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Abstract Objects in Productive Life: Marx's Story

Introduction

Marx is typically thought of as one of property's great critics. No one looks to Marx in order to justify rights of property, as they do to Locke and Hegel. And yet, if his scientific and dialectical methodology is to be taken seriously, the goal of Marx's theoretical system is not criticism, but rather to try and provide, amongst other things, an explanation and understanding of the role of property in societal evolution.

Our purpose in looking at Marx is to make use of his distinctive explanatory perspective. We wish in particular to see if it helps us to come to a better understanding of the interconnectedness of intellectual property, especially the connection between intellectual property law and economic change in capitalist systems. Marx is a suitable choice for this purpose because through his dialectical method he sought to comprehend the way in which apparently diverse elements and concepts were related. For both Marx and Engels, dialectics was the key to understanding the processes of the whole.¹ We do not purport, however, in this chapter to reason dialectically. We merely take

¹ For an account of the advantages of dialectics over traditional metaphysical reasoning, see the essay by F. Engels, 'Socialism: Utopian and Scientific' (1880) in Karl Marx and Frederick Engels, *Selected Works* (vol. 3, Moscow, 1970), 95.

advantage of the fact that Marx, working dialectically, tried to show the way in which capital, labour, competition, value, property and profit were all organically and dynamically related.

Our central thesis is that intellectual property integrates creative labour into the productive life of capital. The parts of Marx's writings that help to establish this are his analysis of individual capitalists' responses to the pressures of competition, the importance of technology to economic growth, the commodity nature of capitalism and his view of human beings as fundamentally creative.

There are two respects in which Marx's writings do not particularly help in an analysis of intellectual property. First, since Marx was not concerned with trying to gain a juristic understanding of the nature of property, he does not offer a jurisprudential insight into the nature of intellectual property. Second, more than most Marx was focused on the materiality of production. There is no real treatment by him of the role of what we have called abstract objects in the means of production. Although it is not the main point of this chapter, we will see that abstract objects probably cause severe problems for some parts of Marx's economic theory. Amongst other things, it means he cannot treat labour in a homogeneous fashion. We also need to remember that the 19th-century intellectual property landscape was radically different from the one that exists now. While it is true that, during Marx's time in England (1849 to his death in 1883) copyright and patent law were well established there, other areas, like the trademark registration system and protection of trade secrets, were only just beginning to emerge. The beginnings of the international framework for intellectual property protection in the form of the Paris Convention (1883) and the Berne Convention (1886) came after his death. Intellectual property as we know it today was in its infancy and its profound impact, as shown by such matters as legislation protecting circuit layouts and plant variety rights, could not have been part of Marx's world view. It is clear from Marx's writings that he had more than a passing familiarity with substantive areas of law like property.² But it is also almost certainly true that when he wrote of property relations he had in mind physical objects like land and not abstract objects. Ownership for him was ownership of the tangible.

2 This is perhaps not surprising given that Marx's father was a lawyer and that Marx studied law at university. For a description of Marx's early life, see the Introduction by Eugene Kamenka in E. Kamenka (ed.), *The Portable Karl Marx* (Harmondsworth, 1983).

We should also make clear where this chapter stands in relation to the vast literature on Marxian legal theory. Law, we know, did not feature as a principal category of theorising in Marx. Nevertheless Marx's theory of historical materialism has implications and consequences for the understanding of law, some of which Marx articulated, albeit in a not very systematic way.³ It is fair to say that both Marx's theory and some of his remarks have, after a slow start, generated a vast body of Marxian legal theory.⁴ While much of this would undoubtedly be helpful to an understanding of intellectual property, this chapter focuses on Marx's work rather than on the many interpretations and theories he has inspired in the field of legal theory.

The rest of this chapter is divided up in the following way. The first section identifies some hypotheses which can be generated using Marx's theory of historical materialism in an orthodox fashion. Some problems with these are discussed. The next two sections then articulate the main thesis of the chapter.

Marx on Property: Three Orthodox Views and their Application

There are at least three important ideas which can be found in Marx's work regarding property. The first is that property is a form of alienation. Second, property is a class instrument, which is used by the ruling class to protect its interests. Third is the idea that property (especially private property) is a ruling idea, that is, property is part of ideology.

This list almost certainly does not exhaust other ideas that might be found in Marx concerning property. For instance, in *Grundrisse* Marx admits that property is a precondition to production, although he then goes on to argue that property in this sense means appropriation.⁵ A little later he also seems to suggest that law (particularly property) may have important effects on production.⁶ Ultimately, though,

3 See the Preface in M. Cain and A. Hunt, *Marx and Engels on Law* (London, New York, San Francisco, 1979).

4 See, for example, the essays and the bibliography in C. Varga (ed.), *Marxian Legal Theory* (Aldershot, 1993).

5 Karl Marx, *Grundrisse* (1857–58; M. Nicolaus trs., London, 1973), 87–88.

6 Id., 98.

he does not seem to think that property is an independent institution: worthy of analysis in its own right. In a telling remark he suggests that the origin of property lies in the productivity of labour.⁷ The idea that property may in various ways increase productivity is not an idea that he really explores. A sympathetic exegesis and interpretation of Marx's works would probably uncover some other views that Marx had of property. This is not undertaken here.

Property as Alienation

The connection between property and alienation is to be found in the *Economic and Philosophic Manuscripts of 1844*.⁸ There Marx argues that private property is the outcome of externalised, alienated labour. Alienation was, broadly speaking, a term used by Marx to describe counterproductive relations of separation in capitalism. Workers were alienated from their environment, from the products of their labour and finally from themselves. Alienation was for Marx a brute fact of capitalist production, a fact which led him to formulate a theory of alienation. Property in this theory is a manifestation of alienation rather than a cause. For the moment we will put a discussion of alienated labour to one side and return to it in the next section where we claim that capitalism depends on creative labour.

Class Control over Abstract Objects

The idea that property is an instrument of the powerful is part of Marx's broader thesis about the nature of the connection between law and class. The two principal classes in capitalism, the ruling class (bourgeoisie, capitalists) and the proletariat (workers) are structurally locked in conflict with each other. Law in this struggle belongs, as it were, to the ruling class. It is one of the instruments by which members maintain control over the source of their power, the means of production.⁹ The class instrumentalist thesis is connected to Marx's materialist conception of history. The law or laws involved in this

7 Id., 397.

8 Karl Marx and Frederick Engels, *Collected Works* (London, 1975), vol. 3, 229. (Hereinafter *Collected Works* followed by the relevant volume number.)

9 See M. Cain and A. Hunt, *Marx and Engels on Law* (London, New York, San Francisco, 1979), chapter 3 for readings which support this simplified thesis. As Cain and Hunt point out, in their introduction to the chapter, Marx's work also contains a more nuanced view of law's role in capitalism.

conception hold that social life can be divided into a set of economic relations, these economic relations being the real foundation on which a legal and political superstructure is built. There is not much doubt that for Marx law is a systems outcome. That is to say, law is not to be understood as an independent force in social life and history but rather is a consequence of the relations and forces of production, or, to use Marx's phrase, has its 'roots in the material conditions of life'.¹⁰ In a very famous passage, Marx outlines the key ideas that are involved in the materialist theory of history. The following passage is worth setting out:

In the social production of their life, men enter into definite relations that are indispensable and independent of their will, relations of production which correspond to a definite stage of development of their material productive forces. The sum total of these relations of production constitutes the economic structure of society, the real foundation, on which rises a legal and political superstructure and to which correspond definite forms of social consciousness. The mode of production of material life conditions the social, political and intellectual life process in general. It is not the consciousness of men that determines their being, but, on the contrary, their social being that determines their consciousness. At a certain stage of their development, the material productive forces of society come in conflict with the existing relations of production, or – what is but a legal expression for the same thing – with the property relations within which they have been at work hitherto. From forms of development of the productive forces these relations turn into their fetters. Then begins an epoch of social revolution. With the change of the economic foundation the entire immense superstructure is more or less rapidly transformed.¹¹

The materialist concept of history carries with it a kind of algorithmic routine which can be used to analyse any given superstructural phenomenon like, for instance, intellectual property. Essentially, this involves identifying the links between the forces of production and the relations of production in a given historical period and then discovering how the particular superstructural phenomenon comes within the field of operation of the material base. Generally speaking, when this method is applied to law, law emerges as a form of class

10 Karl Marx, 'Preface to a Contribution to the Critique of Political Economy' (1859) in Karl Marx and Frederick Engels, *Selected Works* (Moscow, 1969), vol. 1, 503.

11 *Id.*, 503–504.

domination in which the ruling class, that is to say those who own the means of production, use law to protect their economic interests and to further their grip on power. So it is that property and contract law serve to entrench inequality, while the mission of criminal law is to coerce the lower classes. This is not the only Marxist view of law. In fact many working within Marxist legal theory see the class instrumentalist view of law as simplistic.¹² Still, there is little doubt, especially from a reading of *Capital*, that Marx saw class agendas lying at the heart of core areas of law such as property and contract.

One way in which this chapter could proceed, then, would be to adopt the materialist version of history as an article of faith and look for verifying evidence of class interest and exploitation in intellectual property regimes. This would be to treat Marx ideologically rather than philosophically and so we do not take this approach. If, though, we subscribe to methodological tolerance as a value we should not be too hasty in sweeping Marx's theory of history off the table for, like other sharply reductive theories, it remains useful in that it allows one to generate hypotheses for investigation. This is not the time or place to begin to assess historical materialism.¹³ One problem with the materialist conception of history is that, on one reading of it, possible contingent social truths are turned into *a priori* truths. The task of the social scientist becomes that of low level verification. The theory in a sense overdirects the empirical work. If, on the other hand, one takes the view that historical materialism is false or inadequate, this does not entail the falsity of the class domination thesis of law in all cases. It remains a contingent possibility that some areas of law are the rigged outcomes of class manoeuvrings. In any case Marx's theoretical framework is one way in which to generate hypotheses about complex phenomena.

The dramatic expansion of intellectual property regimes, both nationally and internationally, in recent decades is in Marx's terms an important superstructural transformation. It may also be evidence of fundamental changes taking place in the productive forces of some major capitalist economies. The creation of legally enforceable

12 See, for example, A. Stone, 'The Place of Law in the Marxian Structure – Superstructure Archetype', 19 *Law and Society Review*, 39, 40 (1985).

13 For an excellent discussion beginning with a paper by G.A. Cohen, see J. Roemer (ed.), *Analytical Marxism* (Cambridge, 1986), Part I.

international standards of intellectual protection may be evidence that some states (ruling states) are using intellectual property law to maintain their various forms of power as their mode of production undergoes a profound transformation. The march to prominence of intellectual property law suggests that at least some states will largely earn their living through the production and distribution of information.¹⁴

Historical materialism could also be used to begin an explanation of some other features of intellectual property law. Typically, intellectual property statutes are based on the rights of owners rather than the originators of the relevant piece of intellectual property.¹⁵ Creators will often not be the owners of the intellectual property they generate because of the operation of doctrines of employment law that vest ownership of intellectual property in their employers, or because they have assigned ownership to another. In Marx's terms it is capitalists rather than workers that end up owning most of the intellectual property that is produced within a capitalist economy. Conversely, protection for the interests of performers has tended to be characterised by a minimalist approach.¹⁶

Given that a standard justification for intellectual property is that it provides individuals with a reason to devote the time and resources to innovation and creation, it is at first instance surprising that intellectual property law is less concerned with the rights and protection of originators of intellectual property than with the rights of others, such as employers or publishers.¹⁷ There would probably be nothing surprising about this pattern for Marx, however. Creative labour (authors, scientists, performers) would in a capitalist economy be 'exploited' labour. Exploitation in Marx's theory is a technical, theoretical term that refers to a social process in which the capitalist acquires labour power. Its essence, though, is simple enough:

14 Hence the growing discussion of 'information capitalism'. See T. Morris-Suzuki, *Beyond Computopia* (London, New York, 1988); R. Kling (ed.), *Computerization and Controversy: Value Conflicts and Social Choices* (2nd edn, San Diego, 1996).

15 The only real exception to this is the authors' rights tradition which was briefly discussed in Chapter 4.

16 See E. Thompson, 'International Protection of Performers' Rights: Some Current Problems', 107 *International Labour Review*, 303 (1973).

17 For a discussion of how socialist law dealt with intellectual property, see W.A. Van Caenegem, 'Inventions in Russia: From Public Good to Private Property', 4 *Australian Journal of Intellectual Property*, 232 (1993).

if a person works for more hours than is required to produce the goods he consumes, that person is being exploited.¹⁸ Unpaid labour is at the heart of Marx's theory of exploitation. Labour power has the peculiar quality of producing '*more value than it has itself*' or, putting it another way, labour produces more value than it exchanges for in a free market.¹⁹ The acquisition of surplus value is the basis of profit within the capitalist economy. Creative workers, that is to say workers who invent, write, paint and so on, would not be in any different position to other workers within capitalism. Out of necessity such workers would offer their creative labour power for sale. For this reason intellectual property laws are not needed to motivate individuals to work creatively. Instead, intellectual property laws would be needed to ensure that ruling interests retained and extended their control over a vital part of the means of production – abstract objects.

Marx in *Capital* clearly assumed that law, and in particular contract and property law, plays a vital role in the workings of the capitalist economy. So, for example, when he discusses the conditions under which labour power can appear as a commodity he stipulates that labour power must be capable of being traded in a free market.²⁰ Similarly, the market exchange of commodities requires that there be owners who recognise each other's private property rights.²¹ The juridical relation between owners remains an expression of 'the real economic relation between the two'.²² But clearly Marx saw here a facilitative and protective role for property and contract law. Bearing this protective function of law in mind, we can say that another possible role of intellectual property within Marx's theory is that it serves to protect the investment by individual members of the capitalist class in a mode of production based on abstract objects. Intellectual property, in other words, is primarily about the organisation and maintenance of production and a set of economic relations rather than an incentive

18 See J. Elster, *Making Sense of Marx* (Cambridge, 1985), 167. There are now sophisticated treatments and developments of the theory of exploitation. See, for example, J.E. Roemer, *A General Theory of Exploitation* (Cambridge, Mass., 1982).

19 Karl Marx, *Capital* I (1867; Moscow, 1959), 193. (Hereinafter the references will be to *Capital* followed by the volume number.) The emphasis is Marx's.

20 *Capital* I, 168.

21 *Id.*, 84.

22 *Ibid.*

to production by individuals. Intellectual property rights, rather than being a stimulus to creation, form the legal basis upon which one class organises production by another.

Ideology Theory

Intellectual property for Marx would also have a clear ideological function.²³ A persistent theme in Marx's work is that categories of bourgeois thought, whether they be legal, economic or religious, conceal the true character of capitalist production and its social relations. For Marx the view that intellectual property law functions to motivate and reward the creative proletariat would be an ideological fairy tale designed to hide the systematic exploitation of creative labour in the capitalist mode of production. Intellectual property law, because it turns abstract objects into things of ownership, adds to what Marx called the 'Fetishism of commodities'.²⁴ Fetishism in Marx's economic theory is a belief by men that commodities and the exchange of commodities are relations that exist independently of their social relations. People's perception of the social world becomes mediated by the seemingly independent world of commodities. People read off truths about the world, not based on a scientific understanding of it, but rather based on the behaviour of commodities. Fluctuations in the price of commodities, for instance, hide the true role of labour in the capitalist economy. Intellectual property, we have said, relates to the ownership of abstract objects. For Marx intellectual property would represent the commodification of the mental life of men and women. In intellectual property commodity fetishism reaches its peak. The mental life of individuals, the very thing which can be most said to belong to a person, becomes externalised (or alienated) and part of the relations between things, part of capitalism's production and exchange mechanisms. One of the consequences of commodity fetishism is that bourgeois economics analyses intellectual property independently of its social relations. Intellectual property, for example, serves to correct

23 Marx discusses ideology in the *Economic and Philosophic Manuscripts of 1844* (Collected Works, volume 3); *The German Ideology* (1845–46) (Collected Works, volume 5); *The Manifesto of the Communist Party* (1848) (Collected Works, volume 6), and *Capital I*. For discussions of Marxist ideology theory, see G.A. Cohen, *Karl Marx's Theory of History* (Oxford, Princeton, 1978), chapter 5; J. Elster, *Making Sense of Marx* (Cambridge, 1985), chapter 8; J. Plamenatz, *Ideology* (London, 1970); M. Seliger, *The Marxist Conception of Ideology: A Critical Essay* (Cambridge, 1977).

24 *Capital I*, 72 and section 4 of Chapter 1.

the market in information, or is a solution to a free-riding problem or a way to deal with an externality. Nothing is said about the underlying social relations that the production of intellectual property is based on. The fact that people have, in the commodified world of abstract objects, divorced themselves from the social relations to be found in the notion of positive community and the intellectual commons is obscured by the fetishism of commodities.

The use of ideology theory to explain some aspects of intellectual property is worth considering. It may help to cast some light on why individual actors support intellectual property rights when, on the face of it, one might expect that it would be in their rational self-interest not to. We have already observed that many individuals will not be the owners of the intellectual property they produce. Intellectual property enables a price to be put on information. Consumers, generally speaking, will want to pay less rather than more for something and so could be expected to support weaker rather than stronger intellectual property regimes. This is particularly so if it turns out that much of the production of the information for which they are paying was not itself stimulated by intellectual property rights. Individual states which are *net* importers of intellectual property might also be expected to pursue lower rather than higher standards of intellectual property protection.²⁵ And the costs of enforcing highly protectionist intellectual regimes are likely to be high – and not just in economic terms. Keeping track of who uses what information for pricing and enforcement purposes is likely to involve highly intrusive audit and surveillance procedures. So, in the light of these kinds of problems, what motivates the apparently strong commitment by many individuals in capitalist societies to support the ever-higher levels of intellectual property protection?

25 Most countries in the world would be in the position of being net importers of intellectual property. The author is not aware of any study that gives net figures on a country basis. However, patent figures show the probable net imbalance that exists for most countries. For example, in Australia in 1992 there were 1,066 patents granted to residents (r) and 11,833 to non-residents (nr); Denmark 363 (r), 3,410 (nr); Germany 17,833 (r), 28,687 (nr); United States 52,254 (r), 45,189 (nr). Figures are from *Industrial Property Statistics* (WIPO, Geneva, 1992). It is also difficult to get figures on the net effects on countries of trade in copyright. Many countries, like Australia, would have a net deficit in royalty transactions related to copyright. For Australia, in 1993–94, royalty payments to overseas holders of copyright totalled \$1.732 million, while royalties earned from overseas amounted to \$380 million. See Office of Regulation Review, *An Economic Analysis of Copyright Reform* (Commonwealth of Australia, 1995), 39.

Ideology theory is one way in which to account for what at first sight seems a puzzling phenomenon. The direction of the argument would be that intellectual property rights, functioning as ideology, serve to promote beliefs that support one set of interests at the expense of another. One problem with proceeding in this direction is that a theory of ideology that is genuinely explanatory is needed. Marx himself did not pull together all his observations on ideology in one place. His theory of ideology has to be constructed. Moreover, as Elster has observed, it lacks microfoundations.²⁶ The problem does not lie in accepting the proposition that some knowledge is such that it deludes people about the true nature of the reality that confronts them. Plato's simile of the cave in *The Republic* suggests, in a somewhat clearer fashion, the same possibility. The real difficulty lies in trying to explain how 'ruling ideas' emerge in favour of the ruling class.²⁷ In Plato's simile all the inhabitants of the cave are equally affected, because all have been made prisoners and forced to look at the wall of the cave opposite them. In Marx's capitalism, it is those who do not own the means of production that are condemned to a life amongst the shadows.

This completes our discussion of what might be termed an orthodox application of Marx to intellectual property. Before moving on we should observe that it is riddled with problems and raises many more questions than it answers. If, for example, one accepts that there is a class pattern which underlies intellectual property regimes then one has to have some general account of how a class (as opposed to individuals, organisations or groups) can be a social force.²⁸ And there has to be an explanation of how, in the case of intellectual property, this class action is internationally coordinated and furthermore coordinated amongst individual members that have conflicting economic interests (for example, owners of the media having to pay owners of copyright material). The claim that intellectual property is an effect of deeper changes in the economic base also faces a well-known and fundamental problem. Marx made a conceptual distinction between the economic structure of a society and its legal and political superstructure. Having made the distinction, a question naturally arises about the nature of the relationship between these

26 J. Elster, *Making Sense of Marx* (Cambridge, 1985), 460.

27 K. Marx and F. Engels, *The German Ideology* (Collected Works, volume 5), 59.

28 For a good discussion of the problem, see B. Hindess, *Politics and Class Analysis* (Oxford, 1987).

distinct parts of society. On one reading of his theory, Marx is taken to be making a simple causal claim about the nature of the relationship. The economic structure or base causes the superstructure to come into existence; changes in the superstructure are the effects of changes in the economic base. The causal claim is of the kind $A \rightarrow B$, where B is an effect of A. But using this as a description of the relation between the economic base and the superstructure faces an analytical problem. In describing what constitutes the forces of production and the relations of production (the base) one is dependent upon legal relations and in particular contract and property relations. Law does not just reflect the base but actually helps to constitute it.²⁹ The existence and exchange of commodities depends on law having a constitutive role. The analytical problem becomes this: if the existence of A is now heavily dependent upon B, can we plausibly continue to assert the simple causal relationship of $A \rightarrow B$ in the case of the relationship between base and superstructure? If B is part of A, are we not asserting that B in some sense is self-causing? The problem is not confined to law. Morality, religion and ideological knowledge can all be made to play a part in the base. This kind of objection to historical materialism is potentially very damaging, for it claims that the driving force of history presupposes for its existence the very thing that it is meant to produce. So it is not surprising that attention has been paid to it and some convincing replies have been made.³⁰ Rerunning these is not the purpose of this chapter. Here we simply want to illustrate that an orthodox application of Marx's theory to intellectual property is very much the start of an inquiry.

We have seen that historical materialism, with its reductive concentration on the forces of production, does offer the beginnings of a way into the complex, intricate legal structures erected by nation states, world regulatory institutions and transnational corporations as they strive for economic success and domination. In the next section, using parts of Marx's economic theory, we explore the idea that capitalism seeks out creative labour and integrates it into its system of production.

29 An example of this line of thought is to be found in H. Collins, *Marxism and Law* (Oxford, 1982).

30 A now classic defence of historical materialism is G.A. Cohen, *Karl Marx's Theory of History* (Oxford, Princeton, 1978). For a criticism of Cohen, see H. Collins, *Marxism and Law* (Oxford, 1982). For Cohen's reply, see G.A. Cohen, 'Base and Superstructure: A Reply to Hugh Collins', 9 *Oxford Journal of Legal Studies*, 95 (1989).

Creative Labour

Marx, unlike some early liberal thinkers, saw labour in positive terms. For instance, he criticises Adam Smith for his essentially negative portrayal of labour.³¹ Marx concedes that certain historically conditioned forms of labour, like slave labour and wage labour, could hardly be described as rewarding. Forms of wage labour such as coal mining or factory work were, for Marx, examples of 'forced labour'.³² Such labour did not satisfy real human needs but rather provided a means for satisfaction of needs. But Marx did think there was a positive thesis to state concerning labour. Labour could be a creative activity, part of the self-realisation of the subject that could lead to real freedom. In Marx's thinking labour ceases to be just an economic variable or category and becomes a philosophical view of what might be in the context of a different set of social relations. He argues that individual labour in essence can in the right social setting and circumstances be simultaneously fulfilling self-expression and an expression of man's universal nature. The connection between self-expression and labour is to be found in earlier thinkers.³³ What is different in Marx's use of it is that private property is not needed to protect that self-expression.

An example which Marx gives of free labour is composing music.³⁴ For Marx, the fact that free forms of labour such as musical composition, writing, dramatic performance, scientific discovery and so on become commodified and enter the relations of capitalist production would be evidence of intense alienation.

Creative labour does not feature centrally in Marx's analysis of capitalism for the simple reason that most labour which takes place in the capitalist economy is alienated labour.³⁵ Alienated labour is labour which is external to the worker or, putting it another way, labour with

31 Karl Marx, *Grundrisse* (1857–58; M. Nicolaus trs., London, 1973), 610–614.

32 K. Marx, *Economic and Philosophic Manuscripts of 1844* (*Collected Works*, volume 3), 274.

33 Aristotle, *Nicomachean Ethics*, Book 9, section 7 contains the following striking passage:
but we exist in activity, i.e. by living and acting, and in his activity the maker is, in a sense, the work produced. He therefore loves his work, because he loves existence. And this lies in the nature of things: what a thing is potentially is revealed in actuality by what it produces.

34 Karl Marx, *Grundrisse* (1857–58; M. Nicolaus trs., London, 1973), 611.

35 The following discussion of alienated labour is based on Marx's analysis of it in *Economic and Philosophic Manuscripts of 1844* (*Collected Works*, volume 3).

which he has no meaningful connection. By virtue of the relations of production which exist in capitalism it is coerced labour. Alienation takes place in the context of production. Men are separated from both the products of their labour and from themselves. They are also separated from their universal nature, or what Marx calls the species character of man. This fundamental species character is for man free conscious activity. It is just this kind of productive life that capitalism through its commodity-based production form takes away from man.

It is alienated labour rather than creative or free labour that is the paradigmatic form of labour in capitalism, according to Marx. Here we want to suggest that capitalism in its evolution comes to depend on, and actively encourages, creative labour. How does this square with Marx's claim that labour in capitalism is alienated labour? Creative labour in the way it is used here does not refer to the ideal form of unalienated labour that Marx seems to contemplate will come into existence once the social relations of capitalism are replaced by those of communism. We are using creative labour in a more mundane way. Drawing on our discussion of creativity in Chapter 3, creative labour can be said to refer to the type of creativity which is employed in industry and commerce to improve systems, products, methods of production and so forth. It is the creativity which drives competitive capitalism and its processes of innovation. We need to remind ourselves that capitalism, in the way that Marx portrays it, is not a system in restful equilibrium. Apart from recurrent economic crises it is characterised by intense competition and the ceaseless search for new markets.³⁶ According to Marx, there is within capitalism a 'progressive tendency of the general rate of profit to fall'.³⁷ This tendency produces a competitive struggle amongst capitalists.³⁸ And this in turn leads individual capitalists to introduce new methods of production and new products. It follows that innovation turns out to be central to the individual capitalist's survival in the marketplace. The future development of capitalism comes in a significant sense to depend on creative labour. Marx does not argue for this last proposition, but it

36 For a discussion of capitalism's recurrent crises in Marx's economic theory, see M.C. Howard and J.E. King, *The Political Economy of Marx* (2nd edn, London, New York, 1985), chapter 13; P.N. Junankar, *Marx's Economics* (Oxford, 1982), chapter 9; A. Oakley, *Marx's Critique of Political Economy* (London, 1985), vol. 2, 268–277. For a discussion of the role of competition in capitalism, see *Capital* III, 245–261.

37 *Capital* III, 209.

38 *Id.*, 251.

does seem to be a consequence of his theory. To summarise: despite the widespread presence of alienated labour in capitalism, there is also creative labour. It is creative labour which is the source of much-needed innovation within capitalism.

The conclusion we are heading towards in this section is that capitalism seeks out creative labour and integrates such labour into its system of production. The task of integration is achieved through intellectual property law. Before moving to this conclusion we need to digress and make it clear that it does not depend on accepting Marx's theory of surplus value. The theory of surplus value, along with the labour theory of value and his analysis of commodities, forms a central core of his economic theory. The adequacy of Marx's theory of surplus value and his economic theory is a matter of specialist debate amongst Marxist and non-Marxist economists.³⁹ It is, for example, not clear that his theory of surplus value can form the foundation of a theory of price. Similarly the labour theory of value has to do a lot of work in order to offer a convincing alternative to the concepts of competition and market when it comes to explaining profit and exchange values. For our purposes there is no need to enter the literature on Marx the economist. The reason lies in the fact that Marx's economic theory is located within the broader theoretical framework of historical materialism, which itself is informed by a dialectical methodology. The economic Marx, as the afterword to the second German edition of volume 1 of *Capital* makes clear, never abandons this methodology.⁴⁰ Through its use Marx is able to identify the contrary forces that operate beneath the illusory surface phenomena of capitalism and which ultimately make it a system in transition. Similarly the opening parts of *Grundrisse* show that Marx was concerned, not just with the economics of capitalism, but with trying to understand capitalism as a historically distinctive society in which philosophically abstract categories like commodity, labour, capital and value are given a historically unique specification. In *Capital* the emphasis is on the internal organic relations between these categories. Within Marx's broad theoretical framework there are probably a number of theories and arguments that can, if need be, be treated separately. Without defending it here we claim that we can treat Marx's analysis of the internal relations

39 A good introduction to the debate is M.C. Howard and J.E. King, *The Political Economy of Marx* (2nd edn, London, New York, 1985).

40 *Capital* I, 19–20.

between capitalism's principal categories independently of the surplus theory of value. Marx may still have something to offer on the sources of capitalism's economic growth, even if the theory of surplus value turns out to be a poor microeconomic model.⁴¹ Bearing in mind these observations concerning the theory of surplus value, we can return to our argument.

In bourgeois society capital is the 'all-dominating power'.⁴² Marx assumes that individual capitalists are the highly rational pursuers of value (value is converted into profit). According to Marx the 'restless never-ending process of profit-making alone is what he (the capitalist) aims at'.⁴³ The individual capitalist becomes the representative of a system of production that has for its goal the expansion of value. Value becomes an end in itself. This system of production forces or, putting it another way, makes it rational for, individual capitalists to accumulate capital so that through the introduction of new technology they can extend that capital. A passage from *Capital* illustrates:

Moreover, the development of capitalist production makes it constantly necessary to keep increasing the amount of the capital laid out in a given industrial undertaking, and competition makes the immanent laws of capitalist production to be felt by each individual capitalist, as external coercive laws. It compels him to keep constantly extending his capital, in order to preserve it, but extend it he cannot, except by means of progressive accumulation.⁴⁴

41 The labour theory of value may well have some problems in accounting for the value of abstract objects which scientific labour produces. Labour for Marx is a value-creating substance. Essentially his labour theory of value holds that the value of any article is determined by 'the amount of labour socially necessary or the labour-time socially necessary for its production' (see *Capital* I, 38–39). Imagine two pairs of scientists employed to analyse the molecular composition of something. Each pair spends the same number of hours at its task. If one pair comes to understand the molecular basis of a perfume while the other pair turns out to be Watson and Crick, there seems to be something wrong in measuring the value of what they have produced exclusively in terms of the amount of labour contained in their discoveries. According to the labour theory of value, one might be led to conclude that there is an equivalent amount of surplus value to be extracted from the work of each pair. Surely the capitalist employer of both teams would be able to extract more surplus value from Watson and Crick's work on DNA. If so, where has this extra surplus value come from? Probably a good Marxist economic theoretician could come up with some replies here. But it does seem that the labour theory of value has some work to do when it comes to explaining this case.

42 Karl Marx, *Grundrisse* (1857–58; M. Nicolaus trs., London, 1973), 107.

43 *Capital* I, 152–153.

44 Id., 592.

We can see roughly what Marx has in mind here. Using assumptions that are similar to the model of perfect competition, Marx is suggesting that competition forces the individual capitalist into technological innovation in order to find new sources of value. His ability to do so is conditioned by levels of capital accumulation.

There is an important idea in Marx's discussion of technical change in capitalism. He seems to assume that the demand by individual capitalists for new methods of production will be satisfied. That is to say that the capitalist mode of production seeks machinery that will, at least temporarily, increase profit (in Marx's terms, increase the production of surplus value) and what is more it obtains that machinery. It seems to be part of Marx's theory that technological innovation is at least to some degree endogenous. Technological innovation is a phenomenon that has economic determinants. For Marx the prime, and perhaps only, determinant is the demand for labour-saving technology, although clearly there can be others such as investment rates and industry size. Innovation is not simply the happy outcome of individual inventive inspiration. The supply of innovation in a capitalist market is at least to some degree determined by economic variables.⁴⁵

One clear implication of Marx's discussion of technological innovation is that capitalism needs to foster creative labour and to integrate it into its systems of production. We should make it clear here that this is for us a necessary consequence of Marx's analysis of capitalism. It is not a proposition that he explicitly advances or defends. The same implication occurs in a passage from Engels: 'the ever-increasing perfectibility of modern machinery is, by the anarchy of social production, turned into a compulsory law that forces the individual industrial capitalist always to improve his machinery, always to increase its productive force'.⁴⁶ There is simply no way for these technological improvements to occur without the presence of creative labour in the capitalist mode

45 The debate within neo-classical economics over whether technological change is endogenous or exogenous is comparatively recent. Economists had thought for a long time that technological innovation was more a matter of serendipity than a response to economic factors. However, empirical investigation of the patent system in the 1960s began to change this belief. The most well known study here is J. Schmookler, *Invention and Economic Growth* (Cambridge, Mass., 1966). For a good account of this debate as well as a study of the economic causes of invention, see G. Wyatt, *The Economics of Invention* (Brighton, 1986).

46 F. Engels, 'Socialism: Utopian and Scientific' (1880) in Karl Marx and Frederick Engels, *Selected Works* (volume 3, Moscow, 1970), 95, 141.

of production.⁴⁷ The result is that creative labour comes to find itself in capital's harness. A good example of this general process of the integration of creative labour into the productive forces of capitalism is to be found in some of Marx's remarks on the role of science in capitalism. (Scientific labour is for us an example of creative labour.)

Labour throughout its history undergoes various changes, but the final change in capitalism is the development of the machine and automation. This development is the specific manifestation of capital's tendency to increase labour's productivity.⁴⁸ Machines exist as 'objectified labour'.⁴⁹ They are the concrete embodiment of society's collective skill and knowledge. What Marx calls direct labour is in later capitalism simply one element in the process of production. Even more importantly the production process has become more scientific in nature. Capital is linked to a definite mode of production which includes science, while simultaneously science helps to bring this mode into being. Once a stage has been reached where industry has significantly progressed, science becomes part of the productive forces of capitalism. It metamorphoses into capital. Two passages from Marx help to illustrate the point:

The accumulation of knowledge and of skill, of the general productive forces of the social brain, is thus absorbed into capital, as opposed to labour and hence appears as an attribute of capital.⁵⁰

Invention then becomes a business, and the application of science to direct production itself becomes a prospect which determines and solicits it.⁵¹

47 Modern theories which emphasise the role of technological change in economic growth recognise the connection between creative labour and growth. See N. Rosenberg and L.E. Birdzell Jr, *How the West Grew Rich* (New York, 1986); D.C. Mowery and N. Rosenberg, *Technology and the Pursuit of Economic Growth* (Cambridge, 1989); J. Mokyr, *The Lever of Riches* (New York, 1990).

48 Karl Marx, *Grundrisse* (1857–58; M. Nicolaus trs., London, 1973), 693.

49 Ibid.

50 Id., 694.

51 Id., 704.

The Tasks of Intellectual Property

We have argued that capitalism comes to depend on creative labour and that, as a result, it integrates such labour into its productive life. How is this done? This section argues that the integration is achieved through intellectual property law.

Marx begins *Capital* with an analysis of commodity. Capitalist wealth presents itself, Marx says, in the form of ‘an immense accumulation of commodities’.⁵² The emphasis on commodity is both a strength and a weakness in Marx’s overall analysis. Boss, in a perceptive analysis of Marx’s economic theory, argues that Marx uses a simple factory paradigm to model capitalist economic life.⁵³ The preoccupation with showing factory workers to be *the* productive force in capitalism leads him into what she terms input–output error. This error occurs where some given labour or activity is thought to be both a necessary intermediate input and an unproductive superfluous output.⁵⁴ Marx, Boss argues, commits an input–output error because in his economic universe the producer of commodities is genuinely productive while the provider of services is genuinely parasitic.⁵⁵ One colourful example of the kind of error that Boss is talking about is to be found in *Grundrisse*. Marx there says, in relation to the service provided by a woodcutter, ‘this performance of a service cannot fall under the category of productive labour. From whore to pope, there is a mass of such rabble’.⁵⁶ Marx’s analytical objection to classifying the woodcutter’s labour as productive is that the capitalist who acquires the service acquires only the *use* value of the service, a use value which is immediately consumed.⁵⁷ There is for Marx nothing left to circulate in the economy: the exchange between the capitalist and the woodcutter produces no value.

52 *Capital* I, 35.

53 H. Boss, *Theories of Surplus and Transfer* (Boston, 1990), 96.

54 *Id.*, 7.

55 *Id.*, chapter 5.

56 Karl Marx, *Grundrisse* (1857–58; M. Nicolaus trs., London, 1973), 272.

57 For Marx, productive labour is labour that produces commodities that have a use value and value. When discussing commodities, Marx distinguishes between use value, exchange value and value. For a discussion of the role that this plays in his economic theory, see M.C. Howard and J.E. King, *The Political Economy of Marx* (2nd edn, London, New York, 1985), 44–48; P.N. Junankar, *Marx’s Economics* (Oxford, 1982), chapter 2.

Marx's analysis of commodity is admittedly complex, for he is seeking to link it to the social relations of production while at the same time explaining the exchange values of commodities. But in some respects his concept of commodity is not so subtle. The problem lies in the fact that Marx is fixated by the materiality of production, with the consequence that the archetypal commodity within the Marxian economic framework is the material object. This preoccupation with material objects, as we have seen, sets limits on what he considers to be productive labour. It also leads him away from exploring the idea that, through law, capitalism engineers new commodity possibilities for itself. In order to support these claims, we need to quote a passage from *Grundrisse*:

Is it not crazy ... that the piano maker is a *productive* worker, but not the *piano player*, although obviously the piano would be absurd without the piano player? But this is exactly the case. The piano maker reproduces *capital*; the pianist only exchanges his labour for revenue. But doesn't the pianist produce music and satisfy our musical ear, does he not even to a certain extent produce the latter? He does indeed: his labour produces something; but that does not make it *productive labour* in the *economic sense*; no more than the labour of the madman who produces delusions is productive.⁵⁸

Marx's example here is in one sense a contrast between the tangible and intangible. It reveals what is the strong tendency by Marx in both *Grundrisse* and *Capital* to think of productive labour as being linked to the production of material objects.

Earlier, in Chapter 2 it was argued that intellectual property relates to abstract objects and that one view of abstract objects is that they are convenient mental fictions. To say that they are convenient is to understate their value to capitalist production. In fact abstract objects have the effect of qualitatively expanding the commodity production possibilities of capitalism. We can illustrate with the very example which Marx uses to show that services do not amount to productive labour.

Assume that the pianist is playing her own original composition. Generally speaking, copyright statutes create copyright in musical works. The definition of musical works is usually very open-ended or

58 Karl Marx, *Grundrisse* (1857–58; M. Nicolaus trs., London, 1973), 305.

sometimes not defined at all.⁵⁹ But once copyright in a musical work exists the pianist has something to own, something to sell or license. The convenient mental fiction (the abstract object) becomes through law a commodity. The pianist is now in the same position as the piano maker, contrary to Marx's assertion. She steps over the economic border that separates the badlands of unproductive workers from the rolling green fields inhabited by productive workers and enters the productive life of capital.

Intellectual property law is critical to her successful passage. It would, however, be a mistake to think that intellectual property law simply creates private property rights in the abstract object and so is no different from property rights in material objects. When he comes to analyse the exchange of commodities, Marx makes it clear that property and contract are necessary juridical phenomena for the exchange of commodities, but these are only reflections of underlying economic relations in the process of exchange.⁶⁰ In fact one might go further and observe that what matters for the exchange of commodities is the recognition of rights of control and that these do not necessarily entail the existence of property rights. Commodities can exist and be traded without the existence of formal property rights. Presumably trade can take place in a state of nature. All that is required is some physical control over the goods. For our purposes, the point to observe is that in the case of material commodities the existence of the commodity does not depend on the existence of property rights. But this is not the case for abstract objects. Once copyright in musical works becomes part of law both our pianist and our piano maker can be said to produce commodities. But it is only the pianist who depends on intellectual property for the creation of her commodity. In the absence of an intellectual property right she is left to sell her concert performances (an unproductive service, according to Marx's theory). Without intellectual property there simply would be no abstract object which participants in the market could recognise and make the subject of trade.

59 *The Copyright Act 1968* (Aust.) does not, for instance, define a musical work. The *Copyright Act 1905* (Aust.) defined musical work in terms of a combination of melody and harmony.

60 *Capital* I, 84.

The argument we have put can be stated in the following propositions. The existence of physical commodities does not depend on law. The existence of abstract objects does. Commerce in physical commodities and abstract objects depends on a scheme of property rights and contract. Marx's contradiction is that he sees labour as a value-producing commodity and yet does not recognise it as such when it is provided as a service or when it takes the form of an abstract object (in our sense of the term).

Now we are in a better position to see how intellectual property accomplishes the task of integrating creative labour into the capitalist mode of production. Marx more clearly than anyone sees that capitalism is a mode of production in which commodities are amassed on a historically unprecedented scale. Capitalism is not, however, the only mode of production which produces commodities. This is true of earlier forms of production. Where capitalism is distinctive is that it is a system in which the labour power of one class has become a circulating commodity available for purchase by another class, the members of both classes being formally free to buy and sell commodities.⁶¹ It is the condition of being able to readily acquire labour power that gives capitalism its Midas touch in economic production. Our argument has been that capitalism increasingly comes to depend on creative labour. Individual, rational capitalists, subject to competitive pressures, begin to seek out creative labour, for it is creative labour that is the source of much-wanted innovation. We have deliberately steered away from trying to explain this search in terms of the theory of surplus value. Rather our position is this: the search by individual capitalists for creative labour is motivated by the desire for control and ownership of the abstract object so as to gain a competitive edge over a rival. In the next chapter we shall see that the ownership of abstract objects can function to relieve individuals from competitive pressures. This provides another incentive for individual capitalists to chase the ownership of abstract objects. Clearly, if abstract objects exist under conditions of positive inclusive community (that is, they belong to all) the incentives for individual capitalists to pursue them will be considerably reduced. So one task of intellectual property law, from the perspective of the industrialist, is to create conditions of negative community so that the ownership of abstract objects is possible.

61 *Capital* I, chapter 6.

Intellectual property, in commodifying universal mental constructs, dramatically increases the commodity horizons of capitalism. Intellectual property is perhaps a sign that the commodity nature of capitalism never stops evolving. Marx thought that the commodity of labour power was the form of commodity that was distinctive to capitalism. Our analysis suggests that understanding the productive powers of capitalism does not stop with the commodification of labour power. Through the creation of abstract objects, intellectual property law provides capitalism with another distinctive commodity form and, potentially at least, another means to its further expansion. By creating abstract objects intellectual property brings creative labour directly into the relations of production. Capitalism can continue its historically spectacular commodity production run because through intellectual property law it has re-engineered the possibilities of commodity production. Not only that, creative labour, through the creation of more efficient means of production, actually diminishes the role of physical labour. The aim of the industrialist is no longer to control physical labour through contract and industrial relations law but to control creative labour through intellectual property law.

One last remark before we close this section. Intellectual property, we have argued, is fundamental to the task of integrating creative labour and abstract objects into capitalism's production processes. This argument does not mean that we abandon Marx's view about the fundamental materiality of production. Much of the literature on post-industrial society or post-capitalist society tends to over-emphasise the role of knowledge in production in order to obtain a convenient and bright dividing line between capitalist and post-capitalist epochs.⁶² Drucker offers a typical characterisation of this: 'The basic economic resource – "the means of production", to use the economist's term – is no longer capital, nor natural resources (the economist's "land"), nor "labour". *It is and will be knowledge.*'⁶³ However, our analysis of the role of the abstract object in production, when placed in the context of Marx's overall theory, suggests that perhaps good old-fashioned industrial capitalism has a way to run before it is given its last rites by scholars. Our reasons for thinking this are these. When he comes to discuss the role of physical forces (the laws of nature) Marx

62 Bright dividing lines between epochs is something Marx objected to. See *Capital I*, 371.

63 P.F. Drucker, *Post-Capitalist Society* (New York, 1993), 8.

says that these cost the capitalist nothing once they are discovered.⁶⁴ But in order for these laws to enter the productive life of capital they must be consumed productively and that, for Marx, requires that they be mediated by or be embodied in some item of hardware, some industrial article: 'A water-wheel is necessary to exploit the force of water, and a steam-engine to exploit the elasticity of steam.'⁶⁵ Abstract objects cannot just simply step into production.

We now have the makings of a paradox. The greater the role of abstract objects in capitalist production, the greater the production of the hardware of technology there needs to be. Abstract objects propel capitalism into ever-higher levels of industrial production of physical objects. Furthermore it is clear that for Marx each new generation of technologies carries with it greater and greater investment costs. Manual tools are cheap. Machine tools are not – and computer-controlled machine tools, even less so. The rough shape of our paradox is that abstract objects, which once in existence cost nothing or little, when absorbed into capitalist production cost capitalists a great deal in terms of investment. Intangible objects generate ever-higher levels of tangible commodities. It is industrial commodity production that abstract objects help stimulate, with the result that fewer workers are employed in that production directly (because of automation) and more services are required to match the higher levels of production. For the individual capitalist there is no choice about the levels of investment needed to stay in what has become a technological race. Investment is forced upon him by competition.⁶⁶ In language not intended to comfort, Marx says, 'one capitalist always kills many'.⁶⁷

The upshot of our remarks is this. We must not make intellectual property reveal more than is there. For post-industrial scholars, the intellectual property phenomenon seems to offer support for their pronouncements of radical social transformation. Our position is a more cautious one. Through intellectual property law, capitalism engineers new production possibilities for itself.⁶⁸ Creative labour is

64 *Capital* I, 386.

65 *Ibid.*

66 *Capital* III, 259.

67 *Capital* I, 763.

68 We are implying by this statement that law has a far more foundational role than the superstructural role which Marx assigns to it. Law, and in particular property law, for us turns out to be crucial to understanding the adaptive strength of the capitalist economy.

brought into the fold of productive labour, but the transformative possibilities of this remain for the time being grounded in a paradigm of commodity accumulation. So-called 'knowledge societies' have, through new communications and information technologies, the opportunity to reorganise the work patterns of their individual citizens in ways that liberate those citizens from conditions of alienated labour. But capitalist knowledge societies, if Marx is right about the commodity nature of capitalism, will not take that opportunity. Abstract objects are absorbed into production as part of a cycle of commodity production. Abstract objects are used to continue capitalism's obsession with, to use modern parlance, the hardware of technology. Inequalities of an apparently new kind (for example, the information-poor versus the information-rich) appear, but in essence they are old forms of inequalities patterned around the ownership of productive forces. 'Knowledge workers' end up more like other workers, for like other wage-labourers they come to find themselves in conditions of alienated labour.

The impact of intellectual property norms upon the activities of the scientific community provides an example of the way in which the positive expressive activity of scientific research and discovery becomes alienated labour. Natural science becomes part of the natural forces of production because individual capitalists realise they cannot survive without constantly 'revolutionising the instruments of production'.⁶⁹ Modern industry draws on scientific knowledge to produce a 'science of technology'.⁷⁰ This science of technology is derived from many earlier separate forms of production such as trade guilds and craft industries. Modern industry takes the knowledge and know-how which has been locked away in these secretive, almost ritualistic enterprises and applies it to improving production. The modern form of the science of technology as we know it seems to be, for Marx, born out of industry.⁷¹ Once in existence, its utility is apparent to all capitalists who are all constantly seeking to improve their production techniques. Science now finds itself press-ganged into capital's service.

69 Marx, citing himself and Engels, from the *Communist Manifesto* in *Capital* I, 486, fn. 2.

70 *Capital* I, 486.

71 Id., 486–487.

The normative practices of scientists begin to change. Traditionally, scientists organised themselves around the goal of extending knowledge. This goal is served by an ethos of science which consists of four key values: universalism, communism, disinterestedness and organised scepticism.⁷² Intellectual property, we have argued, plays a critical role in integrating creative labour into production. Through this process, intellectual property norms come to change the ethos of science.⁷³ (For Marx the change would only be a symptom of deeper causes.) The ethos of science rewards the sharing of information, the public communication of ideas (the incentives being prizes, scientific immortality, recognition and so on). The existence of an intellectual commons is seen to be crucial to successful individual work. This public domain attitude of science begins to change as intellectual property norms come to govern scientific labour. Open communication and the exchange of ideas are no longer so strongly endorsed by scientists because they might, amongst other things, defeat a proprietary claim to the knowledge.⁷⁴ The direction of scientific research becomes increasingly determined by state-based priorities expressed through intellectual property rights. The fact that ideas can in one way or another be owned is itself symbolic of the fact that scientific labour has become alienated labour.

Conclusion

Some of the blunter aspects of Marx's theory such as his class instrumentalism will not take us very far into an understanding of intellectual property. Bringing ideology theory to bear on the expansion of intellectual property will produce some kind of explanatory pay-off. The real benefit of using Marx's theory lies in his analysis of the commodity nature of capitalism, his understanding of individual capitalist behaviour and how this contributes to the growth of economic capitalism. Using these parts of his theory and extrapolating from them we can see that the major task of intellectual

72 For a discussion of the normative structure of science, see R.K. Merton, *The Sociology of Science* (Chicago, 1973).

73 For a full discussion, see P. Drahos, 'Intellectual Property Law and Basic Science: Extinguishing Prometheus?', 10 *Law in Context*, 56 (1992).

74 It is standard patent law in many countries that publication of an invention before the registration of a patent application defeats the patent claim on the grounds of a loss of novelty.

property is to integrate abstract objects and creative labour into the commodity life of capitalism. And we have seen that this is not just an economic phenomenon, but a social one. With the dismantling of the intellectual commons comes a change in social relations and community. Capitalist employers and their knowledge workers find themselves living in what we earlier called negative exclusive community. It may be that the integration of abstract objects into production will aid capitalism's growth. This is a matter for economists to determine. But the assumptions of conventional economics also suggest some real dangers in allowing the intellectual commons to be propertised. These dangers are the subject of the next chapter.

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