Writing about the product of intellectual work, Richter argued that expressions of intellectual capital, intellectual work, and the action of civil service officials, teachers, doctors, and lawyers had no external or separable product, and in commercial life they had no visible form. Instead, they produced social, intellectual, and physical order, and provided well-being (*gestaltete Wohlsein der Menschen*). Furthermore, the intellectual work in these professions did not necessarily result in any single comprehensive phenomenon, but their cause and effect operated through underlying phenomena. Intellectual work in the arts and sciences was a different matter. Here the intellectual work took the form of externally visible (or perceptible) works and products. They were exchangeable on the market, so they had a price, and they were therefore goods. Because

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1032 Karl Richter, *Kunst und Wissenschaft und ihre Rechte im Staate* (Berlin: G. Jansen, 1863), 80.
1033 *Ibid.*, 94.
1034 *Ibid.*, 94-95.
1035 *Ibid.*, 91.

these goods were born out of the personal intellectual capital and activity of their makers, they carried personal characteristics and were therefore personal goods (*persönliches Gut*).[1036]

7.1.5 Albert Schäffle

Albert Schäffle (1831-1903), professor of political economy in Tübingen and, from 1868, a professor of political science in Vienna, continued to discuss intangible capital in the spirit of Karl Dietzel, although mostly in opposition to the latter. He also debated the issue with Schmoller on the pages of *Zeitschrift für die gesammte Staatswissenschaft.* From 1892-1901 Schäffle was the editor of this journal. In his works Schäffle stressed the importance of system building, trying to combine the natural and social sciences, and although he was sympathetic to capitalism, in his later works he saw great value in collective ownership and the planned rational organization of economies. These ideas are also visible in his writings about intangible capital. Schäffle's attitude towards intangible and personal capital changed from declaratory to unfavorable in his publications from 1861 through 1864 to 1867.[1037] He also debated the meaningfulness of Richter's concept of *geistiges Kapital* – the economic basis for copyright legislation – in *Kunst und Wissenschaft un ihre Rechte im Staate* (1863).

7.1.5.1 Critique of Dietzel

In his article "*Die Konkurrenz der Organe des Staatslebens*" (1864),[1038] Schäffle got into the issue of intangible capital when discussing Hermann and Dietzel's ideas on collective or social goods. Hermann had stated that an economy consisted mainly of individual economies but that there were many goods and means of promoting human needs that were not suitable for production by private means. It was here that the collective or total economy (*Gesammtwirthschaft*) of all members of a nation came alive to produce these precise goods for all, and all members of society also contributed to the means of production for them. For Hermann, the main point of producing common goods through the *Gesammtwirthschaft* was not for the goods in themselves but because they created the basis for the private economy. For Karl Dietzel, this common basis was the state and the social conditions in it. Schäffle wrote that later this idea developed towards a more precise understanding of the state only as a part of this common economy, because this formed the external conditions of civilization (*Gesittung*) and provided the legal services and organization for production and consumption. Fur-

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1036 *Ibid.*, 114-115.

1037 Albert Schäffle, *Die Nationalökonomie oder Allgemeine Wirthschaftslehre* (Leipzig: Otto Spamer, 1861); Albert Schäffle, "Die Konkurrenz der Organe des Staatslebens; Beiträge zu einer Revision der Grundbegriffe der Neueren Staatslehre. Zweiter Artikel," *Zeitschrift für die gesammte Staatswissenschaft,* 20, (1864): 139-220; Albert Schäffle, *Das gesellschaftliche System der menschlichen Wirthschaft: Ein Lehr- und Handbuch der Nationalökonomie für höhere Unterrichtsanstalten und Gebildete jeden Standes*, 2 ed. (Tübingen: Laupp, 1867).

1038 Albert Schäffle, "Die Konkurrenz der Organe des Staatslebens; Beiträge zu einer Revision der Grundbegriffe der Neueren Staatslehre. Zweiter Artikel," *Zeitschrift für die gesammte Staatswissenschaft,* 20, (1864): 139-220.

thermore, according to Dietzel, following the division of labor, the common economy found its specific institution or organ in the government. Its finances and private economies were in interaction and bound together in a way which made it impossible to think of one without the other. From these premises, Dietzel had broadened not only the concept of credit but also the concept of capital by understanding the state itself as the most effective kind of capital.[1039]

Dietzel's understanding of capital was that it was a form of abstracted goods which was part of the process of producing consumable goods to satisfy needs. Such goods could also become the basis of use in an intangible form, and many of the main pleasures of life indeed had such constructs as a condition. These Dietzel had called *Immaterialcapitale*, and they were basically the conditions and relations that were favorable to the nation's economy, increased its productivity, and were produced and created at the expense of other goods. The biggest and most important intangible capital good was the state itself. Although the state consisted of many material goods such as streets, canals, churches, museums, theaters, and so on, for most people, the main component of the state (as capital) was the intangible part – the existence of bourgeois order. Dietzel had written that the state was nothing other than a relation or condition, which facilitated the development of the national economy to a higher level (at a cost of work and other goods). Schäffle had problems accepting such an utilitarian and mechanist argument, and noted that one had to be more specific in assessing the necessary services that were produced at this cost and which were supposed to promote further production.[1040]

According to Schäffle, Dietzel went so far in his praise for public loans that he considered a state to be more developed and rich the more it spent on its state bond interest payments. When this was taken into account, along with the lack of analysis concerning the maintenance costs of the state's intangible and tangible capital; and the idea that all investments in fixed national capital were a form of cultural development; Schäffle believed Dietzel's proposals would lead to the common economy withering away on a scale that would come close to communism.[1041]

7.1.5.2 Collective Intangible Capital

Schäffle discussed acquired abilities and the consequent increased labor force as capital; basing it on Dietzel's view that acquired abilities should not be considered as capital from an individual's point of view, although Dietzel too had admitted that from the point of view of others and the national economy, labor force (*Arbeitskraft*) did indeed perform as capital. Schäffle's view was careful balanced. One of Dietzel's arguments had been that one should not mix the Creator up with the created, just as one should not confuse labor with capital. This, in fact, seems to be going against the tenet of classical economics, which claims that capital was just past labor. Schäffle, meanwhile, was not so demanding; stating that via education (*Bildung*) an improvement in performance could

1039 *Ibid.*, 167-168.
1040 *Ibid.*, 168.
1041 *Ibid.*, 174.

be described as a "creation" (*Schöpfung*) of sorts, but only to the degree that it translated into products in an individual's own economy or in wage-goods. But the whole of one's personal education as a good in itself was not to be subsumed into the concept of capital, because it was not only a tool but at the same time an end in itself. From here Schäffle made a further step, and stated that the same principle concerned also the state as a social condition, that is where the social or common personality of the people (*Gesammtpersönlichkeit des Volkes*) was not a means for individual life but also a separate mode of behavior (*Gesittung*). Therefore, the state could simply be called capital only within the utilitarian and individualist philosophies of economics and jurisprudence. The state became an economic good only to the extent that, through its material or intangible services, became a means for the purposes and goals of certain individuals.[1042]

Yet, Schäffle wrote that if the matter of counting *Arbeitskraft* as capital were only an issue of categories and definitions, it would be trivial in practice. But the fact was that it had real importance in showing that the funds of personal attributes were products and subjects of ownership – they were economic means and not simply ends in themselves. This was of the utmost importance for the wage theory of national political economy. This view, according to which labor force (*Arbeitskraft*) creates, but is not itself created in any economic sense, was enough to satisfy the need to subsume acquired abilities and attributes into the concept of capital (which had been repeated continuously since Adam Smith).[1043] This was also Schäffle's response to Schmoller's earlier critique, published in the *Zeitschrift für die gesamte Staatswissenschaft*.[1044] Schäffle's critical view of Dietzel's 'personal capital' is also visible in the scoffing chapter title[1045] in his textbook of political economy *Das gesellschaftliche System der menschlichen Wirthschaft* (1867).

When defining goods, Schäffle divided them into three kinds: "material goods", "services", and "conditions". We are obviously interested in the last two. Schäffle defined services as the valued actions of others (*Dienstleistungen*). Schäffle criticized some authors (like Rau) for not accepting services as a category of economic goods and insisting that only values fixed in material goods could form wealth and property. Schäffle saw services as goods which can save us from personal sacrifice, and thus have a value, exchange value, and be subject to legal claims. Schäffle wrote that services served or satisfied people often in a much more comprehensive way than material things too. Another point was that numerous service producers were involved in the production of most material goods. The actions of workers could, in this way, given a more equal

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1042 *Ibid.*, 169.
1043 *Ibid.*, 169-170.
1044 Gustav Schmoller, "Die Lehre vom Einkommen in ihrem Zusammenhang mit den Grundprincipien der Steuerlehre," *Zeitschrift für die gesamte Staatswissenschaft,* 19, no. 1/2 (1863): 1-86. See Gustav von Schmoller, pp. 203-207.
1045 "Das sogenannte persönliche Kapital." Albert Schäffle, *Das gesellschaftliche System der menschlichen Wirthschaft: Ein Lehr- und Handbuch der Nationalökonomie für höhere Unterrichtsanstalten und Gebildete jeden Standes*, 2 ed. (Tübingen: Laupp, 1867), 39.

economic value, whether they were fixed in manufactured objects, or enjoyed immediately in a musical performance.[1046]

7.1.5.3 Conditions, Rights, and Relations as Capital

The conditions or relations (*Verhältnisse*) that had an exchange value were also economic goods. As examples Schäffle listed customership, clientele, firms, and patents. They were capitalized rents, provided they found repayment, and could be of a private or public nature.[1047] In a chapter discussing the similarities and differences between public and private economies, Schäffle had no qualms about using the term "intangible capital" to describe how the state produced intangible goods. States produced both material (streets, harbors, etc.) and intangible goods, i.e., services. The latter made up the majority of all the state's production, as was clearly reflected in the last word of the term "civil service" (*Staatsdienst*).

Law, order, security, and other such conditions provided by the state in the form of actual goods and services, he called *Immaterial-capitalien,* citing in this case Storch and Dietzel. Schäffle wanted to clarify that the state consisted of individuals (civil servants, parliamentary representatives) and material goods, and thus the state rendered services and material goods just like any other economic agent.[1048] With this, Schäffle distanced himself from Dietzel and many of the other German authors who saw semi-magical features in the functioning of the state – a benevolent organism that subsumed everything and sometimes even had its own purpose quite separate from that of its citizens.

In 1867, Schäffle also published *Die nationalökonomische Theorie der ausschliessenden Absazverhältnisse*[1049], which was based on articles published earlier in *Zeitschrift für die gesammte Staatswissenschaft*. The work clarified his views on condition, rights, and relations, while discussing clientele, firms, patents, commercial rights, and copyright. Schäffle examined at length the arguments of the time backing various theories of how to find a legitimate basis for the duration of copyright protection. For instance, Gustave de Molinari had stated that the duration of an item created was the natural boundary of property in inventions, which was basically an argument for eternal and international copyright protection.[1050] In other work he had admitted, however, that not even 2% of intellectual products persisted after twenty years. Schäffle mockingly wondered where the world would have gone if legislation after the French Revolution had followed Molinari and made eternal monopolies and privileges of everything. Nevertheless, he agreed with Karl Richter that the question of when the right to

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1046 *Ibid.*, 47.
1047 *Ibid.*, 48.
1048 *Ibid.*, 379.
1049 Albert Schäffle, *Die nationalökonomische Theorie der ausschliessenden Absazverhältnisse* (Tübingen: Laupp, 1867).
1050 Constantin von Wrangell was following J.B.M., Jobard, and Molinari. Constantin von Wrangell, *Die Prinzipien des literarischen Eigenthums mit specieller Rücksicht auf dessen juristische Form* (Berlin: H. Peters, 1866).

individual exploitation ends was a question of vital importance for legislation.[1051]

As Karl Richter's works were the first German language works trying to solve the issue of copyright duration based on principles of political economy, Schäffle went through them in some detail. Although he gave some praise, he mostly took a stand against Richter, claiming that it was an elementary tenet of national political economy that arguments with concepts like *geistige Arbeit, geistiges Kapital,* and *Erwerbskraft* had no recognizable scientific basis in the field. Richter argued that there should be 30 years copyright protection after the death of an author, because a sum of capital reproduces itself at an ordinary rate of interest in 30 years; so this was the cheapest and fairest option. In response to this, Schäffle argued that the remuneration of intellectual capital should have nothing to do with the interest rates. For example, were the interest rate to rise, the duration of the copyright term would contract. The remuneration of intellectual capital was included in the wage that provided maintenance; and that the share was not fixed, but changed arbitrarily based on the contract, size of the edition, and success of the publication. This meant that trying to base the length of a copyright term on the interest rate was doomed to fail. Schäffle made it quite clear that he thought there was no absolute for the duration of copyright to follow which would apply for all times, countries, and categories of artistic and literate production.[1052]

7.2 The Counter Argument

7.2.1 Karl Knies

Knies is discussed here because of his opposition to the inclusion of human skills or abilities, let alone collective ideals (such as patriotism), in the concept of capital. His views might also have served as a template for the younger historical school's views on capital. He was born in Marburg on March 29, 1821, and studied history, political science, theology, and philology in the same town. In 1855 he published his *Die politische Ökonomie vom Standpunkt der geschichtlichen Methode* and was thereafter appointed to a professorship at Freiburg University.[1053]

7.2.1.1 Inseparable Fragments Are Not Capital

In his *Geld und Credit*, Karl Knies took critical view towards the definitions of capital of his own time. Albeit everyone admitted its importance as a concept, the definitions of capital varied widely.[1054] Knies saw that only through histori-

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1051 Albert Schäffle, *Die nationalökonomische Theorie der ausschliessenden Absazverhältnisse* (Tübingen: Laupp, 1867), 178-180.

1052 *Ibid.*, 186-187.

1053 Knies died on August 3, 1898, in Heidelberg.

1054 On diversity: "Und wie dürfte man wohl das Eingeständnis verweigern, dass wenn selbst unter hervorragenden Männern der Wissenschaft der Eine nur die mit Hilfe

cal presentation would this diversity becomes understandable; so he proceeded to describe how the concept had evolved from Hellenic and Roman law to his own times. Knies noted that the physiocrats pushed aside the mercantilist concept of capital, which was closer to the ancient and medieval concept and was based on loan amount and its interest. By emphasizing the conditions of agricultural production and by opposing the limitation of the term 'capital' to mean only a sum of money, they managed to leave their mark on political economy and modern economics. They also defined capital as the annual surplus of any goods.[1055] On this point, Knies was agreed.

Knies saw that the definition of capital was crucial to the very discipline of political economy, but its significance extended into the areas of practical social life too. Its ambiguous definition, which changed from writer to writer, complicated attempts to solve the social problems caused by the rapid industrialization. Perhaps in an attempt to narrow things down a little, Knies placed people, the parts of their bodies, and intellect outside any definition of capital. It could only be used to denote economic goods.

> So it must then be held as an elementary, absolute requirement for a beneficial treatment of the doctrine of capital that, at most, only economic goods or goods that are economic only in this respect can be understood as capital, but not people, or the inseparable parts of their bodies, or their intellect.[1056]

However, economic goods were hardly any better to Knies. They were yet another symbol to be defined, in capital's place. There needed to be a way to distinguish these goods from the general stock. Here too, Knies saw that many of the then current theories were wrong. Knies agreed in principle with Smith and Turgot that the part of the stock which was used to subsistence and continuation (*Verbrauchsbedürfnis*) could not be counted as capital. The surplus left over after obligatory expenses was the base of capital, and the complex of goods available for satisfaction of wants in the future was its stricter definition. J.S. Mill's view that goods had not only objective qualities that made them capital, but also an exchange value with other goods was some kind of a transition position. When carried further it had led to views according to which goods had no

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menschlicher Arbeit hergestellten sachlichen Produktionsmittel unter Kapital begreifen will, während ein Zweiter auch die Grundstücke in ihrer natürlichen Beschaffenheit hinzurechnet, ein Dritter auch vorräte von Genussmitteln, ein Vierter auch die Kenntnisse des Gelehrten, ein Fünfter auch die Stimmmittel einer Sängerin, ein Sechster alle menschlichen Arbeiter, ein Siebenter auch den Staat, die Nationalehre eines Volkes u. s. w." Karl Knies, *Das Geld: Darlegung der Grundlehren von dem Gelde* (Berlin: Weidmann, 1885), 24–25.

1055 *Ibid.*, 27-28. Knies cites Turgot: "Es ist absolut gleichgiltig ob der, das Kapital darstellende Gütervorrat in einer Masse Metalles oder in irgend anderen Dingen besteht, weil das Geld jede Art von Gütern repräsentiert, wie jede Art von Gütern das Geld repräsentiert."

1056 *Ibid.*, 40. "So muss es denn als ein elementares, absolutes Erfordernis für die gedeiliche Behandlung einer Lehre vom Kapital gelten, dass unter Kapital höchsten Falles alle wirtschaftlichen Güter oder die wirtschaftlichen Güter in irgend einer Beziehung, nicht aber menschliche Personen oder von ihnen untrennbare, die Persönlichkeit selbst mitkonstiuierende Fragmente des Leibes oder des Geistes verstanden werden könnten."

natural characteristics that made them capital so then they could become capital at the arbitrary will of an economic person. Capital would have then be based on pure abstraction, and this Knies could not accept.[1057]

Knies saw that this situation was the consequence of a changing focus in political economy. Before, humans had been only one element or a factor of production, but the necessary step of placing mankind and the economy on centre-stage had led to an overreaction, which had caught up will and intellect and tangled that up in the concept of capital and theory of value. The views of Roscher, Schäffle, and Mangoldt emphasized that the value of a good was the value that people attached to it in their will and consciousness. According to Knies, this was comparable to the situation in Goethe's poem – "if the eye were not sun-like, the sun's light it would not see" (*Wär' nicht das Auge sonnenhaft, die Sonne könnt' es nie erblicken*).

Knies saw that the values of things to men were connected to their real attributes. The value of a good was thus *not* something relative to people's subjective interpretations; it was a measure of beneficial (concrete) effect that was widely recognized. However, modern economics is based on the subjective theory of value. Roscher and Hildebrand are sometimes seen as anticipating the subjective theory of value and the Austrian theory of marginal utility, but Knies was clearly of the opinion that this lack of objectivity would be the wrong direction for economics to take.

Even though Knies was critical of including personal attributes in his concept of capital, he still drew critical fire from Böhm-Bawerk. Whereas Knies saw that capital was that portion of the general stock of goods that served the satisfaction of needs in the future, Böhm-Bawerk claimed that this distinction made no real difference, because 'to be used in the future' was an attribute of all wealth. Böhm-Bawerk argued that this meant Knies was making wealth and capital synonymous, even though he had come up with the present/future dichotomy to avoid this. Böhm-Bawerk nevertheless saw that 'to be used in the future' was an important characteristic of capital goods, but he never said it was exclusive to capital. [1058]

7.2.2 Karl Marx

Human capital, as an intangible personal asset that yields interest to its owner in the form of a wage premium, does not sit well with Marxism. Karl Marx is, in a way, beyond the scope of this study, but is nevertheless briefly discussed, because the reaction to his writings was so strong among economists. The benefit of discussing Marx is that his work shows how the definition of capital and its role in the system could change the role reserved for the physical and intellectual faculties of labor, which Marx called labor force (*Arbeitskraft*). Labor force was behind the value of goods and its exploitation behind surplus value

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1057 *Ibid.*, 42–43.

1058 Eugen von Böhm-Bawerk, *Kapital und Kapitalzins: Zweite Abteilung. Positive Theorie des Kapitales. Erster Band*, 4 ed., vol. 1/2 (Jena: Fischer, 1921), 47–51.

(*Mehrwert*) producing the interest of capital, but its remuneration was subsistence level wages, which the competition between the capitalists as well as technological development tended to drag down. In Marx's system, private ownership of land and capital made this exploitation of the labor force possible. Instead of believing that technological change and education increased productivity and with collective bargaining it could raise wages beyond subsistence level, Marx opted for socialization of the means of production through revolution.

7.2.2.1 Labor Force, Surplus, and Interest

There is more than one reason why the idea of human capital doesn't fit Marx's framework, but perhaps the most fundamental was that he based his theories of capital and value on classical economics, where economic goods were seen as products of only material labor. The labor theory of value derived from the works of Smith and Ricardo was sharpened by socialists such as J. K. Rodbertus and Marx so that the theory could also be used to argue against the private ownership of land and capital. Indeed, many economists trying to counter socialism during the latter half of the 19th century like Adolph Wagner blamed Smith for sowing the seeds of socialism in his work.[1059] As we saw earlier in section 2.2.3, Lauderdale presented the idea that Smith's theory of value and interest of capital seemed to suggest that the interest of capital was based on capitalists pocketing the value generated by labor already in 1804. For Wagner, this meant that if one wanted to critique Marx's whole system[1060], perhaps the weakpoint to target would be the faulty definitions and understanding of capital and interest. Seeing capital as only the material means of production from past labor, and its interest as the unpaid surplus labor of exploited workers meant that it was difficult to see skills or other personal attributes as capital. And yet it was precisely those attributes, *Arbeitskraft,* together with extended working hours that were being exploited to produce surplus (*Mehrwert*) for the capitalist. If the only productive factors in the process were being paid subsistence and nothing more, then their *Arbeitskraft* accumulated nothing.[1061]

So for Marx, the concept of a productive laborer included not merely a relation between activity and useful effect, but also a social production relation which immediately stamped the workers as subjects of capitalist exploitation (*Verwerthungsmittel*). In Marx's eyes, to be a more productive worker was thus not a blessing, but a curse; because the more productive workers were, the more they were exploited. Marx's imterpretation made it very clear that classical political

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1059 Adolph Wagner, *Grundlegung der politischen Oekonomie. Zweiter Theil. Volkswirtschaft und Recht, besonders Vermögensrecht*, 3 ed., Lehr- Und Handbuch Der Politischen Oekonomie, vol. 1/2 (Leipzig: Winter, 1894), 282–283.

1060 *Ibid.*, 285.

1061 Karl Marx, *Das kapital. Kritik der politischen Oekonomie. Erster Band* (Hamburg: O. Meissner, 1872), 308–309; Adolph Wagner, *Grundlegung der politischen Oekonomie. Zweiter Theil. Volkswirtschaft und Recht, besonders Vermögensrecht*, 3 ed., Lehr- Und Handbuch Der Politischen Oekonomie, vol. 1/2 (Leipzig: Winter, 1894), 285.

economy had always made the production of surplus value the only determining factor in a productive laborer.[1062]

For the great mass of people within the boundaries of the existing capitalist production system there was indeed little reason to think there could be material or intellectual development beyond the barest level of subsistence. Even if Marx had agreed with Friedrich List that, by and large, material development feeds the mental powers of a nation and *vice versa*; the way in which he understood the capitalist system to work gave no hope of such development ever happening. Instead, competition would force capitalist owners to exploit the workers even more to simply stay in business. As competition drove down wages, the capitalist would have to get more productivity out of his workers each day, and the only way to do that would be to make them work longer hours. Otherwise no profit over the necessary subsistence wage was going to be made.[1063]

7.2.2.2 Labor Force as a Collective Resource

Marx's ideas on the need to develop better labor regulations illustrate again how far the themes motivating his thoughts had their roots in the concerns of the early 19th century liberal economists over whether economic theory adequately took into account the productive work of the liberal, merchant, and managerial classes. Whereas many saw humanitarian motivating factors behind the agitation of conservative figures for the first act to regulate child labor in textile mills (Factory Act of 1833), Marx saw the reason behind reform legislation was the collective self-interest of the capitalists. His logic was that the government acted as a sort of general staff for the capitalists and passed the Factory Act to ensure the safe continuation of the labor force (*Arbeitskraft*) – their collective resource. Otherwise, unchecked competition would lead to depletion of the labor force, meaning less human capital stock, and lower profits for the capitalist class.[1064]

Marx was yet another economist who made the analogy between land and labour (as we have seen countless times in the course of this book already), only Marx inverted the image. Instead of comparing land improvement to investing in people's education;[1065] Marx compared overused soil to the depleted workforce of a nation. Capital, in his opinion, would recklessly ignore the health of the worker unless it was held to account by society. And even if degradation, premature death, or overwork did bother the capitalist, he had little control over the matter, as it was simply the mechanism of free competition that brought out the inherent laws of capitalist production. The Factory Act legislation was thus a necessity for the capitalists as much as anyone else to preserve

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1062 Karl Marx, *Das kapital. Kritik der politischen Oekonomie. Erster Band* (Hamburg: O. Meissner, 1872), 530–531.

1063 Mark Perlman and Charles R. McCann, *The Pillars of Economic Understanding: Factors and Markets* (Ann Arbor: University of Michigan Press, 2000), 143.

1064 Murray Wolfson, Ze'ev B. Orzech, and Susan Hanna, "Karl Marx and the Depletion of Human Capital as Open-Access Resource," *History of Political Economy* 18, no. 3 (1986), 499.

1065 See for instance section 7.1.1 on Roscher.

the labor force in the same way as regulation is passed to preserve almost any open-access resource.[1066]

Although Marx's theory of capital as exploitation saw that competition would inevitably drive down the living standards of the working class, this open-access resource angle is one further indication of how the ideas inherent in his work suggest development possibilities other than those prophesied by him. Marx saw that technological advances would increase the rate of exploitation, since it would reduce the need to pay workers so much and labor-saving advances would still increase the surplus value produced.[1067] And yet, although industrialization and new technology has sometimes polarized the labor market and deskilled certain groups,[1068] there is also evidence that the more advanced the level of technology, the more necessary know-how and skills become, not less, and so a skilful and knowledgeable labor force was (and is) a real *positive* factor in competition among both companies, nations and (through this demand) individuals. In some ways, one could argue that if the Factory Act really was brought in just to avoid depletion of the labor force, then by the same argument investing in human capital and intangible capital has been brought in to ensure that the labor force is on par with the level of technology. From this kind of angle, one could (but perhaps not very many Marxists would) argue that most of the developments in education and science of the last centuries were dictated by the capitalist production system for capitalists, nations, and individuals in order to stay in business and to avoid less than maximum profits.

7.2.3 Gustav von Schmoller

Schmoller shared with the neo-institutionalists the idea that political economy should not be content with just a theory of optimal resource allocation, but should also be interested in institutional, cultural and social conditions related to the workings of the markets.[1069] In the second part of his two-volume textbook *Grundriss der allgemeinen Volkswirtschaftslehre* (1901,1904), Schmoller discussed capital and wealth. This already showed the difference of his historical and institutional approach compared to the classical economists, as most textbooks of the 19th century would *start* with these subjects – take Roscher's *Die Grundlagen der Nationalökonomie* (1854), for instance. Schmoller, instead, used the first volume to discuss the psychological, moral and intellectual basics of individuals and collectives and their relation to economics. He then went on to discuss land, people, and technology as mass phenomena and the social organi-

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1066 *Ibid.*, 499-500.

1067 Mark Perlman and Charles R. McCann, *The Pillars of Economic Understanding: Factors and Markets* (Ann Arbor: University of Michigan Press, 2000), 142-143.

1068 Sanna-Mari Hynninen, Jari Ojala, and Jaakko Pehkonen, "Technological Change and Wage Premiums: Historical Evidence From Linked Employer–Employee Data," *Labour Economics* 24, (2013): 1-11.

1069 Werner Abelshauser, "L'école historique et les problèmes d'aujourd'hui," in *Histoire et économie politique en Allemagne de Gustav Schmoller à Max Weber,* ed. Hinnerk Bruhns, (Cologne: Fondation Fritz Thyssen & Maisons des sciences de l'homme, 2004), 23.

zation of a national economy.[1070] Schmoller's discussion of the definition of capital is worth going through in some detail, because it reveals many of the reasons why historical economists in Germany and Austria (especially Menger) turned their backs on the broad intangibles including the concept of capital. As mentioned earlier, Vilfredo Pareto also thought it was not possible to separate the effects of innate talent from those of instruction, so it made no sense to talk about intangible human capital.

7.2.3.1 One Cannot Explain the Economy with One Concept

Schmoller's chapter on capital and wealth in the *Grundriss* stands out from earlier 19th century accounts (particularly in the textbooks) in that it did not advocate saving to the same extent. Instead, he made it quite clear that real people often actually speculated their whole fortunes to accumulate capital. The keys to this were an ability to reach higher profits and income than actually needed through technical and business acumen, knowledge and exploitation of markets and business cycles, and thorough organizational talent and drive for making such improvements. Perhaps the largest share of capital accumulation was based on such talents and the lucky exploitation of circumstances. But often shrewdness and dubious measures were also connected to such success, and so it was plausible to ask whether it was actually business skills, a monopolistic position, or sheer luck with prices that was behind fast accumulating capital. Schmoller wrote that the great artists, authors and doctors, who were making fortunes had similar reasons for their wealth as the masters of industry. Alongside saving, talent and speculation, Schmoller wrote also of inheritance as a source of capital for individuals. Based on these arguments, Schmoller concluded that the old debate over whether capital accumulation was based on saving or surplus production or some other phenomena *alone*, was pointless.[1071]

When Schmoller got to the part where he was defining capital, he showed that he had followed very much the same discussions as we have in this volume. And most of what had happened after Adam Smith, he saw in negative light. Furthermore, unlike most of the other authors discussed here, Schmoller discussed Marx's understanding of capital and how it, made nonsense of all other definitions of capital if one were to accept it. He also seems to have been frustrated with the different ways 'capitalist' was used in socialist works, compared to other texts in political economy

Schmoller stated that he did not want to build a system around the concept of capital nor to explain the nature of capitalism with it, since such an ap-

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1070 Gustav Schmoller, von, *Grundriss der allgemeinen Volkswirtschaftslehre*, vol. 1 (Leipzig: Duncker & Humblot, 1901), xi-xiii.

1071 Gustav Schmoller, von, *Grundriss der algemeinen Volkswirtschaftslehre: Zweiter Teil*, vol. 2 (Leipzig: Duncker & Humblot, 1904), 176-177. Germany had seen quite a stock-market boom, which in 1873 turned from *Gründerboom* to *Gründerkrach.* Every third joint-stock-company ended in liquidation. Scholars and politicians blamed *Schwindelgründungen,* meaning that the founders of companies had fraudulent intent to begin with. Erik F. Gerding, *Law, Bubbles and Financial Regulation* (New York: Routledge, 2014), 82. Another peak was reached in 1888/89, and both were followed by attempts at better regulation.

proach could only offer a narrow analysis of contemporary economic life. The starting point was instead economic goods. Capital should be understood as those economic goods which are material; had limited availability (thus were property); whose usefulness was commonly recognized (thus had value); and could therefore satisfy economic needs. Only in a derived sense, with regard to the consequences of the social mechanism, was it possible to speak of rights of use, or of proprietary rights to economic goods or services as capital, in addition to real material objects. These real (material) economic goods Schmoller divided into: (a) goods that served production (*Produktivgüter, Produktivkapitalien*), (b) goods that served durable use or benefit, like housing or clothing (*Nutzkapitalien*), and (c) goods that were destroyed or transformed in single-use during production (*Genußgüter*). Schmoller mentioned here also the terms used by the Austrians for these categories.[1072] From here Schmoller got to his definition of property (*Vermögen*), which meant the embodiment of economic goods that individuals or corporations have at their disposal. Here too he considered that, in a transferred sense, property consisted also of rights to goods, rents, debt, and commitments (*Verpflichtungen*). In the specific case of rights as property he cited Neumann, and added that in his own opinion debt should not be discussed as property. He added that both invested and not invested goods (especially *Nutzkapitalien*) were property.[1073]

7.2.3.2 Capital Is about Monetary Value and Interest

Only after economic goods and property were defined, was it possible to define capital. Capital was the part of property that was invested in some form, in either one's own business or by a third party in loaned form, where the idea of technically different investment opportunities and investment types was secondary to investment's monetary value and interest (*Rente*). The amount of the latter was in a certain proportion to the said monetary value. According to Schmoller, it was better to speak of property than capital when discussing about haves and have-nots like Marx.

Schmoller wrote that the debate over the definition of capital that had so excited the socialists was a late remnant of what he called *Realdefinition,* the skewed idea that from the definition of capital it would be possible to understand and thus carry out the social struggle and to explain the development and functioning of a modern economy. This was, in his opinion, striking evidence that, for want of new words, we tend to reuse old words by giving them relatively different meanings and connections.[1074]

Schmoller's argument about the futility of attempting to explain the workings of a modern economy or the global economy from the definition of a single concept is perhaps worth hearing today too. The aggregates we are dealing with, when understanding most of the wealth of nations as intangible capital, are such that a very large share of the modes of human existence and agency

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1072 Gustav Schmoller, von, *Grundriss der algemeinen Volkswirtschaftslehre: Zweiter Teil*, vol. 2 (Leipzig: Duncker & Humblot, 1904), 180.
1073 *Ibid.*
1074 *Ibid.*, 179-180.

are lumped together in a technical term that does not necessarily say very much more than that what the rich countries have, is called richness, and the poorness is defined by the lack of it. On the other hand, it may well be that in large parts of the World, the primacy of education, knowledge and functioning institutions as the main sources of wealth of the developed world may still require more emphasis. Schmoller of course understood the importance of education, intellectual faculties, and technology. He argued that the qualities of men, their level of education, and their diversity in intellectual, moral, and technological concerns was the primary and most important cause of wealth.[1075]

Schmoller's method of explaining through historically changing and developing institutions and mores the same phenomena as was explained by many through capital, is as relevant today as it was in the 19th century, but the institutions themselves are also understood as a form of intangible capital, and this was of course done already in the 19th century too for example by Storch. The methods are therefore tangled up in way that the connection remains. At least one great benefit is in the capital framework, for it emphasizes the fact that it is possible to invest time, effort and other resources to what ever is it that is considered as capital, and expect return for the investment. In a historical and evolutionary institutional framework, the temptation to explain the observed phenomena as a result of a long, irreproducible, path-dependent development, thereby throwing us at the mercies of faith in much higher degree. This is not to say that time and institution would not matter; the clearly do, as historical research on difficulty of building functional markets and bureaucracies show.[1076] It is just that the possible blind spots of the approaches are different.

Reading Schmoller's textbook account on capital, one wonders if he did not realize that he was defining capital in a way that kept people and the "social mechanism" out, as if there were wealth and production unconnected to them. After all, wealth for people is what is considered to be wealth. Furthermore, Marx's ideas may have had a greater influence on Schmoller than he admitted, since in a way his definition of capital was very much in congruence with a materialist view, which understood it as a system of production with an overlaying superstructure. Schmoller just said that the issues of superstructure, like rights and services, should not be part of the definition of capital. It is understandable that Schmoller tried to detach capital from social relations as March had defined it basically as *the* social relation, but Schmoller's capital then seems to exists as some sort of a natural cause with which the world of man, the "social mechanism," has very little to do, as if it was not factors of this social that mechanism that were behind the accumualtion of capital in the first place.

1075 Francesco Boldizzoni, *Means and Ends: The Idea of Capital in the West, 1500-1970* (Basingstoke; New York: Palgrave Macmillan, 2008), 134.

1076 Jerry F. Hough and Robin M. Grier, *The Long Process of Development: Building Markets and States in Pre-Industrial England, Spain, and Their Colonies* (2015), see chapter 11.

7.2.4 Eugen Böhm von Bawerk

> We shall therefore decide very emphatically and, I hope, unanimously, to exclude personal means of acquisition from the conception of Capital.[1077]

Eugen Böhm von Bawerk (1851-1914) was an Austrian economist who advanced the Austrian theory in new directions especially in the areas of economic growth and capital theory. At the turn of the century he was the best-known economist on the continent. His reputation as the forceful new leader of the neoclassical school grew after publication in English of *The Positive Theory of Capital* in 1891, which was in fact second volume to his *Capital and Interest* translated and published in 1884. Böhm-Bawerk served also as Minister of Finance in Austria, and Ludwig von Mises, Friedrich Hayek and Joseph Schumpeter were all among his pupils. Böhm-Bawerk took Marx seriously, and launched a blistering attack on his economic theories. Mark Skousen claims that it is because of Böhm-Bawerk's work that Marxism never really took hold of economics as much as it did sociology, anthropology, history, and literary theory. However, he was not just a bitter critic of Marx and other socialists; he also scrutinized the exploitation theories of Rodbertus and Proudhon and had some original contributions, albeit based on Menger's work, in the areas of saving and investing, capital and interest, and economic growth.[1078] He also attacked the preceding theories of capital and interest, especially those he called "naïve productivity theories" (i.e., emerging from J.-B. Say), with "arguments which are essentially different from the arguments of socialist criticism, and seem to me to go more into the heart of the matter."[1079] As we saw at the beginning (1.1), Böhm-Bawerk also challenged the theories of human capital.

7.2.4.1 Böhm-Bawerk's Definition of Capital

Böhm-Bawerk defined capital as a "complex of man-made acquisitional instruments". As he excluded land from capital, he defined wealth as the "totality of all material acquisitional instruments," which meant that land as well as capital were forms of acquisitional wealth. All income flowing from them, following Rodbertus' example, was called rent, either land rent or capital rent. Setting the landowner and capitalist apart in this way was clearly important, because so much time and effort had already been used to debate the issue. The distinction made it impossible to claim that a country had great capital in its fruitful soil even if very little of its potential was in actual use. One of the reasons was also that in debates about social problems, property in land and property in capital were usually attacked or defended by quite different people with quite different methods.[1080]

1077 Eugen von Böhm-Bawerk, *The Positive Theory of Capital*, trans. William A. Smart (London: Macmillan, 1891), 54.

1078 Mark Skousen, *The Making of Modern Economics: The Lives and Ideas of the Great Thinkers*, 2 ed. (Armonk, N.Y.: M.E. Sharpe, 2009), 189-191.

1079 Eugen von Böhm-Bawerk, *Capital and Interest: A Critical History of Economic Theory*, trans. William Smart (London: Macmillan, 1890 [1884]), 132-133.

1080 Eugen von Böhm-Bawerk, *The Positive Theory of Capital*, trans. William A. Smart (London: Macmillan, 1891), 58.

Bawerk discussed the possibilities of contrasting social and private capital on the one hand, and natural and property capital on the other.[1081] "Social capital" was the whole aggregate capital of a community or a nation which could relate in various ways to individual or "private capital". Meanwhile, "natural capital" described products destined to serve for further production, and "property capital" referred to the kind which was owned in the historico-legal sense. Bawerk emphasized that these two distinctions were not to be mixed: the first was based on two distinct natural stores of goods, so that social capital was not just the sum of private capitals; while the latter was based on a stock of goods on one hand and their ownership on the other. These were the distinctions Böhm-Bawerk considered as valid, but saw the division into social and private capital as the only one required.[1082] The interplay of these categories and their relation to the traditional factors of production is best explained with a citation:

> In its one division, as "Social Capital," it indicates the third instrument of economical production in the triad of Nature, Labour, and Capital; and in its other division, as "Private Capital," it indicates the third source of the economical acquisition of goods by individuals in the triad Rent of land, Wage of labour, Interest on capital. If, then, unbiassed people are ever to agree on a conception of capital, we may expect that this will be the one chosen.[1083]

One of the Böhm-Bawerk's createst contributions to economics was his introduction of time considerations into economic analysis. In his capital theory, the idea was that the original means of production (raw materials, resources, labor) could be used in immediate production or in the production of capital. When accumulated and combined with labor, capital would then be able to produce consumer goods more efficiently. Bawerk thought that this roundabout method was more efficient to the point at which he saw time itself, together with capital intensity as defining the total product. Although Böhm-Bawerk advanced the classical doctrine of production with the idea of discontinuous production periods of variable lengths, as opposed to the discontinuous fixed periods in classical economics, the discontinuity meant that he ended up with an average period for production, which might as well have meant he assumed that they were fixed. Therefore, he was still in practice operating with a wage-fund doctrine, where for a certain production period there was certain fund reserved for the wages and for other expenses of production. Continuous inputs and point outputs did not change that.[1084]

Böhm-Bawerk's explanation of interest with subjective time preferences was much more successful in undermining the classical idea of capital and exploitation ideas of the socialists, however. Interest was payment for the use of capital, and as capital meant man-made intermediate products used in a round-

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1081 Bawerk stated that this idea was based on Rodbertus and Wagner.
1082 *Ibid.*, 62–64.
1083 *Ibid.*, 60.
1084 Robert B. Jr. Ekelund and Robert F. Hébert, *A History of Economic Theory and Method*, 5 ed. (Long Grove: Waveland, 2007), 312-313.

about, time-consuming process, interest had to be related to time in some logical way. The solution was "positive time preference", meaning that present goods were worth more than future goods. Bawerk offered three reasons for this. First was the immediacy of present wants, the second was the people's systematical underevaluation of future wants and means to satisfy them, while the third, and most important, was the technical superiority of present goods over future goods as a means of satisfying human wants. The simple idea of this last one was that present goods could become inputs of production sooner than future goods, so that the possible flow of future output could always be larger if started now rather than later.[1085]

With the help of subjective time preferences, Böhm-Bawerk was able to get over one of the major stumbling blocks of classical and Marxist economics, the idea that capital was subservient to labor, because it was itself the product of labor. With a few notable exceptions (Ekelund and Hébert mention Lauderdale and Senior), the classical interest theory refused to admit that capital could be productive independent of labor. As we have seen, Lauderdale pointed out that Smith's understanding of capital, based on a labor theory of value, suggested that it was just a transfer of labor income to the capitalist.[1086] Böhm-Bawerk saw interest as the premium paid for present goods over future goods, and from the perspective of a lender, it was the compensation required to postpone the higher enjoyment brought by present goods. Although Böhm-Bawerk credited Senior with overturning some of the false ideas about capital and interest, he also criticized him for neglecting time preference and opportunity costs, which were major building blocks of the new subjective theory. Still, Ekelund and Hébert note that Böhm-Bawerk preferred to build on the existing edifice rather build anew, which would have been possible considering his insights.[1087]

7.2.4.2 Arguments Against Human Capital

Böhm-Bawerk seemed somewhat relieved that McCulloch's ideas of workers being pieces of fixed capital like machines (and their wages the interest on that capital) had practically fallen out of use; but he noted that "we are threatened with a resurrection of them in a changed form."[1088] Bawerk then cited three names – Weis, Dargun and Ofner – as those promoting views which included the following three elements:

> (1) [t]he replacement of the cost of necessary upkeep of the human machine, calculated at the minimum of existence; (2) a quota for amortistion, in premiums of assurance against old age; and (3) a net interest calculated on the capital value of the human machine at the ordinary interest rate.[1089]

Böhm-Bawerk also saw that most of what we consider as intangible capital should not be included in social capital. 'Incorporeal capital', meaning debts, all

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1085 *Ibid.*, 314.
1086 See 2.2.3.
1087 *Ibid.*
1088 Eugen von Böhm-Bawerk, *The Positive Theory of Capital*, trans. William A. Smart (London: Macmillan, 1891), 52.
1089 *Ibid.*, 53.

kinds of claims, the goodwill of businesses, the state etc., were not capital, because they were not real goods. Instead, he saw them as "representative words or the collective names for a sum of real goods, which may be capital, or may not." If the words represented sums of goods that were contained in the seven categories that Böhm-Bawerk accepted as social capital, then they were already taken into account. If not, they should therefore not be counted as capital.[1090] The seven categories included only material goods plus money, and as private capital consisted of all goods which formed social capital plus the consumption goods, which their owners did not use for themselves, but employed in exchange for other goods (sale, hire, loan), there simply was no room for intangible or human capital in Böhm-Bawerk's definition.[1091]

Social or business relations, patents, trade connections, or legal claims that many authors considered as capital, were also rejected as an independent category of capital based on the principle mentioned above. Böhm-Bawerk cited here the authors whose ideas he was rejecting. For relations and patents he mentioned Adolph Wagner, for trade connections Wilhelm Roscher, and for legal claims Friedrich von Hermann.[1092] Earlier, in 1881, he had even published a small volume arguing against rights and relations (*Verhältnisse*) as economic goods, attacking authors like Albert Schäffle and Henry Dunning Macleod.[1093] Schäffle's *Die nationalökonomische Theorie der ausschliessenden Absazverhältnisse* (1867)[1094] had discussed patents, copyright, protection of designs etc. from the angle of economic goods and capital, and as we saw above, Macleod discussed credit as an intangible economic good.[1095]

Böhm-Bawerk also rejected the idea that the maintenance of productive laborers should be counted as 'social' capital. He wondered how his predecessors had formed the consensus to support such an idea, and he mentioned especially Wagner. But this idea was also built into the classical idea of the wage-fund discussed earlier. The real wages of the laborers, i.e., food, clothing, fuel, lightning and so on, were *private* capital for the entrepreneur Böhm-Bawerk argued; he or she advanced them to the laborers for work, but they were not *social* capital or the means of production in any aggregate sense. The means of production were, instead, an antithesis to the means of consumption.

> There cannot be the slightest doubt as to the meaning of this antithesis, and just as little can there be as to the fact that the workers' subsistence is the immediate instrument to the satisfaction of their wants, and that labourers are men and members of society. But if this is so, it seems to me absolutely proved that the maintenance of the

1090 *Ibid.*, 71.

1091 The seven categories of social capital were: 1) productive improvements and arrangements of land, 2) productive buildings (buildings serving education, enjoyment, culture or religion were not counted), 3) tools and machines, 4) draft animals, 5) the raw and auxiliary materials of production, 6) finished goods in the hands of producers and merchants (i.e., stock), and 7) money. *Ibid.*, 66-72.

1092 *Ibid.*, 72.

1093 Eugen von Böhm-Bawerk, *Rechte und Verhältnisse vom Standpunkte der volkswirthschaftlichen Güterlehre* (Innsbruck: Wagner, 1881).

1094 Albert Schäffle, *Die nationalökonomische Theorie der ausschliessenden Absazverhältnisse* (Tübingen: Laupp, 1867).

1095 See section 5.2.2 on Macleod.

> labourer must be classed along with wealth destined for consumption and for the immediate satisfaction of the wants of society, and not with the means of production or capital.[1096]

So as much as Böhm-Bawerk was countering Marxism in his critique, he was necessarily also countering the foundations of Marxism in classical political economy. Also McCulloch's ideas of the means of subsistence as capital investments in the creation of human capital were effectively rejected here.

Considering Böhm-Bawerk's exclusion of personal means of acquisition from capital, it is quite interesting to note that his theory of interest based on time preferences would accommodate a theory of intangible theory of human capital quite well.

Böhm-Bawerk's denouncement of intangible capital probably had a strong influence on the treatment of the subject in subsequent neoclassical literature, and as we saw above when discussing Marshall, the worry about the integrity of the language of economics made him almost abandon the idea of calling skills and knowledge capital. The treatment above is only a superficial scratch at the surface of his thorough criticism of the theories and interest from the 16th century onwards presented in *Capital and Interest* and *The Positive Theory of Capital*.

7.2.5 Carl Menger

Carl Menger (1840-1921), the Austrian cofounder of the marginal utility revolution is shortly discussed here, because his work, like that of Léon Walras and W.S. Jevons, was very influential in shaping the economic thought to come. Menger arrived at his theory of marginal utility via a different route than Walras and Jevons, and did not believe that goods provided units of utility as such. Instead, they served various uses and wants whose importance differed, so that the first round of something required for subsistence was the most important and the subsequent rounds also, but to a lessening degree. Menger used this insight to refute the labor theory of value that had so perplexed economists since Adam Smith. In Menger's view, goods acquire their value according to how they satisfy wants, not according to how much labor was used in their production. It was the satisfaction of wants which labor and other inputs derived their demand and value from, not the other way around. Basing it on his subjective theory of value, Menger explained how exchange benefited both sides; people exchanged something they valued less for something they valued more. Middlemen that facilitated such a trade were highly productive, because without them many of the trades would have not happened or would have been costly. [1097] Menger's understanding of how money had developed and what was its function came close to why Lauderdale argued it was capital, i.e.,

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1096 Eugen von Böhm-Bawerk, *The Positive Theory of Capital*, trans. William A. Smart (London: Macmillan, 1891), 67-68.

1097 "Carl Menger," *The Concise Encyclopedia of Economics*, http://www.econlib.org/library/Enc/bios/Menger.html (accessed June 12, 2015).

it saves the labor of barter and the expenses of trade. Menger was also very critical of the extended idea of capital, and for instance Gustav Schmoller (7.2.3.) and Eugen Böhm-Bawerk (7.2.4.) cited him when arguing their own more restricted traditional views. Menger also specifically argued against intangible forms of capital in an article published in *Jahrbüchern für Nationalökonomie und Statistik* in 1888.[1098]

7.3 Materialist, Immaterialist, Marginalist, Institutionalist Germans

Clearly then Roscher, Knies, and Hildebrand all had differing views concerning capital, especially when extended to the concept of human abilities and, in some cases, public spirit. Roscher's concept of intangible capital includes most of the ideas that are now spoken of as being human and social capital. He saw human abilities and skills as the capital of their possessor, which it was possible to increase through education and training in the same way as land could be cultivated to render it more productive. The costs of acquiring of special skills and costs of education would eventually be compensated in higher wages. B. F. Kiker's grouping of Roscher with economists who included the acquired abilities of human beings in their concept of capital and saw investment in people as a way to increase their productivity thus seems plausible. Likewise he was correct when stating that Roscher did not count people themselves as the capital. Roscher did not really present any fresh ideas concerning human capital. His views were, if not commonly accepted, at least shared by many economists at the time he was writing.

For Roscher, the useful relations between people or between the actors in an economy were also capital. These relations could be seen as either private goods, bringing advantage to the individual, or as a public good, benefiting the whole society. Roscher also considered trust and goodwill as a form of capital, so in this respect he went beyond Adam Smith and these are the themes, together with his notion of public spirit, where it is possible see parallels with contemporary accounts of social capital.

Karl Knies disliked the manifold forms and definitions of capital, which not only wrenched it from its relation to money and material goods, but also made it dependent on perspective. What made matters worse, in his opinion, was that it was possible to call almost anything capital in this respect; and in the end this made it possible to see people and their assets as such. Knies did not think the mental or physical characteristics of an individual could be explained or understood any better by mixing them up with the term capital; and nor did he see capital in patriotism, which, if seen as a devotion to one's national com-

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1098 Carl Menger, "Zur Theorie des Kapitals. Separatdruck aus den Jahrbüchern für Nationalökonomie und Statistik," *Jahrbüchern für Nationalökonomie und Statistik* (1888): 135-183.

munity, could be seen as connected to the concept of social capital. He considered Roscher's inclusion of the state in the concept of capital as particularly harmful and confusing for political economy. In these respects, it is Karl Knies who stepped farthest away from the canon of classical economics and from current views, by fencing off the concept of capital so that all aspects that we would today include in human capital were left out. Individual skills and abilities and social aspects were discussed in his works, but not as capital.

Meanwhile, in his article on the three stages of economy, *Natural-, Geld- und Kreditwirtschaft*, Hildebrand stated that the money economy started off a process in which mental characteristics such as industriousness and intelligence became more and more productive, and these eventually started to shape the hierarchies of society. In the credit economy, Hildebrand saw that trust based on moral characteristics could be changed into financial capital via credit, and so, he saw that trust gains the power of capital (even if it was not strictly speaking capital itself). Loans, based on a guarantee of the moral characteristics of a borrower could, when distributed through credit institutions, efficiently allocate capital where it was needed. Furthermore, this would narrow the gulf between social classes.

Where Hildebrand did use the term "capital" to directly indicate something beyond material sphere, it was connected to trust, obligations, self-government, associational life, and mankind rising above his own narrow sphere of self-interest. The mental capital of people consisted of their intelligence, which advanced the methods of production; their innovation; and their moral power, which took care of cooperation and seeing the bigger picture.

Although Adam Smith had his notion of sympathy, studies of economy since then have usually presupposed a society of self-interested individuals seeking their own profit. And yet, because the greatest achievements of humanity seem to have been the results of collective action, different authors have devised their own theories as to why man chooses to cooperate instead of seeking immediate gain. Social capital, in the form reciprocity, trust, and civic action, has in many respects been an attempt to solve this problem. Roscher's public spirit (*Gemeinsinn*), and Bruno Hildebrand's mental capital (*geistig Kapital*) were their explanations; whereas James Coleman abolished the problem altogether by seeing social capital as an unintentional side-effect of people seeking their own interests out among other people. In contrast, Roscher tended to see collaboration as an inherent characteristic of man. Hildebrand's view was a bit more complex, since his mental (or moral) capital was a result of a history full of experience, common culture, and of stable government. His view was not wholly deterministic, since he saw that through trust and the principle of self-government, it was possible to increase the ability of people to see beyond their own interests.

Neither Roscher, Hildebrand, or Knies used the precise term 'social capital,' although Roscher and Hildebrand did describe phenomena which are nowadays included in this concept. What is perhaps more important is their brand of political economy which saw people as more than profit-maximizing

atomistic individuals. Self-interest was not the sole driving force of the economy; man as a social being was a central element, and it was precisely belonging to a group, whether via economic cooperation, voluntary association, or the state, that gave meaning to people 's work, and lifted them from out of their narrow spheres of self-interest. Roscher and Hildebrand especially connected the increase in social networks with economic growth and cultural development. For Roscher, those areas of society which are nowadays seen as social capital (state, church, religion, judiciary, etc.) were capital, as were trust and social networks in business.

Interestingly modern journalism laments the decline of community, and this is also a basic element of the literature nowadays on social capital, and yet Roscher and Hildebrand believed that a multiplication of social relationships and communities was taking place. Indeed, even if theirs was a time of greater economic growth *per se*, there is some irony in the fact that in the present day, in places where humankind has developed technology that enables real time communication almost everywhere via different kinds of network which attempt to provide the means for varied human attributes to be shared, we are actually concerned with a *decrease* in social relations and communal life.

The present work does not so much trace influences, but it picks some points in time, where there has been a similar interest in the human, social, and civil potential of communities; and even communitarianism, a modern ideology bolstering social capital and the institutions of society. The fact that there has been elements of human and social capital theories in the 19th century and before does not lessen the value of today's interest in human or social capital; it merely shows that the ideas are old. To study empirically how people experience trust, what is the meaning of trust for firms and bureaucracies, how and why the norm of reciprocity is born, or how and why people form and use their networks are important and intriguing tasks. But to claim that trust or relationships as capital or as economically productive is an invention of the 20th century is certainly false.

In the end, it is perhaps rather petty to accuse different areas of social science and economics for lacking historical knowledge of their own fields; but this relates to the historical brand of economics discussed here, since at its core was the idea to emphasize not only the historical evolution of societies but also the historical nature of professors in the field of economics, who aspired to describe, understand, and (so as not to exaggerate their claims) forecast their world. Historical political economy, like all social sciences, reflects both the society it aims to describe as well as its own historical development.

There seems to be a pronounced pendulum motion, also noted in social capital literature, between the importance and salience of the individual and of society. The Enlightenment and (in economics) Adam Smith, brought a way of thinking that stressed the atomistic individual, whereas the German Romantic reaction to this was collectivity, society, and the common good. After World War II followed a burst of individualism again in life and in science. As Eric Hobsbawm has put it in *The Age of Extremes*:

> The old moral vocabulary of rights and duties, mutual obligations, sin and virtue, sacrifice, conscience, rewards and penalties, could no longer be translated into the new language of desired gratification. Once such practices and institutions were no longer accepted as part of a way of ordering society that linked people to each other and ensured social cooperation and reproduction, most of their capacity to structure human social life vanished. They were reduced simply to expressions of individuals' preferences, and claims that the law should recognize the supremacy of these preferences.[1099]

From the 1980s onwards, social science has again swung back to being interested in communities, solidarity, and the institutions of society again. Decreasing social capital and social cohesion in many western societies has worried social scientists and decision makers, and besides, new research has emphasized the advantages that social capital can bring to national economies. Both human and social capital are thus old ideas. The pedigree of the terms describing them has changed over time, and continue to do so in present studies. For those like Karl Knies, this kind of conceptual vagueness is a curse, whereas others see it as a sign of a dynamic and developing enterprise. The author of this work opts for the latter interpretation. It is also worth bearing in mind, that the number of articles and books published about human and social capital in the 20th century does not lag far behind the number of tomes discussing the meaning of 'capital' in the 19th century.

Roscher, Hildebrand, and Knies all developed stage theories – Roscher his cyclical stage theory of historical evolution, Hildebrand his linear stage theory of economic history, and Knies his stages of moral progress. However, for Knies the words 'human' and 'capital' are not easily reconciled in same expression; and the same can be said for the opinions of Gustav Schmoller, Carl Menger and Eugen Böhm -Bawerk.

Although Adam Müller devised a fine-grained if eclectic classification of different sorts of tangible and intangible capital at the turn of the 19th century, and Franz Josef Mone, Friedrich List, Wilhelm Roscher, Bruno Hildebrand, among others discussed the idea more or less prominently in their work around the middle of the century, the later phase of the GHS that manned the chairs of *Nationalökonomie* around the end of the century turned away from the idea. The very intense debate on the essence and definition of capital led authors such as Knies, Schmoller, and Knies's pupil Max Weber, to judge the expanding boundaries of the concept of capital as harmful for the discipline, and it prompted them to go back to more traditional views. They made their innovations in explaining economic and social phenomena mostly within a framework of institutions.[1100] The same rejection of the idea happened among the Austrians,

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1099 Eric Hobsbawm, *Age of Extremes: The Short Twentieth Century, 1914-1991* (London: Abacus, 2003), 338-339.

1100 Setting these approaches against each other, Becker and Wößmann argued much later that it was protestant instruction in bible reading that generated the human capital crucial to economic prosperity instead of Protestant work ethic. Based on Prussian county-level data they shoved that Protestantism was associated with both higher economic prosperity and better education. Sascha O. Becker and Ludger Woessmann, "Was Weber Wrong? A Human Capital Theory of Protestant Economic History," *The Quarterly Journal of Economics* 124, no. 2 (2009): 531-596.

while Marx developed a theory of capital where there was no room for a concept of human capital either. As Marshall too toned town his presentation of personal capital in *Principles*, all three schools (emerging neoclassical, Austrian, and historical) were very reserved about the idea of human capital and wanted return to a concept closer to the language of the market. These developments happened despite the fact that, towards the end of the century the Germans began to challenge Britain's economic hegemony, precisely by harnessing science and research in the electrical and chemical industries, until Germany eventually became and still is the industrial giant of Europe.

8 TWO AND A HALF CENTURIES OF INTANGIBLE AND HUMAN CAPITAL

This chapter will draw together the results of our immersion here in the 19th century debate about intangible forms of capital and attempt to answer the research questions set at the beginning. The end of the chapter will also briefly address broader issues, such as the impact of methodological change on the requirements that underlie the legitimacy of scientific and scholarly concepts. To begin with, however, there will be a short recap of the goals and questions set at the start.

The three main objectives were: A) to describe the emergence and evolution of the idea of intangible phenomena as capital; B) to understand how certain 19th-century authors embedded these nascent ideas of intangible capital into their economic theories to explain the growth of firms, collectives, and individuals; C) to understand what factors in society and the field of economics influenced the emergence of the capital connection, and why its lure seems to have waned towards the end of the 19th century.

These goals were complemented with some further questions. 1) Who were the authors that first started to include intangible phenomena in their concept of capital or started to use separate intangible capital concepts? 2) When did they do this? 3) How did they promote such an approach? 4) What was the content of their definitions? 5) How did subsequent authors and critics, within the scope of this work deal with the concept as it evolved?

In order to achieve the second goal (B), I went on to ask (i) what kind of theories used intangible capital in the literature; and (ii) how intangible capital was seen to promote growth in the socioeconomic fortune of various entities. Finally, in order to achieve the third goal (C), I looked to see if possible reasons could be found in the past literature (e.g., in the sociology of science). By trying to set the literature in the context of the era, I also tried to pin down more precisely what socioeconomic reasons might have fostered such developments.

One way to answer the first two sets of questions is to look back at the kind of debates in which human and intangible capital cropped up in the past.

This gives us a richer picture of how the concepts connect with the economic theories of the time.

1) In Adam Smith's work, acquired abilities were fixed capital that featured both as part of the wealth of an individual as well as national wealth. The idea spread fast, and skill and knowledge as personal capital were already well represented in French and German economic thought by the first decade of the 19th century. The accounts of both Adam Müller and Franz Josef Mone also placed a similar significance on wealth, although from a much wider perspective. Mone also made it clear which kind of investments and institutions increased intangible capital. The idea that one should look for more than just material accumulation if one wanted get to the sources of wealth was thus at the root of the argument from the beginning.

2) The debate about productive and unproductive labor in terms of material and intangible goods was one of the central disputes involving intangible goods, capital, and labor for many years. Smith's way of seeing only the producers of material goods as productive was challenged early on in Britain, and then especially in France. This was also still an issue when Friedrich List criticized it in 1841, yet J.S. Mill remained loyal to the idea right up to the publication of his *Principles* in 1848.

3) Malthus' population theory was challenged early on in Britain, France, and the US, and intangible capital as a productivity increasing factor was used as a part of this challenge, for instance, by James Grahame, William Nassau Senior, Henry Charles Carey, Henry Vethake, J.-B. Say, Adolphe Blanqui, Henri Storch, and Henri Baudrillart.

4) Authors like Friedrich Buchholz, but especially Henri Storch, argued in the early 19th century that dismantling the artificial hierarchies and institutions that maintained the unequal legal position of individuals would allow for a rapid expansion and development of the intellectual capital of the populace. Societies paid a hefty economic, social, and intellectual price for discriminatory practices.

5) Investments in education and research as methods of increasing intangible capital and productivity were also being discussed quite early on. A good example is Adolphe Blanqui, who argued for investments in primary, secondary, and higher education in the 1830s.

6) Personal human capital investments and overall investment in research and innovation were seen as a solution to the social conundra of the concentration of capital in only a few hands and the accompanying proletarianization (downward social mobility). By increasing personal productivity and thus all productivity across the board, investments in education and science were seen to be the rising tide that would lift all boats by growing the economy and narrowing the gap between the classes. In the 1860s, Paul Leroy-Beaulieu presented the consensus view of French economists to be that high profits were not in opposition to high wages. Meanwhile in the US, Carey argued that interests were in harmony, but work had to be done with those factors that prevented

their realization. Böhm-Bawerk and Marx argued that making capitalists of the laborers like this was more of a sham than proper economic theory.

7) A parallel and sometimes integral part of the debate above was a heavy emphasis on what was called moral capital, i.e., conformity to the right set of mores, habits, and beliefs. Moral capital could be invested in, by diffusing these through education, but the argument could also be very *moralist* in tone, shifting the responsibility of impoverishment to individuals lacking of right set of morals. Examples of authors emphasizing such moral properties as capital are Nassau William Senior, Bruno Hildebrand, and Paul Leroy-Beaulieu.

8) In Gustave de Molinari's later works, a capital approach to the physical, intellectual, and moral properties of nations and individuals (*capital personnel*) was combined with a social Darwinist framework, which was the source of incremental socioeconomic development. Also in Pellegrino Rossi's thought there was the idea that constant competition in the middle classes of society kept society advancing but also made families go up and down according to the degree they internalized and conformed to positive bourgeois values.

9) Innovation was discussed within an intangible capital framework early on. In J.-B. Say's work, funds of industrial faculties were the source from which the knowledge, innovation, and ideas of the learned *savants* sprang. Entrepreneurs then applied these in business, combining intangible and material resources and labor with their business acumen. In the works of Blanqui and Henri Storch, such ideas were applied to national contexts. Molinari argued that intangible capital was required to produce inventions, but also material resources were required as in any other line of business. Those arguing for a physical form of human capital, like J. R. McCulloch, argued that even the food that James Watt (for example) nourished himself with while developing his steam engine was a capital investment.

10) National health and population issues were seen explicitly within a capital framework from at least 1790, when Johan Ludwig Ewald argued that *Menschenkapital* should be protected from charlatans and quacks. In France, the earlier intangible emphasis turned towards physical concepts of human capital towards the end of the 19th century. This is visible in the increasing prevalence of the term *capital humain* from the 1880s onwards. Léon Walras, Gustave de Molinari, Vilfredo Pareto, and Irving Fisher discussed human beings as physical capital. In 1850, von Thünen in Germany showed how to calculate the amount of *Erziehungskapital* invested, and estimate its future returns; and judging from Böhm-Bawerk's critique of such cost of production approaches (and Ernst Engel's procedure presented in 1883)[1101], the idea was already known to German and Austrian economists. The issue was also connected to the amount and quality of manpower in war. However, both the Austrian and German historical schools of economics turned their backs on human capital concepts.

11) Yet another issue that human or intangible capital concepts addressed was business competition. Already Say had argued how knowledge and business acumen were vital for entrepreneurs. Gustave de Molinari presented the

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[1101] Ernst Engel, *Der Werth des Menschen*, vol. 1/2 (Berlin: L. Simion, 1883).

same idea within a framework of competition and in a struggle for firm survival constrained by evolutionary principles. Quality investments in personnel capital were an important source of advantage in this competition.

12) Intellectual property rights and patents were also discussed as a form of intangible or intellectual capital during the 19th century. The idea of rights and contracts as capital was already present in Sismondi and Hermann, but more specific accounts were presented too. In 1850s France, Jobard, Passy, and Molinari discussed the issue from the point of view of intellectual property rights, and also from the point of view of talents and intellectual abilities, in the pages of *Journal des Economistes*. Passy and others also discussed the topic later in *De la propriété intellectuelle* (1859).[1102] Molinari's argument was that the creation of inventions required the combination of labor and capital as did any other branch of human industry, and that there were two kinds of capital – tangible (material) and intangible. The latter consisted of knowledge that was the result of research and education. In German, for instance, Karl Richter and Constantin von Wrangell examined the fund of faculties that made possible literate, artistic, and scientific creation as capital in the 1860s.

13) Also the argument was made that the capital embodied in people had been responsible for the rapid post-war recovery of countries "that had suffered severe destruction of plant and equipment during the war", as Schultz did in 1961[1103]. Alfred Jourdan wrote in his *Épargne et capital* (1879) that it was energy, industrious activity, and the creative faculties that explained the sometimes remarkably fast return to prosperity after a devastating war, providing this valuable intellectual and moral capital had remained intact.[1104] Henri Baudrillart also presented a similar idea in 1860. J.S. Mill had mentioned the phenomenon earlier, but his conceptual framework, as we have seen, did not allow him to speak of capital in this way.

14) On the national level, beneficial systems of government, business rules and regulations, and labor power were seen as intangible capital. There were variations of this argument so that while some saw organs of the state as capital (e.g., Rodbertus), others approached it from a transaction cost and labor power angle (Dietzel), and still others argued that that the state and its agencies could be seen as capital only to the degree to which they served private economic agents in production and satisfied their needs (Schäffle).

15) Finally, we should consider the overall debate of what capital was thought to be; and if human capital and intangible capital were indeed possible, what was it that was being capitalized in the process exactly. This debate went on and on during the century, but I will still try to present the main notions. Much of the debate came from the logical deductions drawn from the definitions of certain central concepts. The framework of classical economics after

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1102 Frédéric Passy and others, *De la propriété intellectuelle. Ètudes* (Paris: E. Dentu, 1859).

1103 Theodore Schultz, W., "Investment in Human Capital," *The American Economic Review* 51, no. 1 (1961), 6-7.

1104 Jourdan cited a lecture given by Michel Chevalier at Collége de France on June 4, 1874. Alfred Jourdan, *Épargne et capital, ou Du meilleur emploi de la richesse: Exposé des principes fondamentaux de l'économie politique* (Aix: A. Makaire, 1879), 57-58.

Adam Smith was basically that wealth consisted of goods, and goods used for further production formed capital. Labor was then applied to capital and land (or raw materials) to produce further goods. Inputs of labor, land, and capital were then remunerated in wages, rent, and interest (or profit). Labor that produced goods, i.e., wealth, Adam Smith called productive. The problem, and the cause of much debate we have examined here, was that Smith defined "wealth" as consisting of only "material" goods with an exchange value. Thus only the production of such material goods could increase the wealth of a nation, and all people who were not directly involved in production of these material economic goods were "unproductive". As a further consequence, because capital was itself determined as part of wealth, it could only consist of material goods too, so intangible capital such as "stock of knowledge" was impossible. Smith's idea of acquired abilities as capital is thus an example of a physical human capital theory. The analogy between man and a machine of course hints at this too. It was unfortunate that although Smith understood the annual "flow" of goods to be the best proxy for the wealth of a nation, his definition of wealth did not allow for many of the sources for this productive power to be considered as capital or as productive labor. A further headache for future generations was Smith's labor theory of value, which hinted that capital could just be a mechanism for moving the fruits of labor to the pockets of capitalists.

Most of the debate we have been following operated within or around this conceptual framework. Lauderdale, for instance, noted how restrictive the definitions "capital" and "productive labor" were as early as 1804, and in 1803, J.-B. Say, the most important proponent and disseminator of Smith's ideas in continental Europe, also attacked Smith's 'productive' classification as it consigned so many professions to the "unproductive" dustbin.

Say began to rehabilitate these professions by saying that the goods they produced were intangible and based on a "stock" of industrial faculties, which would later become intangible capital.[1105] Say made only a start in this respect though, arguing that services often had real effects and satisfied needs, and that some were absolutely vital, so should not be called unproductive. But in his *Traité*, Say did not go any further, and otherwise remained within Smith's framework, in so far as he agreed that because such intangible goods perished at the moment of consumption, they could not be amassed, and thus could not increase the relative wealth of a nation.

The issues steadily evolved, however, so that during the first half of the century it took a number of forms as time wore on. To begin with, (a) intangible goods (e.g., services) were seen as economic goods; then (b) intangible goods were based on intangible labor, (e.g., skills and knowledge), so that the labor itself became capital; (c) wealth was seen to consist of items satisfying human needs, hence services could then be included; (d) the value of goods and services became based on the scarcity of their utility, not simply the labor used; (e)

[1105] Jean-Baptiste Say, *Traité d'économie politique*, vol. 1/2 (Paris: Chez Deterville, 1803), 360–365.

the providers of services could increase productivity; (f) productivity is seen to depend on stocks of skills and knowledge; (g) it was possible to invest in these consciously; and (h) the level of technology and productivity were thus partially under the conscious influence of human societies. Another factor in the growth of human capital theory was when, in 1815, Ganilh attributed the profit unexplained by traditional factors to "unknown capital" (*capital inconnue*); and this was thought to reside the insights, talents, trustworthiness, and reputation of a merchant.

Where the debate about intangible forms of capital was at least partially detached from the above conceptual framework was in the areas of what Jacoby called, in 1908, *Sozialkapitals*[1106] and Passow, in 1918, called "*[d]ie sogenannten volkswirtschaftlichen Kapitalbegriffe.*"[1107] In these accounts, national capital was not a sum of values of the private and public capital, but involved features and resources that promoted and supported the functioning of the organic whole that the national economy was considered to be. Mores, governance, organization, and even the whole state were often mentioned in this context. Also Adam Müller liste a wide range of intangible forms of capital, describing resources such as a common language, societal organization, and knowledge inherited from previous generations as factors which reduced transaction costs and made society function more efficiently. In such accounts, patriotism, and a shared past could be considered as capital but so too could shared morals, mores, and habits. That this 'moral capital' was also often part of the vocabulary of those debating the issue within the framework of classical economics is an interesting feature of the 19th century literature. However, were we to go further than we do here with the French and German socialists such as Proudhon, who used the term *capital social* in relation to talents (6.1), or Rodbertus, and instead looked more closely at the late 19th century state socialists and historically oriented *Kathedersozialists*, we would very likely get a much richer and more complete picture of the antecedents of social capital theories, which place a greater emphasis on the role of such capital as a facilitator of social and economic interaction and reciprocity.

If we go back to the idea presented in 1.1.4 that, providing there is enough in common between the policy prescriptions of these 19th century theories and the theories of human and intangible capital since the 1960s, then one could put them in the same arena, in so far as they would be roughly on a par, and fighting over a similar paradigm. Judging from the list above many of those policy prescriptions do just that, and some actually resemble a modern-day endogenous growth theory.

At the same time, there were those policy prescriptions that emphasized the gravity of limited resources as being fundamental constraints on human existence, even for local short term projections (e.g., Cantillon, Malthus); while

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1106 Walther Jacoby, *Der Streit um den Kapitalbegriff; Seine geschichtliche Entwicklung und Versuche zu seiner Lösung* (Jena: G. Fischer, 1908), 32–33.

1107 "The so called national economic concepts of capital."Richard Passow, *Kapitalismus: Eine begrifflich-terminologische Studie* (Jena: Fischer, 1918), 55.

others saw some of the observed "laws" as being so powerful that they would inevitably lead to ruin (Marx). These policy prescriptions projected mostly a grim future unless radical steps were taken, and because of those steps, may have been methodologically more important to the development of modern economics and social sciences. Nevertheless, the lot of those who had to live with the policies drawn from them was not always very pleasant. Of course, we will only get to know the ultimate truth about this growth-backed ingenuity vs. resource scarcity debate when we either start to populate the Milky Way and get sustainable growth for prolonged periods, or face extinction after burning all there is to burn on this planet.

Another repercussion, connected to this growth ingenuity vs. scarcity caution debate, is that both sides look to education to provide the answer. For the Malthusians (especially in the Ricardian setting), the idea was that the only way the working classes would improve their position was by limiting their numbers, because otherwise population dynamics and the iron law of wages would negate any productivity improvements, and so this had to be made clear to the workers through public education. For the others, however, public education was a direct means to increase the productivity of labor and thereby its income. But in the wage-fund theory setting, the fixed resources problem continued to limp along in classical economics into the second half of the 19th century. In *Principles of Political Economy* (1848), J. S. Mill still supported it, and it was not until 1869 that he finally threw it aside.[1108] Of course, for many authors these approaches overlapped, and there were also those who saw the role of education in instilling moral values and habits to securing social order.

One way to get past the argument that the methods of past economists differ too much from those of the present day (because of the very different contexts) is to focus on the policy prescriptions one can draw form these theories. The premises, concepts, theories, or data behind any policy prescription may not be the most reliable, but in such important matters, one rather prefers working advice for the wrong or unknown reasons than unworkable advice for the right reasons. Policy prescription as a pragmatic heuristic can also work on various levels of analysis from an individual, to a firm, to society, and ultimately humanity. For example, Cantillon evaluated the factors which had an impact on whether a farmer should educate his son, i.e., whether it would pay back the costs with interest. Meanwhile, Henri Storch gave an indication as to how a state might increase its intangible capital through education, research, and importing educated people, and that serfdom and state imposed hierarchies carried high economic price. J. S. Mill claimed that the general trust in a society had a big impact on the productivity of labor and a number of other factors. Karl Richter proposed that intellectual capital should be protected through intangible property rights legislation, although many economists were against

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1108 "[T]his doctrine is deprived of its scientific foundation, and must be thrown aside." Wage-fund theory was therefore off the board, but Mill saw that the population principle and its consequences were in no way touched by what Thornton had presented in the book that Mill was commenting on. John Stuart Mill, "Thornton on Labour and Its Claims, Part I," *Fortnightly Review* 5, no. 29 (1869), 517.

such a system at the time. Finally, Paul Leroy-Beaulieu suggested that higher productivity, attained by investing in intangible capital made high profits with high wages possible, thereby bridging the gap between haves and have-nots. Because the above ideas in this paragraph also feature in current discussions about intangible capital concepts, and many of the prescriptions are very similar to what is offered by research using contemporary conceptual equivalents, there is a reason to claim that the concepts are very much in the same arena.

Another angle to approach the question of what is new in the debate about intangible or human capital is to look at the conceptual and philosophical debate. There is no doubt that much of the data collection, econometric, and statistical methodologies are very different from what the early 19th century economists were using, so the nature and quality of observations used to back or falsify propositions concerning these issues have changed quite a bit. The conceptual and philosophical debate, however, still faces similar questions, which is proven by the recent suggestion from Geoffrey Hodgson that we should reject the terms 'human capital' (except in cases of slavery) and 'social capital'.[1109] He also cited Baron and Hannan,[1110] who called the concepts that followed in the wake of human capital in the 1960s, a "plethora of capitals" in their article discussing the impact of economics on sociology. They then went on to slate them for being the result of a "minor sociological industry". In all, Hodgson counted 23 varieties from Grossman's "health capital" through Bourdieu's "symbolic capital" to Castelfranchi, Falcone, and Marzo's "collective trust capital."

Considering a period slightly earlier, Hodgson lamented both the massive intellectual effort from the 1880s to the 1970s devoted to debating the nature of capital and developing capital theories and how little this effort had added to our understanding of the nature, to the dynamics of capitalism, or to the construction of a practical economic policy.[1111] As we have seen, there was a similar plethora of capitals happening in the 19th century too, and that plethora hints that Hodgson's solution, i.e., going back to money and interest, may not actually help at all. Furthermore, based on what we have seen above, much of the period Hodgson mentions was in fact a reaction to this earlier "plethora," and was therefore going to be a period when the pendulum of historical development (see 7.3) would be swinging in a conservative direction compared to earlier. That is also perhaps why the idea of human capital seemed so new in the 1960s. Werner Brylewski recorded some of the variations to the 19th century concepts to *Die verschiedenen Vorstellungsinhalte des Begriffes Kapital* (1933) Brylewski argued that economists could very well disagree even if limiting themselves to money and interest when speaking about capital.[1112] This past plethora of capi-

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1109 Geoffrey Martin Hodgson, *Conceptualizing Capitalism: Institutions, Evolution, Future* (Chicago: The University of Chicago Press, 2015), 183.

1110 James N. Baron and Michael T. Hannan, "The Impact of Economics on Contemporary Sociology," *Journal of Economic Literature* 32, no. 3 (1994), 1122.

1111 Geoffrey Martin Hodgson, *Conceptualizing Capitalism: Institutions, Evolution, Future* (Chicago: The University of Chicago Press, 2015), 173-174, 181-183.

1112 Werner Brylewski, *Die verschiedenen Vorstellungsinhalte des Begriffes Kapital* (Stuttgart: Kohlhammer, 1933), 182-185.

tals has also been the reason why I had to mostly give up trying to explain the debate concerning material and monetary capital as the discussion in this volume has tried to restrict itself to only the intangible and human capital corner of this debate.

The early 19th century debate about capital was a debate about the ultimate causal factors in economic development and about how to best increase the material and intangible well-being of various human societies. One of the starting points for this study was whether Mark Blaug's statement about the development of human capital theory in classical economics during the 19th century was also valid for continental economic thought. Blaug suggested that one could go from Adam Smith all the way to Alfred Marshall without seeing much development. But a reading of the German and especially French economic literature of the first two thirds of the century shows that most of the phenomena now discussed as human capital, social capital, or intangible capital were in fact being considered as capital then, and that also many of the finer points present in contemporary literature were being acknowledged too, at least by some of the authors. So it seems that this phenomenon was predominantly a problem of the British classical economists. As we have seen, the notions of human capital or intangible capital do not make much sense in the framework of Malthus or Ricardo, nor in Marx for that matter (who built his work on Ricardo's principles). Meanwhile, McCulloch explicitly made analogies between human beings and either draft animals or older machines, while Mill was at pains to balance, on the one hand, what he actually observed and thought would have been helpful for the scientific clarity of the concepts with keeping as many of the existing definitions in the field, being afraid that extending the concepts would somehow come at too high a price for the general clarity of political economy. Furthermore, Mill wanted to keep investments and the results of research and innovation outside the analysis of political economy. Marshall later expressed similar worries regarding the language as Mill, for he did not want economics to be too far from what he understood to be the language of the market either.

However, in French and, to a more limited extent, in German, most of these problems were discussed and solved in a manner very similar to our present understanding. The language of the field was redefined in a way so that it was possible to speak of providers of services as being productive without there being any existential conflict with the tenets of Smith. A big influence in this was the economist Henri Storch, who interestingly enough was Russian but of German origins, and writing in French. Human beings with their inherited talents were meticulously separated from their acquired abilities, so that McCulloch's draft animal analogy no longer held, and deeply ethical and even religious economists could now operate with the concepts. Whatever the skills or knowledge of a person, human worth and dignity remained. Furthermore, technological level was understood as being a least partly under human control in so far as by investing in education and research one could have impact on the level of productivity. This then was a way to narrow the gap between the own-

ers of capital and labor, since high profits were no longer seen to be in conflict with high wages. With the exception of Nassau W. Senior, Britain was very much in the sway of classical economics – J.S Mill for instance continued to be influenced by the wage-fund theory and population principle right up until 1860s. But in France, it is possible to say that intangible and human capital was a mainstream view, offering as it did a framework for increasing labor and technological productivity. Towards the end of the century the more demographically oriented and health-related concept of *capital humain* started to gain ground, and in the works of Walras, Pareto, and Irving Fisher, human beings were considered in themselves as capital, and labor as their revenue.

Looking at the period and this issue from the safe distance of more than a century, it becomes evident that the concept of capital was stretched to its limits by considering just about everything as such if it was thought to promote production or some other indirectly related goal. However, this was seldom done in an irrational way, and already in the early 19th century, some authors were beginning to understand that it was impossible to categorically determine which goods or categories of goods were capital and which were not, if one wanted to be logical and consistent with the idea of understanding capital as a means of production. Irving Fisher tried to end an economic debate which he considered fruitless for the subject by declaring that capital was all wealth at any instant of time, and income, in whatever form, tangible or intangible, was the service flowing from this wealth through time. Unlike earlier authors such as Auguste and Léon Walras, who emphasized the fundamental and important difference between capital and its service, Fisher was arguing that all wealth was material, and hence, all capital had to be material. Fisher's attempt to end the debate proved provisional, as his approach would have required us to consider human beings as physical capital, and left us unable to abstract human skills and knowledge as the resources and means of production owned by people. The contemporary idea of a stock of knowledge being a form of intangible capital separate from people does not really work very well in Fisher's framework either.

This thesis shows that when studying the 19th-century history of education, research, beneficial institutions, technological innovation, and so on, within a contemporary human, social, or intangible capital framework, one does not have to worry so much about using anachronistic concepts. Similar concepts were indeed widely used in the 19th century, and as anyone who has opened more than one textbook of economics from the era would have noticed, it is clearly feasible to evaluate such phenomena within a capital framework. It is time, therefore, to stop discussing these theories and concepts as if they are of "recent vintage", and as if there is no conceptual history of the social sciences that goes beyond 1950s or 1960s. Otherwise logic requires us to affix the "recent vintage" label on nearly every economic idea, from capital to marginal utility, no matter how strong the historical antecedents.

The terminology, however, to a degree, is certainly of recent vintage, although not in a way that one would usually expect. Human capital, social capi-

tal, and intangible capital were all used during the 19th century, but their conceptual content was to a varying degree different. In France, the term *capital humain* had a more physical and demographic emphasis than our contemporary idea of human capital, although it was also used to denote personal human faculties. "Social capital" was used in France to denote financial capital or the value of a company, while in German it came to mean national or aggregate capital (in Böhm-Bawerk's work for instance). "Intangible capital" was rarely used, but if it did, it usually meant capital assets in bonds, annuities, stocks, and credit; the idea of intangible capital as a form of goodwill also made rare appearances in the popular press.[1113] By the end of the century, however, intangible capital was being used both as an accounting entity and to describe what had earlier often been understood as intellectual capital. More often, however, the phenomena we connect with these terms today were discussed (and are best translated) as "intellectual capital", "intangible capital", "moral capital", "personal capital", or just simply "capital". In German there was, for instance, *Kunstkapital*, *Menschenkapital*, *Erziehungskapital*, *Bildungskapital, geistiges Kapital* and *unkörperliches Kapital*; while in French there were *capital immatériel, capital intellectual, capital moral,* and *capital humain*.

Although the Malthusian and wage-fund theorists saw the need for public education to advise the working population to keep their numbers down, it is worth noting that later economic history research has shown that the British population had indeed been limiting its numbers from the 18th century (EMP, European Marriage Pattern).[1114] In addition, food production had also gone beyond Malthusian checks since the 17th century. Meanwhile, for those theorists who saw that the real constraints were the level of technology and productivity of labor, and there were many in France, public education had a much more fulfilling productivity enhancing purpose, with the promise of infinite growth.

In terms of human capital theory, Smith's analogy between the man and the machine in which acquired abilities and skills were seen as fixed capital was reiterated to some degree in the subsequent literature. But it was also refined and carried off in different directions. One particular bone of contention was whether human beings or only their abilities could be considered as capital. In France, the latter approach became dominant, and skills and knowledge were raised to become the factor that determined the success of individuals, firms and nations. The *savant* and *entrepreneur* became in many accounts the epitome of economic development. Raising productivity through education, research, and technological innovation was the way to solve the problems of income inequality and social division, as it ensured that high profits did not have to neces-

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1113 Benjamin Seebohm, "Extracts Form the American Correspondence of Benjamin Seebohm," *Friends' Review* XXV, no. 1 (1871), 4.

1114 John Hajnal, "European Marriage Pattern in Historical Perspective," in *Population in History: Essays in Historical Demography*, ed. David Victor Glass and David Edward Charles Eversley, (London: E. Arnold, 1965); Tine De Moor and Jan Luiten Van Zanden, "Girl Power: The European Marriage Pattern and Labour Markets in the North Sea Region in the Late Medieval and Early Modern Period," *The Economic History Review* 63, no. 1 (2010): 1-33.

sarily conflict with high wages. This was also connected to calls for a universal primary education and an emphasis on higher education, both applied and theoretical. Towards the end the 19th century, however, the pendulum was swinging back, and the physical and material idea of human capital was gaining traction. Molinari wrote about *capital personnel* and many others about *capital humain*. In Germany both physical and intangible approaches existed, but the most methodologically modern was von Thünen's attempt in 1850 to provide tools for calculating the "educational capital" (*Erziehungskapital*) invested by a family in its younger members. Thünen's approach, however, also took into account the physical cost of production. In German, the idea was also applied to more conservative ideas of social order, whereas in the French it generally served more emancipatory and liberal goals.

The historical roots of "social capital" in 19th-century literature are somewhat more dispersed and scattered than those of human capital. But nevertheless, (whether through instruction, habit, or religion) goodwill, trustworthiness, creditworthiness, networks, clientele, reputation, and conformity to beneficial norms were all discussed as capital in some form or other. Patriotism and shared heritage were also seen as part of the social capital of nations too, especially after national-romantic ideas started to gain wider attention. Social capital as a term was also greatly used in the literature of the day to denote common or shared capital within an infrastructure, although it was also used for example in France to mean the total capital of a joint-stock company. Nevertheless, from the shared infrastructure point of view, the step was short for considering shared norms and habits as social capital.

The concept of intangible capital is, in a way, the direct descendant of the French *capital immatériel*, or would be if the present literature let it be known. The French liberal economists of the early 19th century were the ones that saw the learning of *savants,* and the innovation of research in science and industry as the engines of modern economic development. The scientists developed and invented the technology that the entrepreneurs could then apply to production and trade. Entrepreneurs too were in a knowledge intensive business, and the nature of their tasks was not so far from that of researchers. Furthermore, influenced by the philosophy of John Locke, the granting of patents started to take shape in its modern incarnation, as a form of intellectual property right instead of the granting of an economic privilege. Having got to grips with the historical reasoning, limitations, and the political biases of earlier economic thought, which saw land as the limiting factor of human existence in a very immediate way, the early 19th-century economists in France saw that the possibilities in manufacturing were theoretically limitless, and that proper investment in intangible capital could improve the human lot in every sense, and not just materially. In the early liberal accounts there was a strong and perhaps somewhat naïve sense of trust, but also an emancipatory idea that breaking out of these old feudal constraints would not only increase the overall capacity of production enormously but also eradicate many of the existing problems of social inequality. As we know, the laissez-faire policies of the early industrial era did not

make it easy for the poor moving from the countryside to the factories *en masse*. The changes brought about by industrialization were abrupt for many; and from the political perspective, the dissolution of the old elite in France led to a quick entrenchment of the new elites basing on industrial wealth, with some harmful consequences. But these emancipatory ideas were not simply restricted to France; as we have seen, "intellectual capital" was also very much a 19th-century phenomenon, and featured particularly in Senior and Richter's works.

In many cases we can conclude that (i) some of the contemporary terms can be quite bad guides when looking for the actual *concept* in the literature; (ii) looking at how past authors defined capital or some intangible class of it, and comparing it to contemporary versions brings rich rewards; and (iii) the variety of terms and occurrences of the concept in these three languages is so interconnected, and yet spread out that not much of the issue can be captured by focusing on the literature in only one language. We can compare "human capital" and "social capital" as a case in point. Human capital as a term makes very few appearances during the 19th century, which has led some academics to make false assumptions about the novelty of the concept during the 1960s renaissance. Social capital, on the other hand, was very common, but the concepts it portrayed were very different. It was most commonly used in French texts meaning the whole capital of a joint-stock company. But again, most of what we understand as social capital was defined as capital or as some class of intangible capital with various modifiers. Indeed, if we are to take point (ii) above seriously, we should examine our contemporary terminology through the prism of their 18th and 19th century equivalents rather than the other way round, as this will avoid the hasty proclamations caused by trying to look at the past from the confines of contemporary terminology.

That the economists of the 19th century read what was going on across the border in neighboring countries is nothing new, indeed and that is why point (iii) is made above. With such a spread of contexts, the direction and strength of influences differed considerably. Although this has not been the primary focus of this study, some impressions are evident and need to be conveyed. Firstly, there is the reception of Adam Smith in French and German, and how Smith's ideas permeated the existing traditions in each cultural context differently. Whereas liberal economists writing in French were very much part of, continued, and contributed to the classical tradition, the German discussion was far more antagonistic – especially after the emergence of the GHS.

Although the strong emphasis on the importance of intangible capital in French publications is perhaps not quite as significant as the marginal analysis that was also first developed in France, then taken up in Austria and England, it does seem the French understood the role of knowledge and education in an industrial and commercial economy in a durable way, and were their ideas better known than they are at present, one could draw a direct line from their discussions about intangible capital to our contemporary concepts. Instead, however, we know that the US economists of the 1950s and '60s who brought back these concepts very rarely cited past authors as sources and influences; and if

they did, like Fritz Machlup, for instance, they neglected the wealth of material in French. Machlup, for instance, when discussing the history of human capital theory in his *Economics of Knowledge and Information* (1984), jumped directly from William Petty and Adam Smith to Joseph S. Nicholson and Alfred Marshall, thus missing out the most intense period of debate about this issue before the 1960s.[1115] Similarly, although B. F. Kiker unearthed dozens of authors who had discussed people or education as capital, the monetary value of human beings, and the loss of human capital in wartime[1116], he chose to look at the issue more or less from the perspective of human capital emerging in the 1960s, so the wider implications of the idea of intangible capital raised in the 19th century were not examined. If they had been, they could have found most of what has since been taken into account to explain growth beyond the traditional factors of production, as well as a thorough discussion of the importance of knowledge, education, trustworthiness, as well as useful moral and practical habits.

The literature in German raised somewhat different issues. Adam Müller's meticulous definitions of the kinds of intangible capital are a case in point (see 4.2.1). It is difficult not to see the similarity between his classifications and the various classes of capital described by Pierre Bourdieu more than a century and a half later. But as a very conservative figure, Müller's motivation was clearly different. He was defending many aspects of the existing order, culture and language by labeling them as "capital" so as to make their benefits as collective treasures for all humanity clearer to those who were already mesmerized by the new language of industry and capitalism.

Meanwhile, although a statistician like Josef Mone counted cultural and educational institutions as proxies for intangible capital, he was more of the exception that proved the rule – basically, the established political economists (i.e., the chairs of *Nationalökonomie*) were far more reluctant than the French to accept a broader conception of capital during the first half of the 19th century. Wilhelm Roscher, Bruno Hildebrand, and later Karl Richter were eventually surpassed by the younger generation of GHS, as they started to dominate towards the latter third of the century, and argue more forcefully against the idea of intangible capital. Schmoller, for instance, although he had quite a holistic view, that would actually fit quite well with the modern field of economics in that respect, emphasized the importance of institutions, habits, and mores. The younger GHS built a substitutive mode of explanation to account for individual development as well as advances in technology, culture, and civilization.

As we have seen, in the Marxist framework the idea of intangible capital did not fit, and Marxist analysis had a particularly profound impact on the late representatives of the historical school such as Weber and Sombart. But also an Austrian like Böhm-Bawerk argued that the French were wrong with their belief in the power of personal and intangible capital as a way of bridging the gap

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1115 Fritz Machlup, *The Economics of Information and Human Capital*, Knowledge: Its Creation, Distribution, and Economic Significance, vol. 3/3 (Princeton, N.J.: Princeton University Press, 1984), 300–302.

1116 B. F. Kiker, "The Historical Roots of the Concept of Human Capital," *Journal of Political Economy* 74, no. 5 (1966): 481-499.

between the haves and have-nots. Not because it would have been theoretically impossible, after all one could not really argue with that, but because, and this was the point, it could not be demonstrated empirically, he claimed.

As this study has been more about the birth and emergence of the idea of intangible capital, the discussion about the reasons for it falling off the the economic radar in the last decades of the 19th century has been rather sporadic, and could be a subject worthy of further study. There are various factors that may have played a part in this from outside the field, but one reason within political economy was the emergence of marginal theory, and the mathematical methods espoused by two of its early developers – Walras and Jevons. This is not to say that marginal analysis was automatically in contradiction with the concepts of intangible capital, but when the early marginalists applied their mathematical methods to the problems they faced, they may have had a tendency and good reason to mold the concepts to better fit and serve their equations. Walras certainly did this by defining people as capital and their labor as interest, so that both could have a price on the market and their margins calculated. Their costs of production could thus be analyzed like any other goods and be compared. This is quite far from what Senior had suggested about forty years earlier – that one should keep the share of remuneration paid for work rendered (wage) separate from the share brought by innate talent, strength, and luck (rent); and the share from past investment in personal capital (interest). While Walras tried pin down his theories of interest, wage, and rent in a series of neat mathematical equations, Senior did not have to worry in the same way about whether the said shares were really analytically separable.

Among the early marginal theorists, Jevons seems to have also kept his mathematical method for measuring marginal utility in mind when giving his definition of capital. Defining it simply as the maintenance of the laborer allowed him to measure capital in terms of the amount of utility (and its enjoyment) that was deferred. When this capital was used, the amount could be measured by multiplying the amount of utility with how long the enjoyment of it had been deferred. Like this he could argue that the interest of all capital in a market had only one rate, which was automatically the lowest, because capital was only maintenance, and could thus be indifferently applied to any branch of industry. These definitions bypassed the old problems of definition, and indeed, Jevons, Walras, and Menger had definitions of capital that were at odds with our contemporary understanding of intangible, human, and social capital. Walras, however, did not rule out intangible capital, it was just that he also understood human beings as physical capital.

From this perspective, one could argue that the 1960s renaissance of human capital, and the planting of intangible capital categories in modern endogenous growth theory (from the 1980s onwards) have been about making formal methods more sophisticated by accommodating these older ideas of intangible capital and growth into the framework and models of contemporary economics. Regarding what it is that is actually being capitalized in human capital, one could also argue that more modern authors are just as vague as their 19th-

century counterparts. Thomas Piketty and Geoffrey Hodgson, for instance, argue that people can be classed as capital, even though, in principle, this is not done in modern societies, because of the slavery connotations. Equally, authors like J. S, Mill and Karl Knies were arguing that people are the very reason why wealth exists, so shunned the whole idea of human capital. However, some authors were very precise about what it is that is capitalized in human beings. Pellegrino Rossi, for example, detested McCulloch's equation of people with draft animals and thus specified that it is only the expenses of education and foregone income that are capitalized. Rossi's most direct argument was that one did not simply put a son to death at the moment he was no longer seen as a good investment opportunity. His other point was that people are fed and taken care of even when they are not studying to be lawyers or doctors.

Rossi's advice might be in place for economics in general. One could just follow Rossi and a number of human rights treaties and declare that people are not capital or property, and that slavery is a crime without losing a shred of the explanatory power of contemporary human capital theory. But focusing on acquired abilities and knowledge as intellectual and intangible tools, as most human capital research does, perhaps takes some punch out of the critical arguments, and it does not help with those who argue that to be capital an item has to be saleable. TABLE 8 shows some of the 19th century concepts coming close to contemporary social capital, but here the issue of what is capitalized is considerably more difficult.

TABLE 8 Examples of past concepts coming close to social capital

category	individual mores & habits as capital	general trust as capital	relations, networks as capital	society or state as capital	reputation
example authors	Storch, Richter, Hildebrand	Hildebrand, Schäffle	Roscher, Hildebrand	Roscher, Dietzel	Marshall, Roscher

As we saw above some authors have seen J. S. Mill as someone who held human capital to be more important than classical economics, but this is debatable. Instead, he chose to discuss these issues as qualities of labor or conditions conducive to the healthy functioning of the factors of production. He did not discuss these issues in the labor part of *Principles* only because they were close to it thematically, but because they could not be discussed with capital.

Indeed, one problem about attaching quality attributes directly to labor is that any kind of quantitative applications become much more difficult, because the attributes make labor itself a productivity concept. This is visible in strongly institutional accounts but also in the works that strived to remain within the classical framework in this respect – as in J.S. Mill. For instance, an institutional view towards industriousness and the propensity to work might claim that these are attributes that depend on the climate, quality of the soil, history, and culture. Some have even added here that the race of the people in question played a big role. Usually, especially the older institutional explanations, held

that it was quite difficult to consciously change invidual people's morals and mores, let alone a people's.

The institutional framework differs radically from the idea of looking at the issue in terms of capital, where that eight hours of work is the same eight hours of work everywhere. What changes is the amount and quality of capital that is used in the work, both intangible and tangible. The skills, diligence, and motivation as well as many social attributes like honesty, reputation, and relations are seen as individual or social attributes that are at least to some degree, dependent on the subject, under conscious investment and development. Of course, nothing has stopped scholars from discussing institutions as capital too, but that implies, at least in contemporary accounts, that it is possible to invest in them, i.e., develop and change them.

One of the most puzzling aspects about the early 19th century prevalence of intangible capital concepts in economic theory is the way that the idea had to be almost completely reinvented after the Second World War. Of course, this was not completely across the board since, for example, economic texts in German continued to contain terms such as *Erziehungskapital*, even if it was not always a specifically economic context, and there were some example in French and English (as can be seen from the Ngram figures shown earlier). Nevertheless, from about 1870-1960 other issues tickled the minds of economic thinkers, especially in the US. I can only speculate as to why this occurred, since so many national, international, academic, and societal trajectories played a part in this development that I can present only a little evidence for these arguments, but these speculations could well merit further research. For instance: what, if any, economic, intellectual, or sociological reasons can one find from the past literature for the emergence and subsequent decline of interest in intangible forms of capital?

One of the reasons is very probably the simultaneous development of marginal analysis and mathematical methods at the same time. Both Walras and Jevons defined capital so that it was easier to adjust for equations. For instance, Walras considered people as capital and labor as its revenue. This way he could deal with and evaluate in money terms personal capital well as its revenue as any other of his four classes of capital. Jevons (as we have seen) went with an even simpler idea, defining as capital only the maintenance costs of labor.

Meanwhile, in Vilfredo Pareto's work, Walras' personal capital turned into the concept of human capital. Because Pareto held that there was a universal law of [statistical] distribution of incomes based on social laws and the innate abilities of individuals, he could not see that, for example, education could fundamentally change this. At least these were his intellectual reasons for abandoning the intangible theory of human capital. By intellectual reasons here, I mean the internal development of the field and possible path dependencies which may have caused, for instance, some widely accepted definition or assumption, which then functioned as building blocks for further theorizing. A good example would be the discussion of human capital by William Petty and Adam

Smith. The widely read *Wealth of Nations*, in which acquired abilities and skills were considered as fixed capital kept the idea alive among following generations of political economists – hence also there being no room for human capital in a Marxist framework. Equally, the fact that the 20th century mainstream understanding of capital was based partly on Irving Fisher's work, made it easier for Gary Becker and others to develop the modern framework for human capital analysis.

As we saw earlier, if we consider intellectual reasons for the neglect of human capital in classical economics, some of the basic tenets of classical economics like the Ricardian labor theory of value, the iron law of wages, and Malthusian constraints come to the fore. Additional factors that come to mind are the strange inability of Smith, from our second-guessing perspective, to understand the changes brought about by industrialization; plus the strangeness of Malthusian theory when we know the high rate of emigration to the colonies and US, and the fact that the area of arable land had actually increased in Britain at this time (with the drainage of the Fens)[1117]; also there was the slow reaction of political economists to the political changes and movements that made universal schooling possible.

There were certainly also ideological factors in play. Many 19th century authors saw human beings and their abilities as capital in theory but didn't venture into the field for ethical and moral reasons. And yet it is an interesting ethical question as to whether there is really a difference between a worker selling his time (labor) and considering a worker's skills and knowledge as capital. In the latter case, the capital brings a premium, and so perhaps it may be more convenient to understand acquired abilities as human capital and the organization of work as technology (i.e., intangible capital) than try to somehow combine all kinds of work of a very different kind under the 'umbrella' concept of labor. *On the Words Productive and Unproductive* (1844), J.S Mill thought it an absurd situation if one was forced to conclude that artisans could be twice as skilful as those in another nation without being more wealthy. Yet a few years later he made precisely such a kind of conclusion. In such an approach the concept of labor subsumed almost the whole production process and became in itself a concept of productivity. Intangible capital theory allows one to neatly stay within the classical factors of production (land, labour, capital) by adding to capital all the intangible means of production along the material tools. Thereby technological change becomes an endogenous phenomenon.

Then again, one might think that the economy, the material world, and labor for payment are such denigrating phenomena that human beings and the aspects of their culture should for some reason be kept separate, but as Karl Richter presented already in 1863, the point was not that the economic aspect would be the only attribute of a work of art or skill in music, just that they had this aspect too. No other field than economics, or in Richter's texts *Volkswirtschaftslehre*, discussed this economic aspect. Thus, Richter argued, it was this

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1117 Mark Perlman and Charles R. McCann, *The Pillars of Economic Understanding: Factors and Markets* (Ann Arbor: University of Michigan Press, 2000), 209.

economic aspect that should be the focus of the discipline, the field was not supposed to be entering or conquering the subject matter of other disciplines of research.

Then there was the political side of political economy. When the bourgeois and professional class is the dominant force in society, it is understandable that economic analysis focuses on different things to when it is the landed aristocracy which dominates politics and society. Jean-Baptiste Say's work and response to the physiocrats regarding intangible capital is a good instance of this. Yet, Marx's case illustrates even better the interplay between intellectual, ideological, social, and material factors in shaping his work. The iron law of wages and the labor theory of value as analytical starting points, a teleological Hegelian conception of history as a meta-theory, social need and material necessity to improve the conditions of the working classes, and ideological fervor combined with Marx's analytical competence certainly left an interesting legacy. It was also a legacy that defined the concept of capital in a novel way, basing it on a labor theory of value to such a point that it probably catalyzed many economists into trying to find definitions of capital that were less flammable to counter what many saw as a threat to their own social position.

There are also material reasons for the waxing and waning of interest in the ideas of intangible capital. When the economy is increasingly capital intensive and growth is based fundamentally on advanced technology and knowledge (both human and physical capital intensive), economics needs to be able to explain the growth in those terms. Perhaps a fundamentally agrarian economy, think of Cantillon, or even an industrialized one, where most workers are doing simple tasks in great factories, is less likely to produce an economic analysis focusing on intangible and mental capacities. Meanwhile, when there was a lack of interest in such issues it could also have been just an intellectual remnant from the period when the stasis of the economy was very real. Or was it that commercial and artisanal society before industrialization was in fact a more conducive environment for emphasizing individual human and intangible capital? Blanqui and Dupuit noted during the first half of the 19th century that the areas in France that were the most industrialized also had the highest levels of public education available. At the same time as political economists in France and Germany were devising ways to protect their trade and industry from British competition, there was a search for ways to imitate and go beyond the benchmark.

In Germany the intellectual reasons for abandoning the idea of intangible capital towards the end of the 19th century make the case even more puzzling than that of Britain earlier in the century, since most of the same ingredients were there. Germany was reaching economic parity with the UK with industries based on science and engineering, namely chemical, electric, and machine building; and there was an intellectual tradition rich with an emphasis on learning and knowledge as capital. There had been multiple examples of importing know-how from the UK too. There were also institutions in place promoting learning and universal schooling. Yet the profession of national economists de-

cided to go the other way. Of course, they still valued education, research, knowledge and good administration; they just discussed them in a different, often institutional framework.

One further conclusion that can be drawn from the two centuries of literature covered here is that these intangible capital concepts and theories have been used to answer very different kind of problems. Classical economics used the analogy between man and machine to explain the perceived differences in distribution, i.e., why skilled and educated workers had higher wages. While knowledge and education as an engine of self-sustaining growth was still quite distant to Smith, in Say's works this kind of connection was vital. As stated at the beginning, the post-war interest in human capital and the other concepts we have been dealing with here was one way to explain aggregate growth that traditional economic factors could not account for. The later concepts, namely social capital, have been perhaps more about showing economic or power-related aspects in contexts where they are generally harder to spot.

This thesis backs the argument that there was a clear interest in the idea that skills and knowledge should be understood as capital and as a crucial factor in the economic success of individuals, firms, and nations long before the newfound interest in these topics after the Second World War. The same can be said of those attributes that enhance one's relational position in social networks. Thus the contemporary concepts of intangible capital have a conceptual and partly genealogical history reaching back at least to the cusp of the early modern and modern epochs, the era that Reinhart Koselleck called the *Sattelzeit* for concepts. But it is only *partly* genealogical; the other part was a genuine disconnection manifesting itself in the emergence of Marxism, the Austrian and Neoclassical Schools, and the younger GHS up until World War II. As we have seen, this disconnection was not always about understanding issues differently or having completely different definitions, but was often just to do with other matters of interest that dominated the field.

Intangible capital theorizing requires that capital is considered to be savings or the produce of past work and that it is something used to produce further goods or gains. Without these requirements, instead of machine analogies (Adam Smith) or soil enrichment (Wilhelm Roscher) to back up human capital thought, one would have had to draw an analogy between money and human beings (or their attributes), which in societies that still were using slave labor, at least in their colonies, would have meant a rather short-lived concept.

Many 19th century authors claimed that the idea of joining the human and intangible spheres to the concept of capital was stretching the boundaries of the concept too much. But what is really noteworthy is that measuring even the material man-made means of production was a novelty too. We must remember that the 18th-century French and German encyclopedias define capital in trade, banking, and accounting terms, not as machinery or tools.[1118] Marie-Elisabeth

[1118] Jacques Savary des Bruslons and Philemon Louis Savary, "Capital," in *Dictionnaire universel de commerce. Tome premier. A–E,* (Paris: Jacques Estienne, 1723), 551; Johann

Hilger has noted this, but as said earlier, she mostly stayed clear of the intangible capital side of the discussion.[1119] As soon as the man-made means of production were understood as capital, however, it became logical to then expand the concept to cover all such means. There is some irony in the fact that capital understood as money or financial assets was itself an abstraction made earlier. Early histories of the concept connect it to a headcount of cattle. Therefore, it was a concept of trade, banking, and accounting derived by analogy from the material world of production, and what the emerging profession of economists did was to bring it back, by analogy, to the world of production.

Why the phenomena considered as social capital would not fit into this already very abstract framework is difficult to see. If we for example consider social networks, trust, and reputation, all require investments (time, effort), can yield interest, can incur losses (in case of bad investment or other calamity), and require maintenance to avoid depreciation. In theory, there was no price to pay for conceptual vagueness if no one was trying use the concepts as building blocks of a formal model. In a way, the capital debate was never solved, and the field of economics just moved on. One of the main uses of this capital mechanism outside economics is and has been to expose, claim or prove the economic or social benefits of a phenomenon not traditionally considered to be in the domain of economic analysis or not considered economically sound. Therefore, in the utlitarian tradition where we attempt to calculate a monetary value for everything and see it as a proxy for utility, such an approach will probably prosper, and is applicable even when the interest is not expressed in any currency. Hence, it is possible to say that a greater human capital investment produces more civilization.

One of the problems starting this kind of historical study with a modern understanding of intangible capital was the dilemma over whether the 19th century discussion could be put in the same arena as post-war formal economics. For instance, the German variety of historical economic thought has been given the unenviable label of *Begriffswirtsaftswissenschaft*, meaning that it was obsessed with the right definitions of concepts used, and it was thought that the discipline would not be able to proceed before a consensus on these core concepts was reached.

The problem, however, may be more to do with differences in methodological approach rather than historical context, as similar differences exist inside the social sciences today between quantitative and qualitative approaches. It is common in qualitative analysis for scholars to devote much time and energy in developing clear and precise definitions for concepts that are central to their research. They do so because they are concerned with conceptual validity, and they believe that the failure to address this concern is a major source of meas-

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Georg Krünitz, "Capital," in *Oeconomischen Encyclopädie, Band 7,* (Berlin: Joachim Pauli, 1776), 635-640.

1119 Marie-Elisabeth Hilger, "Kapital, Kapitalist, Kapitalismus," in *Geschichtliche Grundbegriffe: Historisches Lexikon zur politisch-sozialen Sprache in Deutschland,* ed. Otto Brunner, Werner Conze, and Reinhart Koselleck, (Stuttgart: Klett-Cotta, 1982).

urement error.[1120] Mahoney and Goertz have noted that researchers using this kind of framework often try to avoid conceptual stretching or applying a concept to cases for which it is not appropriate. When it comes to quantitative research, however, they claim that it

> […] is more concerned with operationalization and the use of indicators. For quantitative researchers, measurement error typically occurs at the level of indicators, not the level of concepts, and methodological discussions of measurement error therefore concentrate on modeling measurement error and modifying indicators with little concern for concept revision. In fact, some (though certainly not all) quantitative researchers would go so far as to say that a concept is defined by the indicators used to measure it, a position that qualitative researchers would almost never endorse.[1121]

We can see early signs of this in Irving Fisher's expression of frustration in 1906 after he had unearthed dozens of different definitions of capital. He argued that economists, as a profession, had to shift from this obsession with classifying, towards a more analytical framework. He claimed that marginal utility theory had provided more results than one and a half centuries of debating the concept of capital, not to mention productive and unproductive labor, and done this in a fraction of the time (5.2.5.5). This same line of argument has been used by some researchers to note that it might be more feasible to speak directly about those variables used in empirical social capital research, e.g., trust, social networks, and social participation. A further theory could then be built, based on these variables instead of devising yet another construct measured through yet more variables and proxies. Indeed , the fact that social capital came to be associated with the number of years in education or wage premium may have been one reason why it has, by and large, not yet been included in introductory textbooks of economics. On the other hand, both human capital and social capital have also criticized for a lack of concept integrity.

Concepts that are either too hard to operationalize, or too hard to find consensus over are between a rock and a hard place when it comes to entering the canon of economics, even when the theory behind them seems legitimate enough. Social capital may be an instance of this, although there are probably sociological reasons (among others) for this. Perlman and McCann note after going through 250 years of economic texts dealing with factors of production that:

> […] attention shifts from what the factor is, why it should be recognized, and what rewards it deserves, to the way in which it can be specified formally, so that its function can be elucidated in mathematical terms.[1122]

They continue that still shortly after World War II, professional economists were expected to be able to extract information from textual material in at least three languages, but from the 1960s, data accumulation in English was enough,

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1120 James Mahoney and Gary Goertz, "A Tale of Two Cultures: Contrasting Quantitative and Qualitative Research," *Political Analysis* 14, no. 3 (2006), 244.

1121 *Ibid.*

1122 Mark Perlman and Charles R. McCann, *The Pillars of Economic Understanding: Factors and Markets* (Ann Arbor: University of Michigan Press, 2000), 6.

while the new language of analysis was mathematics. Formalization has thus necessarily had an effect on what kinds of concepts the discipline is more able to integrate with, while ideas defying formalization and modeling may remain in the domain of those social sciences less fundamentally built around mathematics as the discipline's native tongue.

SUMMARY

Since the late 1950s, the concept of human capital, understood as the stock of knowledge, skills, and abilities that determine individual productivity, has become one of the central tools with which economists explain both individual success and economic growth. During the latter half of the 20th century, concepts such as social capital, meaning the value of social networks and norms of reciprocity, and intangible capital, meaning the investments in knowledge and innovation generation, have emerged to complement the concept. The term intellectual capital is sometimes used as a major concept to bind different forms of intangible capital. This study focuses on the conceptual equivalents of these ideas in 19th-century English, French, and German economic thought in order to show that most of the phenomena now connected to human capital, intangible capital, intellectual capital, and social capital were extensively discussed as capital in different phases of the long 19th century from the last third of the 18th century to the First World War. However, there were also many arguments presented against the extension of the concept of capital to human beings, human attributes, knowledge, reputation, etc. after the late 1950s. Understanding the past debates about definitional scope and the functional role of capital in economic theories helps to avoid unconsciously rehashing old arguments of political economy and seeing them as previously unattainable insights from the last five decades.

Intangible concepts as well as physical human capital concepts featured in various debates throughout the century. Adam Smith included acquired abilities to fixed capital as part of both individual and national wealth. The long debate about productive and unproductive labor was connected to the debate about the possibility of intangible goods and capital. Arguing that investments in intellectual capital increase productivity on an individual and aggregate level challenged Malthusian population theory. Investments in education and research were also seen as a means of solving the social question by increasing productivity and making the laborers capitalists in the sense that their skills, knowledge, and habits presented invested capital and they could be remunerated in higher wages with increased productivity. Early French liberal economists laid a heavy emphasis on moral capital, which often included skills and knowledge, but also saw conformity to habits and mores (for example) as important. It was also argued that it was possible to import such beneficial normative systems or ideas. A holistic physical version of human capital was connected to Darwinian competition on the international, societal, and business level. Also innovation was discussed in an intangible capital framework right form the beginning of the 19th century, when the material capital and resources required in production of intangible capital were also discussed. Related to this, the intellectual capital behind intellectual property was also discussed. National health and demographic issues were discussed in capital framework from the late 18th century onwards. This trend became stronger at the turn of the 20th century, and in France it became common to discuss both individual labor

power as well as demographic issues under the term *capital humain*. Also the state and the services this form of capital offered (from good governance to property rights and security) were interpreted as intangible capital.

The debate about different forms of intangible and human capital was part of a broader debate about the nature and role of wealth and capital in the economy. One of the central dilemmas of the debate sprang from Adam Smith's definitions of wealth and capital, productive and unproductive labor, and hierarchy of sectors of industries. As Smith had defined wealth as material goods, capital as the share of wealth used for further production, and only the producers of wealth as productive workers, the consequence was that all service providers from the sovereign through teachers and scientists to menial servants were considered unproductive in terms of national wealth. Material understanding of wealth and capital also meant that the idea of an intangible stock of knowledge as capital was not possible. Further theories of early classical economics opposed with arguments involving human and intangible capital concepts were the wage-fund doctrine, labor theory of value, and Malthusian population principle.

Already during the first half of the 19th century it was argued especially by the French liberal economists but also by authors in Britain, the US, and Germany that (a) intangible goods (e.g., services) were economic goods; (b) intangible goods were often based on intangible labor, skills, and knowledge; (c) wealth consisted of items satisfying our needs (including services); (d) the value of goods and services was based the scarcity and quality of their utility, not the labor used; (e) that providers of services could increase productivity, f) that productivity very much depended on stocks of skills and knowledge, g) it was possible to invest in these consciously, and h) that the level of technology and productivity were therefore at least partially under the conscious influence of human societies.

The idea of explaining the share of income that traditional production factors could not account for as a form of capital emerged as early as 1815, when Charles Ganilh called this *capital inconnue,* unknown capital. It consisted of enlightenment, talents, honesty, and the reputation of a merchant. Despite the flourishing of intangible capital theories during the first two thirds of the 19th century, the pendulum reached its apex, and it was the turn of neoclassical, Austrian, historical, and Marxist economics to define the concept of capital. This left little room for the idea of intangible capital as a stock of knowledge. A more physical interpretation of human capital became prevalent at around the same time, but even this was rejected by the Austrian and historical economists.

The conceptual method of this study has been to focus on how the idea of capital connects with phenomena of the intellectual and social sphere – whether it be by definition, analogy, or metaphor. Such connections are interpreted as manifestations of the concept of intangible capital. Therefore, the other approaches that acknowledged the economic role of for example education, knowledge, norms, or social relations but did not treat them as capital have remained outside the primary focus of this work, though some have been touched

on to illustrate the context of the discussion. These were the same concerns for the physical human capital theories where whole human beings as physical entities were understood as capital. Part of the debate was about whether it was possible to abstract the acquired abilities and knowledge from people. Even when this was not considered possible, some considered both innate and acquired intellectual faculties as a means to increase the value of fixed human capital. On the other hand it was argued that as nature was inextricably mixed up in the production of human faculties and labor power, that they should *not* be treated as capital.

In the spirit of digital humanities the study draws on extensive digitized literature of the 19th century provided by various private, nonprofit, and public agencies including for instance Google Books, Archive.org, Gallica, Deutsche Digitale Bibliothek, DigiZeitschriften, Persée, Europeana, and Econlib.org. Major part of this literature is now in the public domain, and when combined, these databases offer access to a multilingual library that only few physical libraries can match in scope. Yet none can match the instantaneous availability of materials, the ability to perform open full-text searches, or bibliometrical and statistical analysis of the sources. In this study the digitized sources are used predominantly in a traditional manner. However, open text searches have helped to locate previously neglected authors and ideas, and Google's Ngrams and the prevalence of certain terms in databases like Gallica have functioned as a rough heuristic by pointing to trends in the use and prevalence of certain concepts.

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