ON

PROPERTY

IN

DESIGNS AND INVENTIONS

IN THE

ARTS AND MANUFACTURES.

BY

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INTRODUCTION.

THE following pages may be regarded as introductory to my "Law and Practice of Letters Patent for Inventions" and "Subject-Matter of Letters Patent for Inventions and Registration of Designs," and to my "Reports and Notes of Cases on Letters Patent for Inventions"—works directed more, to the practical questions which occur in the creation and administration, than to the theory and policy, of such property.

The peculiar difficulty of this branch of jurisprudence, in the words of Judge Story, "lies not so much in the general principles as in the minute and subtle distinctions which occasionally arise in the application of those principles;" a full apprehension of this branch of jurisprudence can only be acquired from a careful examination of the decided cases and of the precise state of facts adjudicated on; each case becomes, as it were, a special treatise on the principles to which it is referable, and a collection of reports of leading cases, accompanied by a history of the manufacture the subject of the particular invention, is an essential work on this branch of jurisprudence.

The imperfections and inaccurate use of language also add materially to the real difficulties of the subject. Thus

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the use of known things, acting in known manners, producing known results, may be affirmed or denied to be the subject-matter of letters patent, according to the different sense attributed to the terms employed. The novelty may be exhibited in or referable to the materials, the means, or the result; and on an examination of the cases which are supposed to have carried the above proposition as to the subject-matter of letters patent to the greatest extent, it will be found, that by reason of such incident of novelty the result is a new, a better, or a cheaper article to the public.

The peculiar nature of the difficulties of this branch of jurisprudence induced me to adopt the division of subjects embraced in the works above alluded to, and subsequent experience has so confirmed my opinion of its advantages, that I purpose to adhere to that plan, and to endeavour to carry it out more completely in all future reports of cases and subsequent editions of the practical treatise.

The reader interested in the reform of the patent system, is referred to my works on "The Amendment of the Patent Law," and on "The New Patent Law," and to the Evidence on the Patent Bills before the Select Committee of the House of Lords in 1851, which will be found to contain a large body of most interesting information.

T. W.

2, *Pump-court, Temple,*
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PROPERTY in the results of intellectual labour, whether copyright in music, literature, the fine arts and designs, or patent right in inventions in the arts and manufactures, has usually been regarded in its origin, rights, and protection, as presenting so many difficulties that the branch of jurisprudence relating thereto has been termed the metaphysics of the law. But it may be doubted whether this property, either in respect of its origin or of the principles on which it is founded, presents any difficulties not common to other species of property.

Difficulties as to origin of property.

Jurists and metaphysicians have advanced various, and in some respects inconsistent, opinions on the origin and rights of property; some treating the conception of property as an original notion inherent in the mind, others as evolved from a previous sense of justice, its protection and distribution being regarded as matter of public policy to be provided for by the laws of each particular country.

Various opinions.

2. The idea or conception of property is antecedent to any notion of law; it is not the law of the land which constitutes the basis of property; neither does natural justice constitute property; justice is a virtue which presuppcses property, and respects it however constituted; justice, as a moral virtue, is not the creation of property but the conformity of our actions to those views of property which vary in the various states of society. (*a*) The universal recognition of and respect for property and the rights of its owner are not the

Idea of property antecedent to law or justice.

(*a*) See Dr. Thomas Brown on the Philosophy of the Human Mind, Lecture 83.

results of the wisdom or authority of patriots and legislators deliberating on what was best for the good and order of the community, but the results of a prior wisdom employed in framing a constitution not for a state but for human nature. (*b*)

Possessory feeling result of occupancy and labour employed.

3. The possessory feeling as the result of mere occupancy is common to our nature and anterior to the application of any principle of natural justice or the sanction of positive laws. The feeling derived from occupancy acquires additional strength if labour has been bestowed by the individual on the subject of his occupancy and is in accordance with a principle which is sometimes referred to, as the natural right of property, namely, that every man is proprietor of the fruit of his own labour, and that to whatever extent he may have impressed additional value on any given thing by the work of his own hands, to that extent, at least, he should be held to be the owner of it. (*c*)

Justice derived from deference to possession.

4. These two principles of ownership, by reason of occupancy or of the expenditure of individual labour, may be regarded as the origin of property. The feelings thus engendered are so natural and strong that the claim to the exclusive enjoyment of property is deferred to by others, and the occupant is allowed to remain in the secure and unmolested possession of that which he rightfully claims. The deference thus rendered to rightful claims gives rise to the sense of equity or natural justice prompting to likeness or equality between the treatment of others and the treatment claimed from others. So that if the sense of property be anterior to the sense of justice, and comes from an anterior and distinct source in our nature, the proprietary feeling in the heart of individuals does not originate from a sense of justice, which only arbitrates between the proprietary claims and feelings of different individuals after those feelings have arisen by the operation of other principles in the human constitution.

Illustration of these principles.

5. The principles here adopted as the true explanation of the origin and rights of property, are thus illustrated by Chalmers: "Justice did not create property, but found it already created; her only office being to decide between the antecedent claims of one man and another. And, in the discharge of this office, she but compares the rights which each of them can allege, as founded either on the length of undisputed and undisposed of possession, or on the value they had impressed on the thing at issue by labour of their own. In other words, she bears respect to those two great

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(*b*) See Dr. Chalmers' Bridgewater Treatise, vol. i. chap. vi. p. 228. (*c*) *Ibid.* p. 243.

primitive ingredients by which property is constituted, before that she had ever bestowed any attention, or given any award regarding it. The matter may be illustrated by the peculiar relation in which each man stands to his own body, as being in a certain view the same with the peculiar relation in which each man stands to his own property. His sensitive feelings are hurt by the infliction of a neighbour's violence upon the one, and his proprietary feelings are hurt by the encroachment of a neighbour's violence on the other. But justice no more originated the proprietary than it did the sensitive feelings; no more gave me the peculiar affection which I feel for the property I now occupy as my own, than it gave me my peculiar affection for the person which I now occupy as my own. Justice pronounces on the iniquity of any hurtful infliction by us on the person of another—seeing that such an infliction upon our own person, to which we stand similarly related, would be resented by ourselves. And justice, in like manner, pronounces on the inequality or iniquity of any hurtful encroachment by us on the property of another, also seeing, that such an encroachment upon our own property, to which we stand similarly related, would be felt and resented by ourselves. Man feels one kind of pain when the hand which belongs to him is struck by another, and he feels another kind of pain when some article which it holds, and which he conceives to belong to him, is wrested by another from its grasp. But it was not justice which instituted either the animal economy in the one case, or the proprietary economy in the other. Justice found them both already instituted. Property is not the creation of justice; but is in truth a prior creation. Justice did not form this material or command it into being, but in the course of misunderstanding or controversy between man and man, property, a material pre-existent or already made, forms the subject of many of those questions which are put into her hands." (*d*)

Property distinct from natural rights.

6. Such would appear to be the true principles of the origin and rights of property, whether as exemplified in the appropriation of a portion of the unappropriated soil by the first occupant, or of the wild animal which the sportsman may have caught, or of the tree which the savage may have felled, or of the hut which he may have erected in the wilds of the forest, or of the results of intellectual labour.

These feelings of proprietorship, and the consent given to these principles, are so universal, that they have been called natural rights; but this origin and these rights of property

(*d*) 1 Bridgewater Treatise, p. 247.

so acquiesced in must be distinguished from other rights more appropriately termed natural rights—as a right to the free use of the air, light, and the rain of heaven; these are common to all, because they are bestowed equally on all; and though each person is at liberty to enjoy as much of these as he pleases, long continued occupancy and enjoyment may, even in respect of these, confer certain privileges which cannot be interfered with without the consent of the proprietor.

Same principles of all property.

7. The principles to which property in literature, music, or the fine arts, or in a design, or invention in the arts and manufactures, that is, property in the result of intellectual labour, must be referred, are the same as those to which other descriptions of property are referred, and the same sense of natural equity or justice acts as arbitrator between the antecedent or conflicting claims of proprietorship by different individuals. These principles being recognised, the laws of civilised states act as an auxiliary to ratify the constitution which the natural feelings and intellects of mankind had established, and perpetuate or defend from violation the order of things which it had ratified. Property thus created and recognised is protected and regulated, as to its mode of enjoyment, by the positive laws of each separate community.

Ownership determined by death.

8. The origin and rights of property thus resting on the distinctive recognition given to occupancy and to the fruits of labour, the enjoyment of such property would naturally cease when the person who had so acquired it should no longer have any use for it. Hence it is said, by writers on natural law and ethics, that by the natural law there would be no succession to property; that the child has no natural right to succeed to the property of a parent, and that a present occupant has no right to dispose of acquired property. Here, however, public policy steps in, and the laws of each country allowing of the disposition of such property by successive occupants, and defining the mode in which the property is to be enjoyed during the lifetime or after the decease of the first or successive occupants.

Meaning of natural rights.

9. The term natural rights has been much misapplied in reference to the origin or rights of property and its enjoyment; it may be said that every child born into the world, in addition to the natural right of distending its lungs by a portion of the air, or of educating its eyes by the light of heaven, or of acquiring knowledge from the external world around, has a natural right to that nourishment, shelter, and protection, which may be necessary for its existence and sustenance, and to that education in the most extensive

sense of the term, which may be necessary for the proper discharge of the duties of a member of a community; and in most civilised nations the government, as having the ultimate control of all property, subjects its enjoyment to certain conditions for supplying such necessities when the occasion arises.

Importance of true principles

10. It is important that the true principles of the origin of property should be kept in mind, because a distinction has been supposed to exist between the original principles upon which property, as the result of manual or bodily skill and labour, and the result of the brain or intellectual labour, are founded, whereas if the preceding views be correct, the recognition of what is due to first occupancy and to proprietorship in the fruit of individual labour is equally applicable to the productions of physical and of mental labour.

And this is the more important because property in literature, or in designs, and invention in the arts and manufactures, has been supposed or represented to derive its origin from, and to have no foundation except the positive law of nations, or what may be termed municipal regulations. Without, however, entering further into a discussion of questions of so much difficulty and refinement, and on which writers of the greatest eminence on natural law and ethics are by no means agreed, the preceding may suffice to afford strong grounds for the opinion that the origin of all property is the same, being derived from the same general principles upon which the foundations of society rest, being in fact part of the constitution of man, of those principles which are the provision not of man but of God.

The subject of property must be capable of transfer.

11. As occupancy and possession have been referred to for the origin and rights of property, whatever admits of occupancy and possession may naturally be regarded as the subject of property; or to state the converse of the proposition, whatever can become the subject of property must admit of occupancy and possession, and the transmission of such occupancy and possession. Further, whatever does not admit of occupancy and possession, and is not capable of being transferred with an exclusive title, cannot be the subject of property. These principles are thus illustrated by a distinguished American author. (*e*) "Thus, light and air cannot of themselves be appropriated by individuals to the exclusion of the rest of mankind, because they cannot be included within limits, and held and possessed in severalty. Each human being may use all of them that he requires for his own purposes, without exhausting the common stock,

Illustrations. Air, light, and ocean.

(*e*) G. T. Curtis, in his Treatise on the Law of Copyright in England and America, p. 7.

No property in air or light.

which is inexhaustible. In like manner, no man can sell or transfer to another the air or the light, because he cannot first obtain the exclusive occupancy thereof. One may sell or transfer peculiar advantages or positions for the enjoyment of all that portion of the air or the light, which one or more human beings can draw from the common stock, in actual use. But this creates no opportunity to occupy the great body of the air or the light, which are in themselves incapable of being held within limits or boundaries, or parcelled out into different proprietaries.

No property in the ocean.

"The same is true of the ocean. The great reasons why the ocean cannot be the subject of property form one of the most interesting topics in the law of nations, into which it would be too great a digression to enter here. It is sufficient to note the illustrations which they present of the qualities which belong to the subjects of property. The ocean cannot be occupied; for although astronomers and geographers have traced imaginary circles of latitude and longitude, which theoretically divide its surface, nothing like actual occupation by boundaries or barriers has ever been attempted or can ever be possible. No part of the ocean can be taken and held in severalty, because no part of it can be designated as under occupation by any limits or marks capable of being fixed upon its surface. Every nation and every individual may use it as occasion requires; and such use in no degree diminishes or restrains the use of it by others, since the same waves will successively and for ever transport the fleets of the whole world. Accordingly, there is no evidence that mankind have at any period entertained the intention of making the ocean the subject of property. It has ever been left as the common highway of nations, in and upon which the rights of all mankind, from the necessity of the case, are perfectly equal." (*f*)

Property in surface of the earth.

On the other hand, the surface of the earth, and everything upon or beneath it, and everything upon or beneath the surface of the water, capable of being reduced into exclusive possession, may be the subject of property; and the exclusive possession carries with it the faculty of transmitting the whole of the same right, or a part of it, and of dictating in what manner and under what restrictions the subject of the right shall be used. In a refined state of civilisation, these subordinate rights become themselves objects of distinct consideration, and are made capable of distinct enjoyment, defined by positive rules, or defended by the general principles of justice. The right to pass over the

(*f*) Grotius Droit de la Guerre, &c. liv. ii. c. ii. § 3. Azuni Droit Mar de l'Europe, tom. i. c. i. § 5, 25.

soil, or to gather a definite portion of the fruit that grows upon it, may be severed from the ownership of the soil itself; and the grant of these subordinate rights does not necessarily suppose a grant of the proprietorship of the soil, or of any other of the rights of the original proprietor. The use of an animal, for a fixed period or in a certain manner, may be separated from the ownership of the animal, and a contract for the one does not imply a contract for the other.

Unanimous recognition of property in intellectual labour.

12. Whatever may be the true theory of the origin and rights of property, it is certain that creations of the mind or intellectual labour, when embodied in a practical form so as to be available to mankind, whether in books, music, paintings, designs, or inventions in the arts and manufactures, have been recognised almost universally by writers on jurisprudence, on ethical philosophy, and on political economy, and by civilised communities, as a subject of property and protection equally with the material forms in which such creations are embodied. To deny to the cultivated mind or educated man property in the productions of his peculiar labour, or of the exercise of those powers by which he is distinguished from his fellows, and which it has been the object of his education to improve to the utmost, is a proposition which in terms has as yet found no advocate, although the alleged opinions recently advanced on the subject of patent rights for inventions would appear to lead inevitably thereto. To deny to the creations and labour of the mind that property and protection by the civil power which is given to the skill of the hand or to bodily labour, is in effect to make intellectual, of no account as compared with manual, labour, and to give a predominating and overwhelming influence to capital and those other representations of accumulated labour which may be profitably enjoyed without any fresh creations of mind or exercise of inventive faculties.

An author has especial possession of his ideas.

13. If, as has been above stated, occupancy and possession be the fundamental principles of the origin and rights of property, the creations of the mind belong to their author in a peculiar and especial sense. He has sole and exclusive power and possession over them until embodied in some material form, and communicated by publication in such form to others. Further, the possession of such property has this peculiar claim derived from the nature of the subject—namely, that the subject-matter of such property did not exist like land, the air, or wild animals, as part of the common stock provided for all mankind; such property is, in the strictest sense of the term, a creation, and not a discovery or finding of something created by the great Author of all things, and already existing. The thoughts of man

are peculiarly and essentially his own, and unless embodied in some practical form, and communicated by publication to the world, would die with their author. To prevent this, and ensure their preservation and publication, may be regarded as part of the policy of the law which will be further dwelt upon hereafter.

Possession and a right to exclude others.

14. Possession and a right to exclude others are essential both to the idea and to the enjoyment of property; the right to use and to exclude others from the use of property must concur, or the notion of and title to property is not complete. The use of property by others may be quite compatible with exclusive possession and ownership; but such use is subject to conditions and limitations at the will of the proprietor, or in certain cases according to the positive law and municipal regulations of the government of the country. The recognition of their rights is derived from and consistent with the natural feeling of justice already referred to. The observance of these conditions is to be enforced by the same principles of justice which govern the whole title of the original owner. If he has granted only a part of his right, and the other is usurped, the same principle of justice is violated as when his whole right is usurped without his having granted any part of it. (*g*)

Imitation of the idea after publication.

15. So long as the idea remains locked up in the breast of the inventor and unembodied in any material form, or if embodied remains unpublished, its possession is inviolable, no one can, against the will of the author, become possessed of it; but so soon as the embodiment and publication take place exclusive possession is gone, and the idea which till then was locked up in the bosom of the author becomes communicated to and capable of being imitated by those who are interested in the subject. Now, if it be borne in mind that publication is essential to the creation of property in intellectual labour, because no one knows of its existence until published, the preventing others from borrowing the idea and embodying it in like material forms becomes necessary for that exclusive possession and use of the idea which is essential to the notion of property. This restraint is the protection afforded by the laws to this description of property; the justice of such protection is derived from the feeling of what is due to the first occupant or possessor, and to the fruits of labour expended on any subject; the policy of such protection may be shown from the effect which it has in giving rise to fresh productions and creations, and in the consequences which reason, ana-

Publication essential to the creation of property.

(9) See observations of G. T. Curtis in his Treatise on Copyright in England and America, p. 6.

logy, and comparison, tend to show must follow from its withdrawal. Upon this subject, Jeremy Bentham says: "With respect to a great number of inventions in the arts, an exclusive privilege is absolutely necessary, in order that what is sown may be reaped. In new inventions protection against imitators is not less necessary than in established manufactures protection against thieves. He who has no hope that he shall reap will not take the trouble to sow. But that which one man has invented all the world can imitate. Without the assistance of the laws the inventor would almost always be driven out of the market by his rival, who, finding himself without any expense in possession of a discovery which has cost the inventor much time and expense, would be able to deprive him of all his deserved advantages by selling at a lower price." (*h*)

Term of enjoyment of different subject.

16. The peculiarities of this species of property and considerations of public policy have led to certain regulations as to this description of property, its period and mode of enjoyment, somewhat different from those which exist as to other descriptions of property. For instance, property in lands and chattels, whether real or personal, may be enjoyed for the whole term of the natural life of the possessor, and by his family or successors in perpetuity, according to certain rules of succession. Such succession, however, as has already been stated, is matter of positive law and public policy, and the commonwealth is well justified, when it allows succession, or affords protection by the strong arm of the law and civil power, to property, in assigning in what manner such succession should take place, or for what term the property should be enjoyed.

Copyright.

The common law of England recognised the right of authors to property and protection in the results of their intellectual labours; but the term during and conditions under which such property and protection could be enjoyed have been subjected to various important alterations from time to time.

Patent right.

The common law of England also recognised the right of the Crown to grant exclusive privileges to the inventors of new and useful inventions in the arts and manufactures, but the term during and conditions under which this property could be enjoyed and protected has also been the subject of various regulations. (*i*)

Designs.

The Legislature has recently afforded protection to property in Designs in the Arts and Manufactures for a short period; and, although the term is wholly inadequate for the

(*h*) See Bowring's edition of his Works, vol. iii. p. 71.

(*i*) See my work entitled "The Law and Practice of Letters Patent for Inventions" for full information on this part of the subject.

proper encouragement of the more elaborate designs and of the art of design as applied to the more expensive classes of fabrics, the statute affords an illustration of the modifications which it may be thought expedient to apply to the enjoyment of the fruits of intellectual labour. (*k*)

These and various other matters relating to the conditions upon which this species of property is held, to its transmission and to its protection, constitute separate and distinct branches of jurisprudence, which may be treated of as Copyright in Literature and the Fine Arts, of Designs in the Arts and Manufactures, and of Letters Patent for Inventions. (*l*) This present treatise is more especially confined to the principle, policy, and protection to property in such Inventions in the Arts and Manufactures as may become the subject of Letters Patent.

Rights of inventors in the United States.

17. Property in new inventions in the Arts and Manufactures, and adequate protection to such property for a limited time, form part of the legislation of almost every civilised nation or settled government. (*m*) The specific legislation in different countries, the length of term during which the protection is extended, and the mode of its enjoyment, are various, but such legislation recognises the principle of property in useful inventions, and the policy of protecting it. "The American Constitution (to use the words of one of its greatest ornaments) (*n*) does not attempt to give an inventor a right to his invention, or an author a right to his composition; it recognises an original pre-existing inherent right of property in the invention, and authorises Congress to secure to inventors the enjoyment of that right; but the right exists before the Constitution and above the Constitution, and is, as a natural right, more than that which a man can assert in almost any other kind of property." The practical application of this principle in the United States, under the provisions of the Acts of Congress, are less favourable to inventors than in this country; but the recognition, from the first dawn of the Constitution, of what was due to intellectual labour contrasts most favourably with the struggles which authors and inventors have experienced in this country in protecting their rights. The struggle against prejudice and illiberality in the Legislature was long and severe; but since the elaborate argu-

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(*k*) See my work on The Subject-Matter of Designs, royal 8vo. 3rd ed. 1851.

(*l*) See further on this subject in my work on The Subject-Matter of Letters Patent for Inventions and Copyright of Designs, p. 51.

(*m*) There are no patent laws in Switzerland, or in some portions of the Zollverein, but the protection afforded to this species of property in other countries insure the progress of invention, and prevents the prejudicial consequences of this state of things being generally felt.

(*n*) The Hon. Daniel Webster, in the case of Goodyear *v.* Day, 1852.

ment of Lord Camden (*o*) against the common-law right of property in a literary composition, the existence of such property at common law and its policy have not been seriously questioned.

Opinions of political economists.

The policy of patent rights has been recognised by the most eminent jurists and political economists, and though some difference of opinion may exist as to the duration of such rights, or as to the question whether other than the existing systems might not be adopted with advantage, no person (until the recent discussions on Patent Law Reform hereafter referred to) has publicly advanced any arguments against the principle, policy, or justice of rewards to this species of intellectual labour.

Value of intellectual labour. J. S. Mill.

The general principle of the value of intellectual labour is thus announced by John Stuart Mill: (*p*) "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 notions 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 remunerating such labour as a highly productive part of its expenditure."

And as to the particular subject of patents, the same distinguished philosopher says: (*q*) "The condemnation of monopolies ought not to extend to patents, by which the originator of an improved process is permitted to enjoy, for a limited period, the exclusive privilege of using his own improvement. This is not making the commodity dear for his benefit, but merely postponing a part of the increased cheapness which the public owe to the inventor, in order to compensate and reward him for the service. That he ought to be both compensated and rewarded for it, will not be denied, and also that if all were at once allowed to avail themselves of his ingenuity, without having shared the labours or the expenses which he had to incur in bringing his idea into a practical shape, either such expenses and labours would be undergone by nobody except very opulent and very public-spirited persons, or the State must put a value on the service rendered by an inventor, and make him a pecuniary grant. This has been done in some instances, and may be done without inconvenience in cases of very conspicuous public benefit; but in general, an exclusive privilege of temporary duration is preferable, because it

Peculiar advantages of reward by patents.

(*o*) In the House of Lords, in 1774, in the case of Donaldson *v.* Becket, 4 Burr. 2417. See some valuable observations on the history of copyright in Curtis' Treatise on Copyright, pp. 59—74.

(*p*) In his Principles of Political Economy, vol. i. p. 53. 3rd ed.

(*q*) *Ibid.* vol. ii. p. 517.

leaves nothing to any one's discretion; because the reward conferred by it depends upon the inventions being found useful, and the greater the usefulness, the greater the reward; and, because it is paid by the very persons to whom the service is rendered—the consumers of the commodity. So decisive, indeed, are these considerations, that if the system of patents were abandoned for that of rewards by the State, the best shape which these could assume would be that of a small temporary tax imposed for the inventor's benefit on all persons making use of the inventions."

M'Culloch.

On the same subject M'Culloch says: (r) "The expediency of granting patents has been disputed, though, as it would seem, without any sufficient reason. Were they refused, the inducement to make discoveries would in many cases be very much weakened; at the same time that it would plainly be for the interest of every one who made a discovery to endeavour if possible to conceal it. And notwithstanding the difficulties in the way of concealment, they are not insuperable; and it is believed that several important inventions have been lost from the secret dying with their authors. Perhaps the term of fourteen years, to which the duration of a patent is limited in England, is as proper a one as could be suggested. It may be too short for some inventions, and too long for others; but on the whole it seems a pretty fair average."

Produces disclosure of secrets.

Exclusive privileges for a new trade. Adam Smith.

The policy of exclusive trading privileges and patent rights are associated together by Adam Smith (s) in the following manner: "When a company of merchants undertake at their own risk and expense to establish a new trade with some remote and barbarous nation, it may not be unreasonable to incorporate them into a joint-stock company, and to grant them in case of their success a monopoly of the trade for a certain number of years. It is the easiest and most natural way in which a State can recompense them for hazarding a dangerous and expensive experiment, of which the public is afterwards to reap the benefit. A temporary monopoly of this kind may be vindicated upon the same principles upon which a like monopoly of a new machine is granted to its inventor, and that of a new book to its author."

Jeremy Bentham on patent rights.

With reference to the peculiar system of patents, Jeremy Bentham says: (t) "As an instance of a reward peculiarly adapted to the nature of the service, is that of the monopoly which it is almost universally the custom to create in favour

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(r) Commercial Dict. 969. Ed. 1847.
(s) Smith's Wealth of Nations. Playfair. 11th ed. vol. iii. p. 141.
(t) Rationale of Rewards (1825), p. 92.

of inventors. From the very nature of the thing, it adapts itself with the utmost nicety to those rules of proportion to which it is most difficult for reward, artificially instituted by the Legislature, to confer. It adapts itself with the utmost nicety to the value of the service. If confined, as it ought to be, to the precise point on which the originality of the invention consists, it is conferred with the least possible waste of expense. It causes a service to be rendered, which, without it, a man would not have a motive for rendering, and that, only by forbidding others from doing that which, were it not for that service, it would not have been possible for them to have done. Even with regard to such inventions, for such there will be, where others, besides him who possesses himself of the reward, have scent of the invention, it is still of use, by stimulating all parties, and setting them to strive which shall first bring his discovery to bear. With all this, it unites every property that can be wished for in a reward. It is variable, equable, commensurable, characteristic, exemplary, frugal, promotive of perseverance, subservient to compensation, popular, and reasonable."

Adapted to the service, and a stimulus.

The preceding and other similar passages which might be selected from the writings of eminent jurists and political economists, show the deliberate opinions and judgments of thinking men, wholly disinterested, on the policy of exclusive privileges analogous to patent rights. It is quite true that instances may be found in which learned judges of former days, in administering the law of patents, have expressed themselves as "not one of those who greatly favour patents, for although in many instances, and particularly in this, the public are greatly favoured by them, yet, on striking the balance on this subject, I think that great oppression is practised on inferior mechanics by those who are more opulent." (*u*) But it is equally true that in recent times a very different feeling has existed with the progress of knowledge, and learned judges have declared, and the highest tribunals in the land have concurred in the opinion, "that far too much acumen had been displayed in defeating rather than in upholding patents, and that it was the duty of the Court not to give effect to trivial objections directed to that object." (*x*)

Opinions of judges.

18. The declaration of Earl Granville, (*y*) that the evidence which had been adduced before the Select Committee of the House of Lords had only confirmed him in the opinion "that

Opinion of Earl Granville on patents.

(*u*) *Per* Lord Kenyon, in Hornblower *v.* Bolton, 8 T. R. 95.

(*x*) See *per* Parke, B., in Neilson *v.* Harford, 1 Pat. Cases, 1310; Lord Cranworth, in Sellers *v.* Dickenson, 5 Exchcq. Rep. 1 3; Sir N. C. Tindal, C. J., in Haworth *v.* Hardcastle, 1 Pat. C. 484; and the cases before the Judicial Committee of the Privy Council on application for extensions.

(*y*) In the House of Lords, 1 July, 1851, 118 Hansard, 14.

the whole system was unadvisable for the public, disadvantageous to inventors, and wrong in principle," has, as might have been expected, been responded to by many adherents to such an authority, although the noble Earl stated, that with regard to the necessity of a patent law he believed it would have been easy to have had one hundred sensible persons to give evidence to that effect, but with respect to the injurious tendency of the whole system there were probably not six persons who could be got to give evidence in support of that view; and further, that the almost unanimous opinion of the country was in favour of patent rights to inventors. The noble Earl rests the above opinion on several grounds—maintaining that there was no innate right of property in ideas; that the only reasonable ground upon which the patent laws could be supported was the stimulus to inventors and the encouragement to disclose their inventions; and believing that in the present state of the world—even if it was different at the earlier stages of society—it was not at all necessary to stimulate inventors; that invention was almost a madness with some people, and that scientific men were in the habit of making known their discoveries with great alacrity to the public; that but one in fifty inventions were of the slightest use to the public, and that a liberal master would be ready to reward an ingenious workman who was able to make valuable suggestions for improving and cheapening any process of manufacture. That as regards the public, the tendency of the system was to raise the price of the commodity during the fourteen years which the patent existed; and that a rich company found it often worth while to keep the sale of a patent article exclusively in their own hands by the exorbitant price which they put upon the licenses, so as to prevent any other person making use of the patent during the monopoly. That however just literary copyright might be, this was a different matter; the one could only add to the intellectual resources of the world ideas which any one might make use of the next day, but in the case of a patent the manufacturer was not only prevented from using it, but from using anything like it, though the concurrence of similar inventions was very remarkable. That the existence of commercial monopolies in countries which boasted the highest civilisation had not prevented the Legislature of this country establishing free trade.

Grounds of opinion.

No innate right to ideas as the subject of property.

19. No jurist has rested this question on the absolute innate right of property in ideas, referred to by the noble Earl as maintained by some of the witnesses before the Select Committee of the House of Lords. Ideas, until embodied

in some material form, cannot become the subject of property any more than the air, light, or ocean; nor can any protection be extended to what is not so embodied as to be capable of distinct definition. There must be full possession of the idea, coupled with the physical possession of the combination of characters or material forms whereby or wherein the idea is embodied, so as to be capable of being preserved or presented to the public, before property is constituted. That which is prohibited and protected is not the use of the idea by any other individual, but its embodiment in similar forms, that is, in literary copyright, the multiplication of copies of the particular combination of characters exhibiting to the eye or the ear the idea or sensation to be communicated; in patent right the producing of substantially the same manufacture; in copyright of designs the application of the same external forms, patterns, or configuration to articles of manufacture.

Copyright and patent right analogous.

Such embodiment of ideas is essential to constitute property capable of being reduced into possession or transmitted. In this respect the analogy between copyright in a book, and patent right in an invention, is complete. On this subject, Sir W. Page Wood, V.C., in reply to a question as to the policy of patent rights, said: "It is a very wide subject, which appears to me to require a great deal of consideration; it is connected with the question of copyright, and many others which involve many important considerations." (*z*)

Opinion of Sir W. P. Wood.

Opinion of Sir J. Romilly.

The opinion of the Master of the Rolls (Sir John Romilly) has been relied on as adverse to the system, and is as follows: "I think the principle of the patent law is very defective. I think it is a wrong principle to reward inventors by giving a monopoly; and I also think that the inventor does not get the real benefit of the patent. In the greater number of cases, I believe that the person who takes out a patent, and who makes the patent useful, is some one who finds out the little thing at the end which just makes it profitable and useful. All great inventions, I think, are arrived at by a long series of steps, and those persons who have made the discovery of the great principle upon which they are founded, are not the persons who really benefit by them. I think the system is defective in principle." (*a*)

Neither this opinion, nor the opinions of other learned and distinguished judges referred to by Earl Granville, (*b*) necessarily involve the condemnation of the principle of

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(*z*) Evidence, House of Lords, on Patent Bills, 20th June, 1851 [2830].

(*a*) Evidence of the Right Hon. the Master of the Rolls, House of Lords, 20th June, 1851 [2828].

(*b*) See 118 Hansard, 14.

property in and protection to intellectual labour; they are directed to abuses and defects in an existing system, the reform of which was then under consideration; a system which had received the unqualified condemnation of every disinterested person of any experience in the subject, but which had continued to subsist, notwithstanding the labours during a quarter of a century of men of science, inventors, and professional men more particularly engaged in that description of business, for the abolition of a vicious, and the establishment of a rational system. (*c*) The objections of the Master of the Rolls are really directed to admitted difficulties and defects, some of which are inherent in any system, but others of which it is believed will be effectually obviated by the new system. (*d*)

Evidence of Sir D. Brewster.

20. The evidence of Sir David Brewster may possibly have been relied on in support of the innate right of property in ideas, but a careful perusal of that evidence will show that eminent philosopher to have been speaking of the value of any idea or facts in science, and of the importance of encouraging their disclosure and discovery rather than upon the question of right of property in such ideas.

The following portions of his evidence possess great interest as the record of the opinion, of a man of great science and practical experience, on the subject of patents:

Patents to be free of expense.

"My general opinion is, that patents should be granted free of all expense, and that in place of being considered as monopolies, which are injurious to the public, they should be regarded as benefits conferred upon it, and therefore encouraged by every possible means. I think that patents should be readily granted for every new idea, whatever that idea may be; that every encouragement should be given to persons to bring forward such ideas, and that, instead of throwing difficulties in the way, even where the ideas appear to be frivolous, every facility should be given for their development, because they may contain the germ of future inventions. The history of science shows that such ideas have often led to very great and important results; and hence, I am of opinion, that to every idea connected with science and arts, the protection of a patent should be freely extended without any expense whatever to the patentee. It appears to me that it is the duty of a wise Government to charge the country with this expense, and to use every means to induce inventors to bring forward their ideas, especially in a country like this, where so much depends upon the progress of the useful arts, and at a time when foreigners are making such exertions, and often successful ones, to rival and to outstrip our manufacturers, both in the quality and cheapness of their productions. I do not think there is more invention in foreign countries than in this country; no country can be compared with ours in the state of the industrial arts. In the scientific arts, I believe, foreigners surpass us greatly, in consequence of the superiority of their scientific

All ideas of value.

(*c*) See my New Patent Law for a history of Patent Law Reform.

(*d*) See the case of successive improvers considered in my evidence, House of Lords, on Patent Bills, 15th April, 1851 [48—51].

obtaining reputation or wealth. The work of an ingenious workman never can be useless, even though it be unprofitable. Sir D. Brewster.

Every invention or attempt useful.

"I cannot admit that any invention, or any attempt at an invention, will be of no use. A workman who may spend many days or nights in a year in bringing to perfection an invention which was known to the whole world before, does not know that it is known to the whole world, and there are very few cases in which a man thus misspends his time; I venture to say, that there are very few examples of a man labouring at an invention which has, in all its parts, been invented before; even if the invention should be precisely the same, he may indicate new applications and new forms of the invention. I have never known an instance of a patent being taken out for an invention which was well known. Even eminent men who have studied these subjects, would not be able to direct an inventor to any work containing an account of any invention about which he consulted them. It is very difficult when a person is engaged in any new investigation to ascertain what has been done before, either in science or in the arts. (*h*)

All patents of some value.

"In advocating an extremely cheap system of patents, I consider the interest of the manufacturers and the public as well as of the patentees and inventors. I cannot conceive how any person can be injured by there being a number of patents, and still less how any person can be so selfish as to complain of them, and so ignorant as not to see the national importance of encouraging the development of new ideas. If a patent appears to be frivolous, which I hold no patent can be (because a patentee makes new experiments in order to bring his invention into practical and beneficial use), I cannot see how even a frivolous patent can affect, injuriously, the interests of any individual; such a patent falls to the ground immediately. Hundreds of apparently useless patents now fall to the ground, because no person values them, or desires to make use of them. But they contain ideas which suggest others more useful and practical; and what is a simple and amusing experiment in one age becomes a great invention in another. A patent inadvertently granted for an invention which was not new, would not be useless, because if it has led the individual to make new experiments, in order to make his patent useful, he not knowing that the invention had been made before, it has done some good in that way. You give the patentee an interest in making new researches, even if his idea has been in the hands of the public, and there are many examples of this being the case; but independent of this consideration, I do not believe that there is a single example of a patent being taken out to produce a result similar to what was produced before by the very same mechanism or process. A better result, or even a change of mechanism, proves that there is novelty in the invention, though it may not at the time be beneficial to the patentee, or useful to the public.

Inventions kept secret.

"I think it may be important to state it as an undoubted fact, that many valuable inventions are kept secret in consequence of the expense of taking out patents. This I know for certain from many individuals in Manchester, Sheffield, and other places, who have not the means of taking out patents. These men have a great many new ideas, which would be brought out and patented if it could be done at a trifling expense. These are all lost to the public. They are doubly lost, because all these new ideas, when known to the public, would become

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(*h*) See Evidence, House of Lords, on Patent Bills, 30th May, 1851 [2465—2473].

the subjects of researches which might lead to very important and beneficial results." (*i*)

All suggestions valuable. R. Roberts.

21. The views of Sir D. Brewster expressed in the above evidence as to the value of mere ideas or hints, and the effect of the then existing system of patents, are corroborated by the evidence of R. Roberts, the inventor of the self-acting mule, and a practical workman, who says: (*k*) "The effect of the present system of patent laws has been to prevent my giving to the public many inventions which I have made. The objection that some parties have to cheap patents is with me of no weight; they say we should be inundated with them. I think that those persons who very often might be incapable of perfecting an invention, would nevertheless give a hint in their brief specification which might be useful; and if from any cause they should fail to pay the second 5*l.*, it would be open to others to make use of that suggestion."

Discoveries of scientific men given to the public.

22. The evidence of this distinguished philosopher may be adduced in support of the opinion of Earl Granville, that scientific men are in the habit of making known their discoveries with great alacrity to the public; but it must be borne in mind that no property exists in such discoveries unless embodied in the practical shape of a new manufacture. The term discovery, in its strictest sense, is applied to uncovering, disclosing, or revealing that which already exists. Philosophers discovered the laws of light, the laws of flection and refraction; others have applied those laws by embodying them, so to speak, and inventing the achromatic object glass, the camera lucida, the kaleidoscope. A combination in the same individual of talents to advance the boundaries of human knowledge by unfolding the secrets and laws of nature, and to adapt and apply those secrets and laws to the practical purposes of life, is of rare occurrence; but no person can reasonably object that the one talent ought not to have its reward because the other talent is applied on that which, however ennobling, is not as such directly applicable to, or beneficial in, the practical purposes of life. The discoverer of such laws or secrets of nature may have copyright in the work by which he publishes them to the world, and prevent the multiplication of copies thereof; but the laws and secrets themselves, when discovered, are, so to speak, common property, and do not admit of appropriation otherwise than in some material form. No one acquainted with the condition of scientific men in this country, and the inadequate subsistence afforded to them unless

(*i*) See Evidence, House of Lords, on Patent Bills, 30th May, 1851 [2483—2486].

(*k*) Evidence, House of Lords, 19th May, 1851 [1377].

engaged in some of the practical arts or manufactures, can doubt that available means for protecting property in the practical application of science must have added much to the conveniences and innocent recreations of life, and at the same time afforded reasonable remuneration to those engaged therein. If such property be not worth protecting, or if inventors reap no solid benefit therefrom, it is because legal proceedings are too expensive, or the law is not strong enough to deal with thieves and pirates.

Inventors not without remuneration.

23. It is undoubtedly true that a very small proportion of inventions are of practical utility, and that a small proportion of such as are of practical utility remunerate the inventors, for which various causes may be assigned; (*l*) but exceptions are not wanting to remove the reproach to which, in respect of adequate reward to the inventor, most patent systems are obnoxious. The inventor and patentee, Sir Mark Isambard Brunel, of the inimitable block machinery, received a large sum of money for his invention; the patentees of the Electric Telegraph also received very large sums, and the applications to the Judicial Committee of the Privy Council disclose many cases of considerable remuneration; while the abandoned applications, or those commenced but not prosecuted, and the experience of persons professionally engaged more particularly in connexion with this description of property, (*m*) will attest to the existence of many inventors who, by means of their inventions and the protection of patents, have been raised to a position of comparative wealth. It cannot, however, be denied that inventors are, in far the great proportion of cases, compelled to share the profits with others; but this results from the fact, which will be hereafter adverted to more in detail, that capital and commercial habits and skill are necessary for the introduction of a new invention.

Patent rights distinct from monopolies.

24. The principal objection relied upon by the opponents of the patent system has always arisen from a confounding them with the old system of monopolies, (*n*) so odious to the law. The statement (*o*) that the tendency of the system was to raise the price of the commodity during the fourteen years which the patent exist, is not rigidly correct; the tendency of the system is to keep, maintain, or continue the price, during the subsistence of the patent, higher than after the expiration; but inasmuch as no such article existed before the patent, it is not strictly accurate to say that the

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(*l*) See *post*.

(*m*) See Mr. Carpmael's Evidence, House of Lords, on Designs Bill, 12th March, 1851 [185].

(*n*) See my Law and Practice of Letters Patent for Inventions, Art. 2, for the definition and proper meaning of the term Monopoly.

(*o*) *Ante*, and 118 Hansard, 14.

price is raised, the patent article being of necessity a different, and either a better or a cheaper, article than existed before, otherwise no person will buy it.

It was an incident of the old monopolies with which patent rights were, and still are to some extent confounded, that the holders of such privileges were enabled to raise the price of commodities, and to put invincible restraints on commerce, industry, and emulation in the arts. (*p*) But such a state of things is wholly inapplicable to patent rights, which only exist on the assumption that the commodity, the subject thereof, is a new, a better, or a cheaper article than existed before. A patent right, unlike the old monopoly, involves no principle of exclusive sale, except as incident to, or in connexion with, the working or making of the particular manufacture; it has none of the incidents, and can produce none of the evils of the old monopoly, so justly odious and illegal, and opposed to every true principle of political economy.

The public deprived of nothing by patents.

A patent right deprives the public of nothing which they had or enjoyed before; no one can be restrained thereby in anything he was doing before; and if the new manufacture, the subject of the patent, be not cheaper or better, the public will continue to purchase the old article; and if the new manufacture be a new article or commodity introduced then for the first time, and not simply an improvement on an existing article, the public will not purchase or adopt it unless the price be reasonable. The inventor must have given to the public something which they did not possess, or his hopes of reward or remuneration will be hopeless.

Letters patent a contract with the public.

25. So firmly has the idea that the patentee must give to the public something not before possessed by them, become rooted in the mind as an inherent principle of such rights, that many jurists have represented the grant of such rights as a contract between the patentee and the public, the consideration of such contract being the communication to the public of knowledge, not before possessed by them. If others possessed the knowledge, or the means of attaining the knowledge, for practising the invention professed to be communicated for the first time by the patentee, the grant is invalid, whether the public have ever availed themselves of such knowledge or not. The public, it has been said, forbear to use the invention for a limited time in consideration of the knowledge communicated to them, and its becoming free to them at the expiration of the term.

No exception can be taken to the doctrine of Mr. Say,

(*p*) See Law and Practice, Arts. 6 and 7, and notes; and Hume's History, vol. v. p. 386, and note LL.

that a patent is a recompense to the patentee at the expense of the consumer; and following out the above analogy of a contract, it may be said the consumer agrees to pay such tax for a limited time in consideration of the disclosure of the secret, whereby he will be enabled, at the expiration of that term, to obtain the same article at a cheaper rate, or a better article at the same rate as at the date of the patent. The secret the consideration.

26. The grievances referred to by Earl Granville, (*q*) of a rich Company finding it for their interest to keep up the price, and refuse licenses to other manufacturers, and by Lord Kenyon, (*r*) as to the oppression practised on inferior mechanics by those who are more opulent, are real and substantial. They illustrate the way in which capital may be employed in connexion with patent rights so as to create an abuse; but this abuse has in some cases been aggravated by the Legislature having removed restrictions, and permitted combinations of capital and patent rights, by repealing express conditions contained in letters patent for the protection of the public; such combinations present some of the worst features of the old monopolies. Grievances from power of capital.

The analogy of patent rights and trading charters as a means of remunerating the person who takes the risk has been pointed out by Adam Smith; (*s*) but these grants have little in common, and the policy of the one rests on very different foundations from that of the other. The charters granted to the French East India and other Companies (*t*) may have vicious or general principles without being at all obnoxious to the objections stated in the following evidence of J. L. Ricardo, M.P.: (*u*)

"Many of the patents held by that Company (the Electric Telegraph Company) have been bought by the Company simply to avoid litigation; it is always much cheaper to buy a bad thing and have it as one's own than it is to litigate it when it is brought into competition against you, because, though it may be a worse thing than you have already, yet still in other hands it interferes very much with the monopoly you have in respect to your patents. (*x*) Evidence of J. L. Ricardo.

"The Electric Telegraph Company hold a very large number of patents, because they make it a rule, if a man offers reasonable terms, to buy any invention, however bad it may be, sooner than litigate it. They find it is much cheaper to pay black mail than to litigate an invention that may be set up against them. (*y*)

"The patents which we have bought are, in most cases, valueless in themselves, but in combination with others which we have they may be made useful. We have found, after every possible experiment, that the original system of the needles is by far the best for all practical purposes;

(*q*) *Ante*, 14.
(*r*) *Ante*, 13.
(*s*) *Ante*, 12.
(*t*) Appendix to Evidence of House of Lords on Patent Bills, 1851, p. 394.
(*u*) *Ibid.* p. 393.
(*x*) *Ibid.* p. 397.
(*y*) *Ibid.* p. 398.

J.L.Ricardo. it is clear it is our interest to have the best we can find. There is not one invention which is not brought to the Company before it is started against the Company; and we have expended nearly 200,000*l.* in buying patents and litigating them; but we find, after all, that the original patent is by far the best and most suitable for practical purposes. We gave 140,000*l.* for that patent. As far as the public are concerned, the whole of the money spent in buying up these patents and in trying them has been completely thrown away. I should have considered the thing more valuable if I had originally started it, having no patent at all, than it is with the enormous number of patents with which we have been hedged round in every possible way. Some of the patents, though useless in themselves, no doubt would have operated as great obstructions to the Company if we had not possessed them. We generally look rather more to the parties in whose hands they are than to the patents themselves. If we find a very strong party has a very bad patent, and they have persuaded some Railway Company that it, on the contrary, is a very good invention, and they are going to set it up in preference to setting up our telegraph, we buy the patent as a means of getting rid of the opposition, though we do not use it, because we know it is perfectly useless; if, on the contrary, it is not likely to injure us we leave it." (*z*)

Comment on the facts disclosed in the above evidence is unnecessary; and it can be no matter of surprise either, that when money alone is so omnipotent patents should be thought to be unnecessary, or that one of the most distinguished engineers in the country should be of opinion, "that we should have had the electric telegraph much improved, and that it would be working much cheaper, and that we should have had it all over the country but for the misfortune the Company laboured under of having patents, which they were obliged to protect, and being obliged to buy up everybody's inventions, good or bad, that interfered technically with theirs." (*a*) The evidence of W. S. Hale further illustrates the same grievance; he says:

Evidence of W. S. Hale. "As the patent laws now exist, when once a person becomes a patentee, he generally becomes the owner of a great number of patents. There being so many patents which are useless, it is necessary to have a great many to carry on a process. Then the question is, whether these patents ought not to have ceased, rather than have them all come into the hands of an individual, who becomes by that means a monopolist. I will take as an instance the business in which I am now engaged. At present the law is, that no more than twelve persons shall work a patent. I think that is a good law; if there is such a demand for the article which the patent produces that twelve persons have not sufficient capital to meet that demand, the public partake of the advantages by licenses being granted; but in the case of Price's Candle Company, they applied to Parliament for a bill, which, after some opposition on my part, passed, with some alteration. At that time they possessed themselves of eighteen patents. They are now working them, and are now applying to the House again

(*z*) Appendix to Evidence of House of Lords on Patent Bills, 1851, p. 401.

(*a*) See Evidence of I. K. Brunel, House of Lords, 22nd May, 1851 [1784].

for three additional patents. It becomes in such cases a great hardship for a private individual to compete with a public Company under those circumstances." (*b*)

Such results are not chargeable on the patent system, but on the overwhelming effects which unlimited capital, when applied to that system, produces. The more general adoption and greater success of the Electric Telegraph in America than in this country may be adduced in support of the views of Mr. Brunel. In that country there are several distinct companies, working under licenses under the same and different patents, whereby a wholesome competition is maintained, and the evils complained of by Mr. Ricardo as incident to the patent system are unknown.

Telegraphs in America.

27. Whatever opinion may be entertained as to the extent and real nature of the evils referred to in the preceding article, it cannot be doubted that those cases present the operation of the power of capital in combination with patent rights in a form requiring the serious consideration of the Legislature, or of those entrusted with the granting of patents. Letters patent have usually been subject to a clause prohibiting more than twelve (formerly five) persons being interested as partners in the exclusive privileges thereby granted; this clause, which prevented the alienation or assignment of the right to more than the specified number, had for its object the preventing a patent being made the means of creating an oppressive monopoly by a number of persons associated together, as in the case of large and powerful Companies becoming possessed of such privileges. It had become the practice, when an undertaking required larger capital than a single individual or a private partnership could command, to apply to the Legislature to dispense with this restriction, and to constitute an ordinary Joint-Stock Company with a large number of shareholders; as in the case of the Act for the Ship Propeller Company, the Electric Telegraph Company, and many others which might be mentioned. These Acts gave power to the Company to purchase and hold certain specified patents without forfeiture under the restrictive clause referred to; they, in fact, repealed that clause, but the powers were confined to the patents specified, and the purchase of any other patent would have invalidated that patent. In progress of time larger powers were obtained from the Legislature, namely, a power of purchasing, not only the specified patents, but all patents that did exist, or that might exist, relating to the particular subject, as, for instance, the Electric Telegraph, or the manufacture of

Restriction in patents as to number interested.

(*b*) Evidence, House of Lords, on Patent Bills, 19th May, 1851 [1414].

candles; and thus these large Companies were enabled to carry on the operations described by Mr. Ricardo, and complained of by Mr. Hale. The policy of granting such unlimited powers was approved by some of the witnesses examined on the Patent Law Amendment Bill before the Select Committee of the House of Lords; and in the House of Commons a clause was introduced, whereby it was enacted, that notwithstanding any proviso that may exist in former letters patent, it shall be lawful for a larger number than twelve persons hereafter to have a legal and beneficial interest in such letters patent. (*c*) Cases of the kind referred to are not of common occurrence, and instances in which prejudicial results ensue are still less common. The power of obtaining a large number of contributors to an experiment, or doubtful risk, as in the case of the Screw Propeller Company, is an undoubted advantage to the public. Whatever opinions may now be entertained as to the merits of the particular invention for the introduction of which that Company was established, no one can deny that the expenditure of that capital settled the question in the public mind as to the practicability of the system of propulsion; and the trial trips of the *Archimedes*, and the enterprise of those who built, equipped, and put her to sea, must ever be regarded in the history of inventions as a notable instance of the benefit conferred on the public by the combination of capital and patent right. If a Company under such circumstances should become a very successful commercial speculation, the power which it acquires will, in all probability, be used so as to create real or imaginary abuses; but if it fails as a commercial speculation, it is unlikely to have created any such abuse, and will probably be cited as an instance of the inutility or mischievous operation of patents, although it may have established facts of inestimable value in the progress of science, and which become as landmarks in the great ocean of knowledge. For it must ever be borne in mind, that a faithful record of failures is far more instructive than a record of success; and such does the history of invention present to the reflecting and attentive observer.

Benefits from capital and patent rights.

Union of capitalist and inventor.

28. The necessity existing in the present state of our manufactures for a union of the inventor and the capitalist, in order to ensure the successful working and introduction of an invention, presents many considerations, deserving more attention than they have hitherto received. A patent right has been represented as a bounty on the application of

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(*c*) See "The Patent Law Amendment Act, 1852" (15 and 16 Vict. c. 83, s. 36). It should be mentioned, that no such clause was contained in either of the Bills as sent down from the House of Lords, or in any of the Bills as originally introduced in either Session.

capital, and this analogy being admitted, the well-founded rules of political economists against the principle and policy of bounties in general have been prayed in aid against the patent system, without regard to the peculiarities of the two cases, and the different results which are to be produced.

The position of an inventor, without adequate capital to force his invention on the public, and the proper relations between the inventor and the capitalist, were repeatedly adverted to before the Select Committee of the House of Lords in the examination of the witnesses; and the following evidence of the Recorder of Birmingham (M. D. Hill, Q.C.) will be read with peculiar interest, both in relation to those and the other important questions, as to the principles and policy of patents, which are interspersed:

Evidence of M. D. Hill.

"An inventor is exposed to this very great inconvenience, that he cannot bring his invention, considering it in the light of a property, to market; he is very much impeded in his communications with the capitalist. Now, from my experience, in cases of applications to the Privy Council for extensions of patents, I have frequently seen, while I was in practice, that the capitalist is, for the successful working of an invention, almost as important as the inventor, and that it is better for the inventor, and better for the public, in ninety-nine cases out of a hundred, that he should at a very early period go to the capitalist and sell him his invention, or join with him in partnership. The case of Boulton and Watt will be recollected as a happy instance of the benefit of partnership between the inventor and the capitalist. But, except under peculiar circumstances, I think a sale would be preferable. On a sale or partnership being effected, all the difficulties and dangers of the trade are taken practically and substantially by the capitalist; the inventor is seldom a man who, by the nature of his talents and his pursuits, is calculated for the cares and risks of commerce, and, therefore, it has appeared to me, from many instances which have been brought under my notice before the Privy Council, that some provision would be desirable which would enable an inventor safely to disclose his invention to a capitalist, to transfer the property in it, and return at once, with his remuneration in his pocket, to his laboratory or to his workshop, to prosecute some other invention. If his invention were protected from the date of his first application for a patent, the importance to the inventor of keeping his invention undisclosed being very much diminished, and, in the majority of instances, quite at an end, he would negotiate freely; while on the other hand, the capitalist would buy a secured property, instead of one liable to be destroyed by fraudulent or indiscreet publication. (*d*)

The capitalist essential to the inventor.

"The patent laws prevent the rapid progress of improvement instead of promoting it, to some extent in particular instances, as the laws are at present framed; but I think that means might be devised for mitigating, if not entirely removing, that evil without touching the principle of exclusive privilege, and I propose to do it in this way. This practical inconvenience has arisen. An inventor takes out a patent for his inven-

Purchase of licenses by compulsory compensation.

(*d*) This and some other portions of the evidence have special reference to one of the prominent defects of the old system, namely, the absence of all security until the patent was actually sealed. By the New Patent Law protection is obtained from the day of the application.

M. D. Hill.

tion; he presents it to the world in so imperfect a form that the world does not adopt it. His patent becomes a dormant patent, of no use to him, nor to any one else. By-and-by the same article is produced by a second inventor in a far more perfect state. The world would be very glad to adopt that second article, but its inventor is precluded from offering it to the public by the existence of the dormant patent. That appears to me to be a great evil. But I should propose with diffidence, and by no means with perfect confidence, as to having struck out the best means of removing the evil, that in those cases you should pray in aid the law of compensation. You should give to the improver, the second patentee, and also to the first inventor, a right to go the one to the other, and say, how I desire to make for the public use this machine in its most perfect form, and I am willing to take a license from you, and if we cannot agree upon the terms, let us apply the Lands Clauses Act, and follow a similar process to that which is in use when lands are taken for public purposes.

Conjoint interest of two inventors.

"It may be said, why not leave the first and second patentee to arrange the price between them? My reason is this: they are not upon equal terms; the first patentee knows that he has the command of the market, for the public must either go without the article, or take it in his form, whereas the improver has no such alternative. His interest in the invention is reduced to a reversionary interest expectant upon the termination of the first patent. It would be for the first inventor's interest, if he rightly understood it, finding that his own patent met with no sale, when somebody came to him and offered him an improvement which would ensure him a sale, to come to terms, just as it is every man's interest to be honest, and yet there are laws against larceny. But the advantageous position of the first patentee in his negotiations with the second, is far more decided, when the articles of the first have found a market which they would lose if those of the second patentee could be brought into competition with them. The distinction appears to me to be this: the *jus tertii* intervenes, the right of the public to have the best article; and, therefore, when the improver and the patentee disagree, they not only injure themselves, but they injure the public; and thus, I think, the cases approach to a parity with those in which land is required for public purposes.

Purchase of subsequent by holder of prior patents.

"Another inconvenience is sometimes inflicted on the public—namely, that the first patentee buys up subsequent patents for the purpose of suppressing them, in order to make his own machine still available. I cannot suggest any mode of remedying that evil, but I believe that patentees are finding out that the best and most gainful mode in which they can use their exclusive privilege is, not to enhance the price of the article, but to ensure a great sale. Your Lordship knows, that if that principle were acted on, a monopolist has the power, though he does not often use it, of serving the public more cheaply than competitors have, because there cannot be the same economy of capital and superintendence applied to a trade which is divided among competitors, as would be practised where it is united in one concern. Not being able to devise any special means of meeting the evil adverted to, I rest with some confidence, gained from an acquaintance of many years with patentees, on their gradually finding out that a patented article is not to be sold for a higher price than it will be sold for when the exclusive privilege is gone; but that the profit to the patentee ought to be derived from his command of the whole of the trade instead of a part of it.

The case of the patent axles (*e*) for railway carriages was a very remarkable instance of the progress of such views. That article was, by the assignees of the patent, who were men of large capital, forced into the market at a lower price than the axles which had the possession of the market were being sold for, although these latter axles were unprotected by a patent, and, consequently, might be made by all the world. (*f*) M. D. Hill.

"I am informed on good authority, that foreign inventions do lag behind, and are not brought into practice in England so soon as might be expected. I am rather myself inclined to attribute that not to the want of knowledge on the part of the English manufacturers that there is such an invention, but to a fear that if they expended capital in creating a demand for it here, the moment a market was made, some competitor would step in upon equal terms with them, whereby they would lose the advantage of their prior expenditure. The man who brings a new article into use benefits others, even if he has not invented it. The capitalist, as I before said, appears to me to be nearly of as much importance as the inventor in bringing a new article into use. (*g*) Foreign inventions.

"I remember in Thornton's 'History of Turkey' he gives an account of a Turk who had invented a mode of making cast-iron, which should be malleable like wrought iron. The secret died with the man; and after his death Englishmen spent some money and time in trying, by buying his utensils, and taking such steps as occurred to them to find out the secret, but they did not, which shows that some inventions are lost. Lost inventions.

"I have already stated that the main ground upon which I think the patent laws may be supported is the acceleration of inventions; therefore it was I said I regarded this stimulus as rather upon capitalists than inventors. It was with reference to that opinion that I ventured to advert to what I had said at an earlier period, that there must be a combination of the inventor and the capitalist to bring every invention into action; and, although the invention is already made, the services of the capitalist are as much required for a foreign invention which may have been long made, as for an English invention the moment it is made. If this is an affair of the capitalist more than of the inventor, it may be correct to say, that the granting of a patent in the case now under consideration is really giving a bounty to affect the distribution and application of capital. But I will further consider that point. Mr. Webster reminds me that he and I were engaged in obtaining the renewal of a patent for drying wheat, which was a foreign invention; but it was clearly proved that but for the application of English capital, as far as could be seen, it never would have been brought to England. The Privy Council were so impressed with the importance of the invention, that they did more than grant a patent; a patent having been already granted, they extended it. (*h*) Patent laws accelerate invention. Patent right a stimulus on the distribution of capital.

"On the subject of patents for imported inventions operating as a bounty to capitalists to divert their capital into particular channels, I would observe, that it appears to me that the effect of granting patents, either for inventions made in England, or for imported inventions, has necessarily that effect which it is suggested may follow from granting a patent for imported inventions, and that there is no peculiar consequence arising out of the fact of an invention being imported. Take, for Diversion of capital by artificial stimulus.

(*e*) See Hardy's Extension, at the Privy Council.
(*f*) Evidence, House of Lords, on Patent Bills, 26th May, 1851 [1994—1999].
(*g*) *Ibid.* [2014—2019].
(*h*) *Ibid.* [2025—2028].

M. D. Hill. instance, the example of Watt's steam-engine. It is well known that Boulton expended many thousands of pounds in perfecting Watt's invention, and forcing it into general use. Now that was a diversion of capital from Boulton's trade which had nothing to do with steam-engines, and an appropriation of capital which he would not have made but that Watt was enabled to endow him with an exclusive privilege.

Importance of the capitalist. "It appears to me, as I said upon the former occasion, that the services of capitalist tradesmen are exceedingly important for the purpose of bringing a new invention into use; and that with regard to that capital, whether it is employed upon a *home-made invention* or an *imported* invention, the prize of an exclusive privilege is the stimulus which diverts capital into one channel, which would otherwise have flowed in a different direction. And I may be permitted to add, that it appears to me that the principle is even more broad than I have yet stated it. I should say, that wherever an artificial motive is given, of whatever nature it may happen to be, there that same effect takes place, that is to say, diversion of capital following that artificial stimulus; which is, in other words, an artificial diversion of capital.

Prizes by Commissioners of the Exhibition; "When the Commissioners of the present Exhibition offered prizes, they offered a stimulus to artificers to employ their time and their money, that is to say, their capital, in producing some article in a degree of perfection, which the ordinary demands of trade, it was supposed, would not otherwise have produced. I will trouble the Committee with this further illustration: Your Lordships are aware that in the early part of the last century, about 1714, an Act passed establishing the Board of Longi-

by Board of Longitude. tude, and giving authority to that Board to offer several prizes (the largest being 20,000*l.*) for a mode of finding the longitude within certain given limits. That prize stimulated, as we all know, Mr. Harrison to almost a life's labour—a labour of thirty years or more—in producing his chronometer, for which he obtained eventually the 20,000*l.* prize. There then was an artificial diversion of capital; but it is one which has never been condemned. I would respectfully suggest that the true distinction will probably be found to lie here. It would be contrary to the just principles of commerce if the artificial stimulus were to continue permanently; but that if it is only required for a short time, or upon one or two occasions, and then (the article having been produced and a market created) matters are left to find their own course according to the ordinary laws of demand and supply, in that case there is nothing done which is really opposed to the true principles of commerce.

Experience of Diffusion Society. "I would beg permission to offer another illustration; possibly, some of the noble Lords at this table may have been members of a Society which was founded by Lord Brougham in the year 1826, called 'The Society for the Diffusion of Useful Knowledge.' I was a member of it from the first, and I know that at the time to which I refer, it was not credited by the booksellers and publishers that there was so great a desire in the minds of a very large class of the working population of this country for literature suited to their wants, as it afterwards turned out actually existed. Whoever is acquainted with the state of books for the people at that time, knows that an inquiring man who had not had the advantage of a regular education, could not find books suited to his purpose. The Society attempted, and with some success, to supply this demand for popular literature, and in a very few years its very success made its further existence unnecessary; that success proved, to the satisfaction of the booksellers, that there was a large market to be supplied,

and then, actuated by the ordinary motives of commercial men, they entered and supplied the market. The Society then suspended its operations, and has never been called upon to recommence them. M. D. Hill.

"I appeal to these facts for the purpose of showing that it may require an artificial stimulus to institute commercial experiments, which, when they are made, show that there was a demand for the article, which might have been profitably supplied in the ordinary course of trade, if an individual or a firm had had sufficient capital, commercial courage, and sagacity to explore it for themselves. But, inasmuch as if any private person had tried the experiment, he would have had to bear the whole of the expense if it failed, and, on the other hand, if it succeeded, he would be immediately elbowed by a crowd of competitors, it appears to me that it must be almost obvious that there are and must be many channels for profit which are not opened, simply because there is no sufficient stimulus to try the first experiment: The general result of the increasing observation and intelligence of mankind is, that of being more and more cautious as to the application of the principle of bounties; and I will add, that it lies upon those who advocate any particular bounty to take the burden of proof upon themselves, and to make out a very strong case." (*i*) Artificial stimulus necessary for experiment.

29. The advantageous results which follow from the well-assorted union of capitalist and inventor, are fully exhibited in the case of Boulton and Watt, and in most of the cases which have been heard before the Judicial Committee of the Privy Council on application for the extension of patents. But the principle may be carried still further, and it may be shown, from the case of patents for imported inventions, that the application of capital and exclusive privileges in respect of such inventions, is as essential as for original inventions, and that neither the patent right nor the capital can be dispensed with if the invention is to be introduced into this country. The instances already referred to by Mr. Hill (*k*) furnishes an illustration of this, and many others might be mentioned. But on this and some other points closely connected therewith, the following evidence of Mr. A. V. Newton, an experienced patent agent, is peculiarly deserving of attention: Advantages from capital combined with patent right.

"If the wish of the patent law reformers for cheap patents were fully carried out by the Legislature in this country, the number of inventions immediately upon the passing of such an Act would be multiplied to a great degree. There would be a greater inducement to invent, and many schemes, which are now in abeyance, would be immediately brought forward. I do not apprehend that at the outset more than a tithe of those brought forward would be of benefit to the public. There are now a number of inventions more or less useful, for which patents are not taken out in this country, because the parties are deterred, either by the expense or the difficulty of obtaining patents, but it does not follow that we ought to depend exclusively upon the ingenuity of British subjects for the continuance of our manufacturing prosperity. My reason for Effect of cost of patents on invention. A. V. Newton.

(*i*) Evidence, House of Lords, on Patent Bills, 6th June, 1851 [2674—5]. (*k*) *Ante*, p. 30.

A. V. Newton. bringing forward this statement, is merely to show that the effect of the clause to which I object would be to keep back from this country a large proportion of inventions. It is natural for a foreigner first of all to test his invention at home, and when he is satisfied of its value, he imports it into this country. Of the number of American inventions which are brought into this country, I should say that fully one-half are really valuable inventions. I have a good opportunity of judging of that, for the largest proportion comes through our house, and we are able to watch their progress. Some branches of manufacture in this country are wholly due to the ingenuity of Americans; and the new process of setting flax, which has proved so beneficial to the industry of Ireland, was introduced from the United States, after its merits had been publicly tested and approved by the Government of that country. Those inventions would not be brought into this country if they were not subject to a patent law here, because it would not be worth the while of any party to pursue the invention, unless he had the sole or a large interest in it. It would not be worth the while of manufacturers in this country to make use of an invention which could easily be obtained in America or France, if it were likely to benefit them in the process of their manufacture. Some of the most valuable inventions are entirely lost to the public, through the patentees not having the proper means of carrying them out. If they were open property they would not be used at all. The inducement to take up an invention is increased when he can possess himself of the sole right to the benefit resulting from it for a time. The cost of the patent itself, and the payment to the foreign inventor, are frequently mere trifles compared with the outlay required to bring the invention to perfection. An invention is more extensively used at the expiration of a patent than during the continuance of it, if not superseded by a better invention; but it would most likely never be used at all, unless it were used by a party who found it worth his while to experiment upon it, and spend a large sum of money upon it, in order to bring it forward in a perfect form. I am now speaking of an invention which is used in another country. The expense has been already incurred in bringing it into operation in that foreign country, but that may not avail for its easy application in this country. I think important inventions will not be imported into this country, unless the party importing them has the sole right of using those inventions when imported. (*l*)

Large number of inventions from America.

Inventions would not be imported without patent right.

Cost of patent trifling as compared with cost of introducing the invention.

Patent necessary for the introduction of invention.

"I think I can give the Committee some evidence which will show at once that my opinion is based upon good grounds. We need not go abroad, I think, to discover very good proof that if an invention is not held by a party who has the sole beneficial right to it, it will not be worked. I go merely to Scotland and Ireland. In my paper before alluded to, (*m*) I said that the effect of parcelling out protection, that is, giving protection under three patents instead of one, is to deter a large number of English patentees from bringing their improvements to bear in Scotland and Ireland; and thus, by allowing the public to work the inventions thus abandoned by their originators, virtually to deprive Scotland and Ireland of the advantages derivable therefrom. This is a portion of my argument which goes to prove that the high cost of patents deters parties from carrying out their inventions. The extent to which this appropriation of English patentees' inventions might be carried in

(*l*) Evidence, House of Lords, on Patent Bills, 16th May, 1851 [1026—1035].

(*m*) A paper read before the Institution of Civil Engineers on Patent Law Reform, and which received one of the medals of the Institution.

the sister kingdoms, if no deterring influence existed, will be seen from a comparison of the number of patents taken out in the three kingdoms during the years 1846, 1847, and 1848; they are as follows: In 1846, for England, 494; Scotland, 178; Ireland, 90. In 1847, 498 for England; for Scotland, 168; for Ireland, 76. In 1848, 386 for England; for Scotland, 150; for Ireland, 34. Thus showing that Scotland may appropriate, on an average, about 294 English inventions annually, and Ireland 392.(*n*) It is scarcely necessary to insist on the fact, that that is not done in Ireland. But then there must be some reason for it; and I know no other reason than this, that it is not worth while for any party to take a valuable invention from England and use it in Ireland, because every manufacturer knows that, without great expense and trouble, he could not hope to establish the new manufacture, and that after he had done so, his neighbour might avail himself of his experience, and compete with him by the use of the same invention. A. V. Newton.

"It requires a large expenditure of both time and money to bring an invention into practical use. It is one thing to say, if you construct a machine after this manner I think you will obtain a decided advantage by it; and another thing to put that invention into such a shape that a workman can at once operate with it, and effect the result which it is desired to obtain. My opinion is, that after an invention has been fully developed in its practical results in a foreign country, say in the United States, the benefit of that invention will not be made available to parties in this country unless there is superinduced the benefit to be derived from an exclusive right; in other words, that an individual becoming acquainted with the practical operation of that invention in the United States, will not have an adequate inducement to bring it into this country if the inducement is limited to the use of it in his own works. (*o*) Exclusive right necessary for importation.

"It requires a party who has a great interest in it to break down the prejudices: and that is more or less necessary in the introduction of every invention. The more trifling an invention may appear to be, the less difficulty there is in introducing it; the more really valuable and important it is, the more necessary it is that there should be one party who shall have a large interest in it, and be able to give the whole of his time and attention to pursuing it. I know of many inventions, which I consider, as far as I am able to judge, of immense value, which have yielded nothing, and perhaps will never remunerate their inventors, owing to their totally neglecting them; and I question very much if they will ever yield anything to the public either. It is desirable to give protection for inventing that which is not new. If it is new in this country it is all we can desire; he deserves to reap a great advantage from it, inasmuch as the public will reap a greater advantage from his labours. I look upon the person who introduces a new invention as an inventor. I am now speaking of a British inventor; but his invention may have been anticipated abroad without his knowing anything of it. I look at an inventor in a different light from many parties. I consider that all the inventions of importance which we possess, although to the parties who have brought them forward special honour is due, would not have been lost to this country if those parties had not invented them. I consider the merit of an inventor lies in the fact of his bringing forward his invention at the time he does; that his whole merit, as far as the public is con- Prejudices must be broken down.

(*n*) See table of number of patents for successive years in my work on the "Amendment of the Patent Law," p. 28.

(*o*) Evidence, House of Lords, on Patent Bills 16th May, 1851 [1045]. See evidence of R. Prosser *Ibid.* [2368].

A. V. Newton. cerned, consists in this, that he has anticipated others in the race, and has consequently given the public an early opportunity of enjoying the benefits derivable from the invention. He therefore, who first introduces a valuable invention to the notice of the public, is, to all intents and purposes, a benefactor to his country." (*p*)

Extension of patents by Privy Council to capitalists.

30. The preceding extracts from the evidence of Mr. M. D. Hill and Mr. A. V. Newton point out the principles and policy which have hitherto been acted on by the Crown in granting patents for imported inventions, and by the Privy Council in recommending extensions of patents when, as is generally the case, the question is the inadequate remuneration for the capital employed and risk incurred in making and introducing the invention. The merit of the invention and of the inventor is the first consideration in applications for extension, but inasmuch as this is seldom deficient in cases brought before that tribunal, the question generally turns on the adequacy or inadequacy of the remuneration, and this involves an examination into the amount of capital actually employed, and the propriety of its application.

This necessary connexion between the inventor and capitalist has repeatedly been under the consideration of the Judicial Committee of the Privy Council. Lord Brougham, in recommending the extension of Woodcroft's patent for an improved screw propeller, said: "I say nothing of Mr. Woodcroft having had the advantage of finding a gentleman in the person of Mr. Robert Gardner to help with his capital, or of his having a share in the profits of the extension. It is of great benefit to inventors, and to society through their means, that persons of capital should be found to come forward and assist men who are without capital." (*q*)

Assignee represent the inventor.

The relation of the assignee or purchaser of letters patent and of the inventor, has also frequently been under the consideration of the Judicial Committee, who decided in an early case that extension to an assignee or purchaser was within the spirit, if not the letter, of the Act, and that it was for the benefit of patentees that the assignee should represent the whole merit of the inventor; (*r*) and the Legislature, by a recent statute, has expressly empowered the Crown to grant new letters patent for an extension, on the recommendation of the Judicial Committee of the Privy

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(*p*) Evidence, House of Lords, 16th May, 1851 [1063—1067].

(*q*) Extension of Woodcroft's Patent, 2 Pat. Cases, 32.

(*r*) See extension of Whitehouse's patent to Russell, 1 Pat. Cases, 473; and of Galloway's patent to J. L. Lucena, *ibid.* 725; and other cases. An application for an extension was made by the Electric Telegraph Company of the first patent, referred to by Mr. Ricardo, *ante*, 24, but refused.

Council, either to the patentee or the assignee, or the two conjointly. (*s*)

The Legislature, before the passing of Lord Brougham's Act, (*t*) whereby the Crown was empowered, on the recommendation of the Judicial Committee of the Privy Council, to grant new letters patent for useful inventions which had not been adequately remunerative, had granted an extension of the term of patent in many cases; as, for instance, of Watt's patent, the term of which was extended for twenty-one years, in consideration of the great expense which had been incurred in introducing the invention. (*u*)

Difficulties in proportion to importance of invention.

31. The difficulty of introducing an invention, and of inducing the public to adopt it in substitution of that which is in use and has been found to answer reasonably well, is greater, as a general rule, according to the importance of the invention and the magnitude of the change which it would occasion, or the risk which would attend its failure.

The history of the yellow metal sheathing will serve to illustrate this. The inventor (G. F. Muntz, M.P.), having regard to the fact ascertained by Sir H. Davy, that the oxidation of copper on ship bottoms might be stopped or checked entirely by electrical action, the result of which was that the ship became extremely foul from the continued adhesion of barnacles and weeds which the oxidising of the metal allowed to fall off, conceived the idea that a sheathing might be made which should oxidise less than copper, but at the same time should oxidise sufficiently to keep the bottom of the vessel clean. With this object in view, and guided by certain known laws of electrical action between copper, zinc, and sea-water, he invented a compound of copper and zinc of certain qualities and proportions, which had the mechanical property of rolling hot, which copper had not, and was thus manufactured more cheaply, and the chemical property of oxidising less in sea-water, but sufficiently to allow what would otherwise adhere to the surface to become detached.

Previous to applying for the patent, Mr. Muntz went through a long series of experiments on the effect of sea-water on such a compound, for which the inland town of Birmingham did not present any great facilities; and after having satisfied himself of its success, and obtained his

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(*s*) See my Law and Practice of Patents, Statutes 7 and 8 Vict. c. 69, s. 4.

(*t*) 5 and 6 W. iv. c. 83, A.D. 1835, extended by 7 and 8 Vict. c. 69, and "The Patent Law Amendment Act, 1852."

(*u*) It was stated by Mr. Carpmael to the Select Committee of the House of Lords, that Watt was seven years before he got his first engine to work efficiently, and that from 10,000*l.* to 20,000*l.* was expended before any large practical result was brought about. Evidence, House of Lords, 5th May, 1851 [204—5].

patent, he had to sheathe ships at his own risk, giving a guarantee to the underwriter and owners against the consequences of its failure, as the only condition on which he was permitted the trial on such a scale, and under such circumstances, as could satisfy the public and lead to its adoption by shipowners. (*x*)

Skill, capital, and commercial enterprise must be added to invention.

32. Many other instances, as the galvanised iron, Perkins' heating by hot water, Lowe's naphthalised gas, Galloway's paddle-wheel, might be cited in illustration of the preceding statements; the operating cause may vary or present different aspects, but every invention will have to encounter difficulties and opposition pretty nearly commensurate with its importance, requiring skill, capital, and commercial enterprise to overcome, but which, when overcome, make the invention profitable to the possessor of the exclusive privilege, and without which the capital and enterprise would never have been bestowed.

Four epochs in an invention.

The history of every invention presents four stages or epochs, so to speak: first, its birth; secondly, the establishment of its practicability and utility; thirdly, its introduction to the public; and fourthly, the inducing the public to adopt it. Men of science or of fortune might make inventions for love and glory, but those who have to live by their practical knowledge, or the application of their capital, must employ it with a reasonable prospect of some return. The history of inventions, and of the applications for extension at the Privy Council, present many cases illustrative of all the stages or epochs above mentioned. In some cases the difficulties may be confined to one or two of the stages, but they are generally experienced in all, so that reason, analogy, and experience, afford a presumption amounting almost to moral demonstration that inventions would not be made, and if made could not be introduced to the public without the protection of patent right. The fact of the success of an invention having been established abroad does not at all remove the necessity; it is by no means certain, in many cases, that the same trade could be established here, so as to be profitable; further, no great credit attaches to what has succeeded abroad; it must be tried at home. The

R. Roberts.

following testimony of Mr. Roberts to the above points is material:

Patents for imported inventions.

"I could, if permitted by your Lordships, mention a case which is strongly in favour of granting patents for importations to other than the real inventors, to which system no doubt there are some objections. In going through an establishment in France two or three years back, I saw

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(*x*) See evidence on application for extension of Muntz's patent. The extension was not granted, the inventor having been so fortunate as to have made too much by the invention. 2 Pat. Cases.

them doing a kind of work of which there is a vast amount done in Birmingham; I brought some of the articles home with me; in passing through Birmingham I called upon a man who is considered one of the first in the trade there; I showed him one of the articles; he seemed much excited. He put his hand up, and said, 'If any man will tell me how that is done, I will give him 100*l.*;' when I afterwards told him it had been done at one blow, he said, 'We could not do such a thing without fifty blows and ten annealings.' They actually make that thing at the rate of ten a minute in France, and he would not, I believe, make ten in an hour; I mention that as a reply to your Lordships' question. It was said, would not the means of doing it suggest itself to the man's mind; why did not this idea present itself to men who have served their apprenticeship to the trade, or, at any rate, to some one or other of the persons who have been in the trade in the course of half a dozen generations of men. I am not aware whether that invention was patented in France. They allowed me to see it. I did not explain the invention to him, or take out a patent for myself. I know how to do it; it is exactly one of those things like the egg on end; it is one of the simplest things in the world when known. If I wished to take out a patent for that invention, I think I ought to be allowed to do so for a short period. I am of opinion that the early introduction of useful inventions would be highly beneficial to the country; there are some difficulties in the way of granting patents for mere importations, such as in people making a trade of importing to the prejudice of the foreign inventor; I do not know whether I should agree to it if the machine, manufacture, or process were published abroad. The invention to which I referred is a mode of raising goods from plates of metal by the process called 'stamping;' in France, even a common watering-can has no seam around the bottom, nor a seam up the side; the articles which I showed the Birmingham manufacturer were drinking-cups, like a horn cup, and a glue kettle, with its pan complete; they are a deal better done than we do them, and at less than one-fiftieth of the cost, as respects labour. I obtained a knowledge of this most important secret in France between two and three years ago; this important secret is, as far as this country is concerned, I believe, a secret still. I do not know that they would allow the manufacturer to see it. They made no secret of it to me; I have some good friends in that part of the world, who are large consumers of some of their goods. I do not find much difficulty in getting access to those places; the French are liberal in showing their manufactories. (*y*) R. Roberts.

Stimulus of patents essential.

"I have brought out a few of my inventions without taking out patents for them; therefore it might be said by some that inventions would be brought out without the stimulus of the patent laws; but it should be remembered, that no very complex machine would ever be brought to maturity except the inventor were in the expectation of some considerable remuneration for his labour; the self-acting mule, for instance, is one of my machines; that cost a large sum of money to perfect." (*z*)

Opposition of capitalists to inventions.

33. In other cases, in which the advantages are obvious, the amount of capital embarked in existing machinery occasions a powerful obstruction to the adoption or introduction of improvements, as it becomes a pure commercial question whether the saving by means of the new will

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(*y*) Evidence, House of Lords, on Patent Bills, 19th May, 1851 [1286—1298].

(*z*) *Ibid.* [1302]. See *post*, 39.

compensate the loss by the abandonment of the old. Hence it frequently happens that manufacturers who have a large amount of capital embarked in an existing stock and plant, are found opposed to invention and to inventors. An improvement has recently been made in flyers, instruments rotating at high velocities, and used in the spinning of cotton, which will enable them to be driven at higher velocities, so that a greater quantity of yarn will be capable of being produced in the same time, the quantity being increased in the same ratio as the velocity of the spindles. It may be a serious question to the owner of a mill with 50,000 spindles and flyers, whether the increased production of yarn will compensate for the cost of time and money in making the change; but the purchaser of new machinery, or person about to invest his capital in a mill, will adopt the improved flyer. There the capitalist, having his money invested in existing machinery, is at a relative disadvantage by reason of such improvements, and a species of antagonism arises proportionate to the amount of capital invested, and the change is not made until some emergency arises. Such changes are generally gradual, as the machinery is worn out, and when new has to be substituted, the most improved is selected; but this is a slow process, and the ordinary term, fourteen years, of a patent, is not sufficient to remunerate the inventor. In many applications for extension, the operation of this cause is distinctly traced.

Illustration.

Opposition of workmen.

The opposition of workmen, and the necessity of an alteration in the operations they have had to perform, is another serious impediment to the introduction of new inventions, the ultimate effect of which must be the diminution of manual labour by the substitution of mechanical agents. Such opposition has not unfrequently shown itself in the breaking of the machinery, and firing of the building in which it was erected. (*a*)

Operation of strikes.

34. The operation of strikes on the progress of invention, deserves to be noticed in connexion with this part of the subject. Several of the most important modern inventions, as the self-acting mule, the wool-combing machinery, the rivetting machine, are due to the necessity of the manufacturer being more independent of his workmen. The stoppage of any process at the commencement of a series, as in an early stage of the wool-combing or cotton-spinning, impeding not only the subsequent stages of that manufacture, but the weavers and those engaged in other departments.

The history of the invention of rendering the mule self-

(*a*) See extension of Roberts' patent for the self-acting mule, 1 Patent Cases, 573. The resistance to its introduction was one of the grounds for its extension. *Ibid.* 575.

acting, and the necessity of a patent right for an invention made under such circumstances, are stated by Mr. Roberts:

Inventions would be kept secret, and not pushed, but for patents.

"If the patent system were entirely abolished, there would be a greater temptation to inventors to keep their inventions secret; but it would have another injurious effect upon trade. I think there was but one planing machine in England for six years after I constructed the first, and I furnished the drawing of that to my friend; the key-groove engine, I think, was nearly nine years before it was used in this country, except by my firm; I had no patent for either, and therefore had no interest in pushing them into the market. I allowed everybody to see them who happened to come to the works, but I had no exclusive advantage to expect from the sale of them. If I had made patterns for machines of various sizes, and had sold the machines to the public, other persons would have 'colted,' or cast from my patterns, and in that way would have been able to have made the articles without the expense of preparing the patterns themselves. The planing machine and key-groove engine were some of my first inventions, and are now in most mechanical establishments; those inventions which I have named were my early inventions, before I had the means of taking out patents.

Self-acting mule.

"The self-acting mule without a patent would have ruined me, because after I had bestowed a great deal of labour, and expended a large amount of money upon my invention, other parties could have got the mule, and taken it to pieces, and by 'colting,' or taking castings from them, have made similar mules, without the expense of drawings or of patterns, and almost without employing any intellect. Our establishment having the start in making those machines, would not have been a sufficient advantage to remunerate us; it would not have been an advantage sufficient to compensate us for the unavoidable expense incurred in bringing it to perfection. It would have been worth the while of the masters, whose object it was to meet a particular emergency, to remunerate me handsomely for my trouble, but I do not think I could have got them to do so; perhaps the best, and most commercial way of remunerating inventors, is by licensing their inventions. A deputation of them waited upon me, to request me to devote my time to that purpose, and when the machine was once made, they would have considered their purpose as being answered; that is, that it would have been a rod in pickle for the workmen. The moment that invention was made public, any machine-maker would have taken my secret, and made it at a lower price. The manufacturers waited upon me, and asked me to devise such a machine. It was not competent for me, on that occasion, to have made my own terms with them. After the machine was made, perhaps I might have made some terms with them; but I am not sure that I could have done so even then. One of the parties in the same neighbourhood said, after it was done, it was a rod in pickle for them, and therefore, till the men turned out again, he would have none; he was not one of the deputation, but he was residing in the same neighbourhood. They do not part with their money for a rod in pickle; nobody would construct such a machine as that, unless he had some prospect of being remunerated for doing so." (*b*)

The first start in the market not sufficient without patent.

Rivetting machine.

The invention of the rivetting machine was due to a similar circumstance, and the motives which lead to it are thus described by Mr. Fairbairn:

(*b*) Evidence, House of Lords, on Patent Bills, 19th May, 1851 [1357—1371].

Evidence of W. Fairbairn.

"I do not think the patent laws operate very seriously in the way of presenting an obstruction to the introduction of improvements as regards the public. A large proportion of improvements emanate from the attempts of individuals to relieve themselves, or to forward their own efforts in the conduct of their own business. I can give your Lordships an example. It is about twelve or fourteen years ago that, in my own works as a steam-engine manufacturer, we had a turn out of the boiler-makers. I do not think we should have had the rivetting machine had it not been for that circumstance; those men were out for three months; that department of the works was standing, and acted as a powerful stimulus to relieve myself of the annoyance, and to do without them altogether; the result was, that in the course of a very short period the machine was perfected, which now rivets boilers, bridges, and other work; in the course of two days we can do as much work as we could have done by hand in two weeks; we can put in twelve rivets by compression in one minute, with two men and a boy, whereas it takes about one minute to close one rivet, with three men and a boy, by the hammer. The result is, that it has given us a degree of despatch and facility in the manufacture of those articles greater than we ever had before. I had no reference to the public in doing this; I wished to relieve myself from what I considered an act of great injustice; and the object I had in view at the time was to be independent of unions and combinations; the result was, that we produced a machine, the use of which has now become almost general throughout the country." (*c*)

Patent rights as necessary now as formerly.

35. If, as has been stated above, the application of skill, capital, and enterprise, are all necessary for the introduction of an invention, and that skill, capital, and enterprise, would not be applied without the protection of a patent right to the invention, such rights become a bounty or inducement for the application of those necessary adjuncts. These considerations would suggest a conclusion contrary to that at which Mr. Brunel arrives when he says: "I wish it to be understood that I limit my observations to the present state of things; I do not wish to express any opinion as to what might have been formerly the effects of patents, or whether they did originally encourage inventions or not."

Opinion of I. K. Brunel.

"The present state of things is this, that in all branches, whether in manufactures or arts of any sort, we are in such an advanced state, and every process in every production consists of such a combination of the results of the improvements which have been effected within the last twenty or thirty years, that a good invention now is rarely a new idea, that is, suddenly propounded or occurs by inspiration, but it is simply some sensible improvement upon what was last done. In 999 cases out of 1000, it is some small modification which may produce very important results, but still only a modification of something which is the result of a great number of previous inventions and improvements." (*d*)

(*c*) Evidence, House of Lords, on Patent Bills, 19th May, 1851 [1148—1152].

(*d*) Evidence, House of Lords, on Patent Bills, 22nd May, 1851 [1775].

It might be asked, at what period in the progress of the arts and manufactures is this dividing line to be drawn? when could they be considered to have arrived at the precise point at which patents ceased to be an encouragement to inventions? Are not the natural instincts of mankind the same now as formerly? and if the prospect of reward and encouragement to the labourer in the field of invention were ever necessary or advisable, when did they cease to be so? Indeed, the evidence of Mr. Hill and Mr. Newton, and of many others, affords strong grounds for the conclusion that such encouragement and protection is more necessary now than formerly, if the position of the inventor with the capitalist is to be one of independence and not of slavery.

Same instincts as formerly.

Continuous simplification is the very essence of modern invention, and may possess the highest merit; the omission of a wheel in a piece of machinery, or rather the making two elements do the work of three, may constitute a new machine of the greatest value, and yet to the mind of Mr. Brunel, when done, it may be only a small modification. The fact is, the greatest results follow from small modifications; when done it is a matter of wonder that it was not done before; the egg of Columbus is a very old but true illustration of inventions.

Simplification the essence of invention.

Mr. Brunel and other highly-favoured individuals are such capitalists in talent, that a difficulty has only to present itself to be overcome; but there are others less favoured in position, who sometimes foresee the difficulty, and provide the remedy in anticipation of the difficulty occurring. No one will deny to such their just reward; they are frequently in advance of their day and generation, and consequently live and die neglected or unknown; more favourable times, or a new state of wants and circumstances arise, and the merit and reward are obtained by a more fortunate individual. If the patent system has been, or may be, productive of some good, it lies on those who acknowledge the justice of the object, to point out a better.

Difficulties anticipated and provided for.

36. No one, as has been already stated, has ventured to suggest that the inventor ought not to receive some reward and remuneration. Of the objectors to the patent system, some are of opinion that it so fails in that object, and produces evils so much more than commensurate with the advantages, that on the whole it is productive of more harm than good; others think that the operative would be better rewarded by trusting to the liberality of his master than by any patent system. This latter opinion is supported by the testimony of one witness of practical experience, while others of equal, if not greater, experience place no confidence in

Reward to inventors by liberal masters.

such liberality. Mr. Brunel, who is of opinion "that the greater number of inventions have really originated with operatives," thinks also, that a good master would have the invention of the operative freely shown him, and that he would reward the inventor by a pound or two according to what was really earned, and that this would be better than the dreams of hundreds of pounds which are never realised. (*e*) If the relationship of operative and employer were universally what could be desired, the position of the ingenious man under a good and liberal master would probably be better than under the present patent system, or even any system that can be devised. But assuming such a happy combination, the master and man would, in many cases, be induced to keep the secret, and thus all the mischiefs of secret manufacture so much mitigated, if not altogether prevented, by the patent system, would be revived. It may be extremely difficult under any patent system to ensure proper and adequate reward to the inventor in all cases; and if the interests of the inventor were the real and only consideration, this difficulty would be a serious objection to the system. But the case of the public is wholly different; progress in the practical arts by the introduction of new inventions is of national importance, and whatever may be the effect on inventors, the patent system must tend to stimulate invention, and to obtain a disclosure of secrets which might otherwise be lost.

Secret would be kept.

Invention distinct from skill and manipulation.

The idea of Mr. Brunel might probably be realised in some cases of suggestions exhibiting improved skill or manipulation such as would commend themselves at once to the master, but that such a system would be applicable to inventions, the practicability and merits of which can only be established by the expenditure of time and trouble, is not consistent with the history of their progress in ordinary cases. A variety of facilities and peculiarities of manipulation in the use of tools and of materials, and of degrees of aptitude in processes and operations such as are termed skill or handicraft, and which constitute the difference between the superior and the inferior operative, may be adopted or resorted to by persons engaged in the same manufacture, but these cannot be the subject of letters patent. Such skill or improved manipulation is extremely valuable, but it is in general incapable of being defined or transferred to others, and can rarely become the subject of property.

Improved skill not the subject of a patent.

A new use of existing implements and apparatus, or of

(*e*) Evidence, House of Lords, on Patent Bills, 22nd May, 1851 [1780] and [1803].

materials, falls within the same class; such use, a new or double (as it is sometimes termed) use, cannot *per se* be the subject-matter of letters patent; and although many cases may occur in which an invention may be described by such terms, other conditions and circumstances must concur to constitute the new manufacture which may be the subject-matter of letters patent. (*f*)

Double use not the subject of a patent.

It must also be borne in mind, that as regards many useful inventions, the inventor is so much in advance of his employer, if not of the age, and the temptation to the capitalist to smother the improvement, or to the manufacturer to work it in secret, may be so great, that such a system could never attain the public objects, however beneficial it might be to the private interests of the inventor.

37. The case of Mr. Mercer was relied upon by Earl Granville (*g*) in illustration of the opinion that an inventor would be better in the hands of a liberal master than as a patentee in the hands of the public. The following portion of the evidence of Mr. Mercer will show his own opinion on the subject:

Evidence of J. Mercer.

"I found that by the use of oxide of manganese I could make a colour, but I was ignorant of the nature and forms of patents, and had not the command of money; I understood the cost was very great; I was a servant at that time to the firm of Ford Brothers and Company. I laid this colour before them, and thought I should have taken out a patent for it; I had written out a sort of specification in my plain way. Mr. Ford, however, said he did not like the colour, and I was discouraged; but in a short time I improved it, and it was a thing which made a great deal of money; I did not take out a patent for it, but it so happened that we kept it in our hands for a number of years, and it was profitable. I discovered a few years afterwards the use of chrome; this was just the same. I made a specification in my own way; but knowing very little how to apply for a patent, that fell to the ground also. In the case of those two first inventions, I did not try at all to take out a patent, because of the difficulty and the cost, or else I should have done so; I did not know how to set about the thing properly, and had not money. I did not receive any remuneration for that first invention till I became a partner; the thing doing so well, Mr. Ford gave me an interest in the concern. Many printers at once resorted to the use of this colour, which they were able to do; but I put a new and superior face to it from time to time, and so we were able to keep the lead. I would have made a great deal more money had I taken out a patent in the first instance; I never thought of a patent till I made the discovery of the colour, and I fancied it would lead to great things; I knew the moment our neighbours saw it, they would be able to do it too.

Consequence of cost of patents.

"In manufacturing neighbourhoods, such as ours, within a few miles of each other, if one is before the rest in anything, they are all watching him. I will mention a case. We had a colour called grey, the invention

Manufacturers watch to discover secrets.

(*f*) See this subject considered in my work "On the Subject-Matter of Letters Patent for Inventions."

(*g*) See 118 Hansard, 14.

J. Mercer.

of which was a very peculiar thing, and a very good thing for us while it was a secret; but one of our own servants was induced to steal it, and we had to put him in prison for it. We had to guard the place in which we kept our things, lest parties should get at the secret; we printed a great quantity till the secret was stolen by one of our servants. It was analysed, and the secret was discovered; parties soon ascertained of what it consisted. I had no patent for that invention. I do not think it is fair, when you have discovered a good thing, at great labour and considerable expense, to be beset by others to get it, any or every way, at no expense to themselves, reducing its value to you, and joining at what value is left.

Encouragement to operatives from cheap and simple patent law.

"If the law for securing patents were made simple and cheap, I think it would tend to encourage persons like myself, who have the power of producing inventions. The greatest number of inventions are made by plain, and often poor people, but they have no encouragement to invent under the present patent laws. I should not like, if I had to give advice on the subject, to make the patent laws extraordinarily cheap, though I would make them much cheaper than they are, and more adapted to the circumstances of the poor man. Supposing a man made an invention, and had a straightforward way of telling what he had done, and securing it by date, and progress number, he should be allowed to do so upon the payment of something, suppose it were 10*l.*, and should have the privilege of proving his patent for twelve months for that sum, six months of this twelve being given him to enlarge or complete his specification; at the end of twelve months, if he found his patent to answer, it should be secured to him (there are plenty of people who will find him a little money if it answers, and if it does not answer, all he will have lost will be his 10*l.*) for another four years, say upon the payment of 40*l.*, making five years; and then, at the end of five years, he might pay 50*l.* more, and have a second five years: and a third five years, upon the payment of a further sum of 50*l.*, making three five years, by paying three 50*l.* If it was a failing patent, he would know in one year, and would lose 10*l.*; and as expenses must be paid, successful patents ought to pay them; so that the poor man might have the chance of getting security without much loss. In my case, I could not have the chance of security without laying out 300*l.* or 400*l.* That prevented my taking out patents for many of my greatest inventions. If that could be done, it would very much encourage and assist the artisan and labouring man.

Artisans improved by failures.

"I do not doubt it often happens that poor men lose much time and money in trying to make inventions, but I do not think they often receive injury from it. In cases where it fails, it makes them generally cleverer men; it makes them think and read; and by practising their reasoning powers they are improving themselves even though they do not make great discoveries. No doubt many seek to invent things which are already known, and many patents are taken out which are foolish and unmeaning, and by making patents over cheap there would be an increased number of such cases; but still there should be some way of giving a plain man, who has to begin life from nothing, and has all the world before him and nobody to help him, encouragement to go on with his invention. The man of the character described as being likely to invent, would be likely to get higher wages as a workman if his master were to find that he was constantly suggesting improvements in the mode of carrying on the business; but in the practical and scientific part of the business the servant is often superior to his master; and fre-

Superior knowledge of operatives.

quently the master could not afford to take out a patent, so that for many valuable discoveries neither servant or master get the value of profit by the invention. The effect of entirely abolishing the system of patents would discourage invention very greatly, in my opinion. I have been obliged to carry on my inventions in the night. There were no less than eight or ten titles for patents which covered mine; one was on exactly the last day, the 24th of October. If anybody had obtained a hint of what I was doing, he might have obtained all the advantage, and thrown me out entirely. Depositing a brief specification at once, and allowing six months for the complete specification, would obviate that evil." (*h*) J. Mercer.

The following evidence of Mr. Woodcroft is intimately connected with the questions under consideration: Evidence of B. Woodcroft.

"The symptoms are, that when you become affected by it, and your mind is bent upon the subject, you cannot apply it to anything else; you cannot even attend to your own regular business. I was called on the other day for an improvement upon the screw propeller. I have had two patents for that instrument already. One is almost universally adopted, I believe, and the other has not been in use. I was called on, and asked, 'Can you make the screw propeller act in such a manner as described?' I said, 'I cannot tell you without thinking about it. If you will give me a couple of days I will return you an answer.' This was after I had made a resolution to have nothing more to do with patents. I commenced again, however, and it took me three weeks, without paying attention to anything else, to perfect the proposition which I had set myself. I consider it a disease which is always injurious to the patient but very often beneficial to the public. Mania for invention.

"I think there should be a recompense to inventors; there is no need to stimulate an inventive mind. In some cases the patent may be a stimulus, but not always. In the great majority of cases I think it is. I think the patent laws tend to produce that result. In the present advanced state of mechanical knowledge it would not be safe to rely exclusively upon the general activity of the human mind, stimulated by the ordinary motives of fame and profit, without the artificial stimulus which is derived from the patent laws. I think those who invent are slow to carry their inventions into execution. I know a great many persons whom I might call poor inventors, to whom that would apply. I mean men who cannot help inventing. I know the simplicity of their minds generally, and usually they have very little worldly feeling. Some practical man would then come in, and run away with the whole benefit to be derived from an invention; he would put it into practice with great rapidity, and reap all the advantage which the other ought to have gained. (*i*) Stimulus not always necessary.

"I think the public are greater gainers by patents than the patentees; I took out a patent for a power-loom early in life, and for printing upon yarns; the latter patent got into very general circulation, and was a very useful art, and before it became valuable I sold it. I think it realised about 800*l.* to me; the public were not injured by that; in fact, it revived a particular branch of trade, namely, ginghams. I took out another patent for weaving for part of a loom, that part of the steam loom which is substituted for the human feet, and which governs the elevation and depression of the warp. This patent was immediately pirated, and I commenced legal proceedings, which cost about 3000*l.* in its defence. The public gainers by patents.

(*h*) Evidence, House of Lords, on Patent Bills, 26th May, 1851 [2071—2080].

(*i*) Evidence, House of Lords, on Patent Bills, 20th May, 1851 [1625—1633].

B. Woodcroft.

That has now become universal almost, and I think there have been 300,000 of them made. I am still a loser from it, but the public have been greatly benefited by it. I wish to point out to the Committee, that when I made this improvement, it was merely an improvement upon a known mode. A tappet is an instrument which governs the elevation and depression of the warp-threads to form the figure in the cloth, and it would have been no hardship to the parties if I had used this instrument myself for the fourteen years; I took nothing from them; they had the full exercise of all that the public had a right to, before. The Crown says, if you will give this to the public at the end of fourteen years, you shall have a monopoly of it in the mean time. My neighbours ought not to complain; for after fourteen years they obtain what they had not before. Then I had another patent for producing indigo blue in an artificial atmosphere, and I can assure your Lordships that it is not a bed of roses that an inventor rests upon. I think that invention took me three years to bring it into work, and cost about 3000*l.*, and I think that it has realised about 500*l.*, and that it is some six years old; that invention deprived the public of nothing, but added something to the general stock of knowledge. I have derived but little, though the public have been greatly benefited." (*k*)

Witnesses generally in favour of a system of patents.

38. It should be borne in mind, that the witnesses examined before the Select Committee of the House of Lords on the Patent Bills of 1851, were in general prepared to speak of the defects of the existing system and in support of the proposed system, the subject of the Bills under the consideration of the Committee. All the witnesses, with two or three exceptions, were in favour of some system of patents both as regards the interests of the inventor and of the public. In the course of their examination, questions were put by noble Lords directed against the principles and policy of patents; many of the witnesses, wholly unaware of the construction which a simple answer when read in connexion with the question might bear, have been surprised at hearing of their being quoted as opposed to all patents, and have been surprised on reading their evidence in print at the countenance which some of their answers appear to give to such views; but a perusal of the whole evidence shows a strong feeling on the part of most disinterested and experienced persons in favour of some system of patents; they deprecate in the strongest terms the existing system; they are not fully satisfied with the system of other countries, so far as they are acquainted therewith; they approve of the leading feature of the reform then under consideration.

Opinion of Sir W. Cubitt.

Sir W. Cubitt says: "If parties about to take out patents could be protected by their being held in abeyance for six months, and they were then able to perfect the patent without fear of anything they might divulge injuring their own invention, I think great good might result

(*k*) Evidence, House of Lords, on Patent Bills, 20th May, 1851 [1723—4].

from that, and I think that is the best step which could be taken: but nothing ought to be done in a very great hurry, or all at once. I think, if persons about to take out patents could be put in the position of persons now exhibiting in the Great Exhibition, good would arise. I understand the case to be just this: if the Extension of Designs Act, which has been passed during the present session in respect of the articles now in the Exhibition, work as I hope it will work, I think that patents generally might very advantageously be placed under the same system, and that the greatest good would thereby arise in preventing worthless patents being taken out. I think this is the first step to improvement. I find that everybody complains of the patent laws, and nobody seems able to point out the remedy. There is no one act which can perfectly improve, but I think they might be gradually improved by such means as these." (*l*)

Benefit from provisional protection as under the Protection Inventions Act, 1851.

The evidence of J. M. Rendel, President of the Institution of Civil Engineers, may be selected as presenting the opinion of several of the most thinking men of that profession:

Evidence of J. M. Rendel.

"The twenty-five years that I have been in practice I have frequently felt the inconvenience of the present state of the patent law, particularly with reference to the excessive number of patents taken out for frivolous and unimportant inventions, which I think are much more embarrassing than the patents that apply to really important inventions. I have found them interfere in a way that very much embarrasses an engineer in carrying out large works, without being of the slightest advantage to the inventors, excepting that in some cases a man who takes out a patent finds a capitalist (however frivolous the invention) who will buy the patent, as a sort of patent-monger, who holds it, not for any useful purpose, but as a means of making claims which embarrass persons who are not prepared to dispute questions of that sort. I think that in that way many patents are granted which are but of little benefit to the real inventor, serving only to fill the coffers of parties who only keep them to inconvenience those who might have occasion to use the particular invention in some adjunct way which was never contemplated by the inventor. The possession of a patent, though it may not be good in itself, is still frequently used as a means of forcing manufacturers and engineers to come to a compromise upon the subject. For instance, after you have designed something that is really useful in engineering works, you are told that some part of that design interferes with some patent granted for an entirely different purpose, and which might in itself be frivolous, but important in the new combination; and one has such a horror of the patent laws, that one evades it by designing something else, perhaps as good in itself, but giving one infinite trouble, without any advantage to the holder of the patent. I have frequently found this to be the case.

Inconvenience of existing patent system.

"I think one of the great objections to the present system is the abuse made of the privilege of six months for specifying. A man imagines that he has contrived something that is new, and, while his own mind is perhaps in a state of chaos on the subject, he runs and ob-

Abuse of six months for specifying.

(*l*) Evidence, House of Lords, on Patent Bills, 20th May, 1851 [1527—1529].

J. M. Rendel.

tains a patent, and has six months to specify. In those six months he makes it his business to find out what he can patent, and he canvasses the subject here and there ; he gets hold of ingenious people, and he works himself at last into something which he calls his patent, but about which he had no conception at the outset. Thus a man has time allowed to him, not to mature, as was the intention, the thing which he originally thought of, but really and truly to get up an invention for a patent.

Preliminary specification to be required.

"I would require, when a man applies for a patent, that he should deposit a specification, which should distinctly indicate what he was going to patent, and he should be held to that specification. I do not think that you could require a man to deposit a thing entirely and completely in detail, though I should desire this if it could be done ; but I think that he should specify the principle of the invention that he was going to patent completely, and that he should be fixed to that principle. There is great difficulty in preventing him obtaining that patent, supposing that he specified for a frivolous invention ; but as I believe that it would inflict great hardship upon many deserving individuals to do away with patents entirely, and that the public are not prepared for such a thing, I think that we must endeavour to find out the best remedy for that difficulty. I certainly have often thought that it would be a very excellent check upon the avidity which ingenious schemers show for patents, if, after they had deposited a specification defining the principle of their intended patent, the subject could be investigated by competent people, who should say whether or not there was sufficient originality or sufficient value in the project to justify a patent. I do not see any other remedy for what is really a very great evil.

Board of examiners.

"I should say, according to my hasty notions of the thing, that if you could contrive a commission, and suppose a man deposits his specification for a patent before he had it, there should be an investigation by the most competent tribunal that you could devise for such a purpose ; suppose it was on the subject of engineering, then I would take such a man as Mr. Brunel, with any other high in the profession, and known to be practical men, to sit as a jury upon the particular subject ; or if not, I would have them appointed with proper authority from the Crown, to act in cases of patents for particular subjects as judges, and I would before that tribunal summon the parties interested : for instance, the inventor, to describe what he intended to patent, and the public to object, and to show cause why the patent should not be granted ; and in that way I think you would get rid of an enormous number of futile patents that are now taken out ; I should say, constitute a Board. The law-officers of the Crown are so loaded with more important duties, that I doubt very much if they would be able, whatever might be their disposition, to give the necessary attention to the subject, in this ingenious country and age, to transact that business satisfactorily to the public and to the parties seeking the patents. In this country the difficulty is to get men, recognised to be authorities, to give sufficient amount of attention to questions of this sort to justify the decision of the law-officers of the Crown ; there would be that difficulty. But you might, perhaps, adopt this plan : suppose upon engineering subjects two or three of the principal engineers were examined, and that the proper law-officer, be it the Attorney-General, or the Solicitor-General, or any other person, should have always at his command (of course having reference to the convenience of the parties to be consulted) the power of referring the question

of engineering to those persons; or on matters of chemistry, to such a man as Professor Faraday, or Dr. Lyon Playfair; or going through the different departments of science, to get advice from the persons recognised by the country to be the most conversant with those particular subjects of science, I think there would not be so much difficulty. My conviction is, that if you come to analyse the patents, you could so divide the labour that it would not be great; and then I feel also that in that way you would have much more likelihood to have the questions disposed of satisfactorily to the parties themselves. I doubt very much if you were to constitute as judges persons in the position of patentees themselves, that is, persons who take them out as a matter of business, whether you would not have constant complaints; whether just or not, it might be difficult to say. I think, in this way, you would escape many of the difficulties that would otherwise arise on that preliminary inquiry. If you could get competent professional men to agree to constitute a Board, to be referred to upon all occasions when patents upon subjects with which they were particularly conversant were sought for to act as jurors, I should prefer very much that they should be two or three persons specifically named; but I am apprehensive that it would be difficult, and therefore I think it is a question whether there should not be some power vested with the Attorney-General, or the Solicitor-General, or some officer of the Government, and make it optional, to a certain extent, who should be called in. I can readily imagine that in this country we should otherwise have a very considerable amount of heart-burnings; a man might say, 'Mr. So-and-So has seen my invention before, and has condemned it;' or it might be that Mr. So-and-So had seen the invention before, and had approved of it; and this might be the case with persons however high in their profession. I do not think that you could quite go to the extent of enabling them to decide upon the value, that is, in express terms; but such a competent tribunal, I imagine, would be in some degree influenced by the probable value of an invention. There are hundreds of things thought of so novel, that you might have a patent on account of the novelty. (*m*) J. M. Rendel.

"I think that patents do some harm to poor men; and poor men, whilst working with their employer's capital and tools, are constantly scheming. That is an evil; there is no denying it; and if I could see my way perfectly clear to the justice of doing away with patents altogether, I should feel that it would be a great benefit to a very considerable class of poor men who fancy themselves ingenious and original, but who are really not so. I know there are some men who really are ingenious and original, who would be seriously damaged if they had not the power of carrying to a profitable market the result of their inventions. I think that whilst we do as much to check the one as we can, we ought not to inflict a hardship upon the other. I can comprehend perfectly, and I believe it does happen that selfish manufacturers, having derived the full advantage of their workman's originality of conception, have, from selfish motives, discharged them. I know it is no very uncommon thing for manufacturers to say, 'This is a talking, ingenious fellow, who is half his time scheming; we will not have anything to do with him;' that is commonly said amongst them. But there are other manufacturers who, on the contrary, seek out such men. It may happen that the latter class would seek them out more if they were not afraid of their taking advantage of their tools and machinery to make inventions

Effect and justice of patent laws.

(*m*) Evidence, House of Lords, on Patent Bills, 6th June, 1851 [2522–2531].

J. M. Rendel. which they would keep secret, and either sell the patent right to oblige them to pay a large sum for its use, or sell it to their neighbours. I have often talked over the matter with Mr. Brunel, and I quite agree with him that there are cases of that sort; but I know that there are cases of a contrary kind, and therefore I think the justice of the whole thing demands that we should rather consider the really meritorious inventor than the mere scheiner. I do not think you could do away with patents altogether. I think they have done a vast deal of good, as well as some evil. That is the result of my experience upon the matter; and I believe a very large proportion of the evil has originated in the absurdity of the law. I think we might derive much good from patents by reforming the law; but I apprehend that evils have grown up, and have continued for a long time, and that it will take some years to reform it in such a way as will be really just to all parties concerned, the public and the inventors."(*n*)

Good from patents by *reforming* the law.

Patent Law Reform Bills.

The Earl Granville, notwithstanding strong convictions against the policy of patents, adopted the statesmanlike course of reforming, and endeavouring to place on a rational footing, a system, the principle of which had, in the opinion of the noble Earl, the almost unanimous opinion of the people in its favour. That measure was lost in the Session of 1851 by want of time, from delay occasioned in the House of Commons; but in the subsequent Session two Bills were introduced, the one by Lord Brougham and the other by Lord Colchester, as the organ of the new Government: the latter of which, with some alteration, materially impairing the efficiency of the system sought to be established by the Select Committee of the House of Lords, became the law of the land.(*o*)

39. The extracts already given from the evidence before the Select Committee of the House of Lords on the Bills for the reform of the patent system, will show some of the views entertained on the principles and policy of a patent system.

The following opinions of persons of great practical experience in the actual working, and well qualified to judge of the operation, of patents, are peculiarly deserving of attention.

P. R. Hodge. **Mr. P. R. Hodge, an inventor, practical engineer, and manufacturer of machinery, and well acquainted with the American system, after speaking generally of the necessity of reform in the system, says: (*p*)**

Most valuable *inventions by* operatives.

"The most valuable inventions are made by the persons who discover them in the exercise of their own employments; patent protection is necessary to create an inventive tendency in labourers; you must give

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(*n*) Evidence, House of Lords, on Patent Bills, 6th June, 1851 [2538—2540].

(*o*) See my work on "The New Patent Law" for the history of these changes.

(*p*) Evidence, House of Lords, on Patent Bills, 12th May, 1851 [522—534].

them some stimulus, and that is derived from the monopoly which the patent creates; the workman has very frequently been the inventor, but the employer is the only one benefited by it. Sometimes the workman meets with a liberal employer. I can cite to your Lordships an instance of Messrs. Sharpe, of Manchester, who gave Mr. Hill, at the head of their loom department, 2000*l.* or 3000*l.* for an improvement in a carpet-loom. This Mr. Hill found a liberal employer, and he was liberally paid, but it is not the case generally. The operatives are generally the inventors; if a suggestion is made in a manufacture, it is generally made by an operative. Though operatives are the inventors in this country, and this is a country in which operatives cannot take out patents in consequence of the expense, it does not follow that the patent laws are not a necessary ingredient in the production of invention. I think the patent law is a necessary ingredient in invention, inasmuch as it is the monopoly which you give the inventor which leads him to make his invention. It is the hope of making something from his thoughts and his labour. I do not think they would be inventors to the same extent but for the patent laws. I do not think they are so often the inventors in this country as they are in the United States, where they have cheap protection. In this country operatives are not acknowledged to be so largely inventors; it is my opinion that they are generally the inventors of improvements which occur in the manufacture. The master is apprised of it; the master, seeing the benefit of it, takes out a patent, and I believe the decisions in the Courts of England are such as to deprive the operative of having any advantage, provided it is proved that he is the servant of the manufacturer. I was once an operative myself, and I can speak from my own experience; if I had no hope of protection, and no hope of deriving benefit from my thoughts and my labour, all I should do would be to go on mechanically with my occupation as I had been accustomed to do. P. R. Hodge.

The stimulus and hope of reward necessary.

"I think that if that man knew he would receive no protection he would not make any suggestions. I fear masters generally are very uncharitable to their workmen; their object being gained, the workmen receive just sufficient to enable them to live from hand to mouth. A great many improvements in the cotton machinery have been obtained from America. I attribute that in some degree to the greater facility which exists of obtaining patents in America.

Inventions from America.

"The great good aimed at by the patent laws of any country is to acquire superiority in their means of producing and manufacture through the encouragement given to the inventor. I look upon the benefit of the patent laws to be their tendency to stimulate inventions, and I think that the extension of patent privileges to the minutest inventions would not interfere with future inventions. In my experience I have found that a very complicated machine, producing wonderful results, is generally a bad patent for the inventor. It has cost him a great deal of time, a great deal of thought, and a great deal of money. There are not many such machines wanted; but an improvement of the pin machine, or an improvement in spinning, though minute, will produce great effects in itself, and increase our means of production, and generally benefit the manufacturer, if not the inventor, and the consumer most of all. I think that under the present system, and in consequence of the high cost of patents, we have not half as many inventions as we should have if we had cheap patent laws. (*q*)

Object of patent laws.

Inventions checked by high price of patents.

(*q*) Evidence, House of Lords, on Patent Bills, 12th May, 1851 [549—554] and [560—564].

Patent-office in America.

"Their system in the Patent-office in America is a very good one. They have indices of all the patents of every country throughout the world where patents are granted; and they have been so beautifully arranged, that if it is an improvement in looms or in steam-engines, they can go and refer to such improvements at once. The law distinctly says, we will give no monopoly for any invention which has been heretofore known in this or any other country. Parties go, therefore, to those indices, and refer to the various journals, and find out that there has been an invention on the same subject in Germany, France, England, or elsewhere, which has been reported in a foreign publication, or an invention in Manchester in England which has been published in an English publication." (*r*)

C. May.

On the distribution of the benefit from patents, and the assistance to be derived from the capitalist, Mr. C. May says:

Small proportion of patents pay the cost.

"The public reap most of the advantages from the system of patents; I think there is only a very small proportion of the number of patents which ever pay their cost; some few pay enormously; as a general rule, the remuneration is in proportion to the merit of the invention; that is liable, of course, to many exceptions; the payment generally finds its way into the pocket of the inventor. There will be some cases in which inventors have sold their patents and others have taken them up, but I think that in these cases the inventor himself would never have worked the patent; therefore he is benefited by the capitalist taking it up." (*s*)

B. Fothergill.

The operation of patents, and the loss to the public and the inventor from their excessive cost, is thus described by Mr. B. Fothergill:

Stimulus, effect of cost, of patents.

"I am a patentee of several inventions, and should have had many more patents if I had been able to afford it. I have had to work my way up in life from a poor boy, and have not had the money for taking out patents—they were so expensive. I look upon the patent system as a means of stimulating invention. I think it desirable to stimulate invention among operatives, because the hope of reward sweetens the labour, and I know many instances in which operatives would have taken out patents had they been cheaper. I think it desirable to make patents cheap, as encouraging invention among operatives, because I think the manufacturers would be benefited thereby. Inventions have generally proceeded from practical men and operatives." (*t*)

R. Prosser.

The effect of the abolition of patents, and their operation in encouraging invention, is spoken of by Mr. R. Prosser as follows:

Many qualified to become inventors.

Patents furnish a record of invention.

"We have many men who are qualified to become real inventors. I know fifty people who would make valuable inventions if they thought they should secure any advantage from them. There are not many cases in which an inventor would keep an invention to himself if he could sell it. The absence of patent laws would present a great impediment to his being able to sell it; and there are other disadvantages; we should know

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(*r*) Evidence, House of Lords, on Patent Bills, 12th May, 1851 [580].

(*s*) *Ibid.* 17th June, 1851 [2751—2753].

(*t*) *Ibid.* 20th May, 1851 [1431, 1486—1488, 1492].

nothing of the literature of inventions, and we know quite little enough on that subject already. A record of failures is as important as a record of success. (*u*) R. Prosser.

"I think a patent should be granted without regard to where the invention has been used if it has not been used in England; that I think was the very origin of the patent laws to introduce trade and manufactures into the country; that is not the law in other countries; our exceptional law is a good law—it was that which brought us all our trades. A manufacturer would not use a foreign invention without a patent, because other manufacturers would begin to compete with him when he had been at all the expense and trouble of proving that it would succeed; he would then have his workmen enticed away from him; the first manufacturer would do it at a serious expense, which the second manufacturer would avoid. There is not much inducement for a manufacturer to take up any invention which may be made the subject of competition after he has been at the trouble of proving whether it is worth it. It might succeed in a foreign country and not here. I do not think that in the present state of active competition in this country, there is a sufficient inducement to a person to obtain any new and ingenious idea which he can receive from abroad, and apply it in this country without his having a temporary monopoly in it, and for the reason that it is always done at a great expense by the person who does it first, and others can get it at perhaps one-fifth of the expense." (*x*)

Law in England as to imported inventions an exception.

Foreign inventions require protection for their introduction.

40. The law described by Mr. Prosser as an exceptional and a good law, and as that which brought us all our trades, is of no modern origin, but part of the old common law of the realm. It affords an illustration of the deference paid to the first possessor or occupant, for in such cases the doctrine of property in original ideas is wholly inapplicable. By the law of this country, the individual capable of acquiring property in an invention need not be an inventor in the sense of having produced the invention by his own wit, ingenuity, and labour; it is sufficient if he has found it, or received it from a foreign country and introduced it here. (*y*) The policy of our laws has always been to afford encouragement for the establishing of a new trade within the realm. In the case of monopolies (*z*) it is said: "When any man by his own charge and industry, or by his own wit and invention, doth bring any new trade into the realm, or any engine tending to the furtherance of a trade that never was used before, and that for the good of the realm, that in such cases the king may grant to him a monopoly patent for some reasonable time, until the subjects may have the same, in consideration of the good that he doth bring by his invention to the Commonwealth, otherwise not."

The exceptional law illustrates the deference to the first occupant.

Policy of law to encourage trade.

(*u*) Evidence, House of Lords, on Patent Bills, 30th May, 1851 [2343—2346].

(*x*) *Ibid.* [2358—2377].

(*y*) See the case of Edgebury *v.* Stephens, 1 Pat. Cases, 35; and notes to the early cases in my Patent Cases.

(*z*) Darcy *v.* Allin, 1 Pat. Cases, 1.

New invention or trade in the realm.

And in another early case (*a*) it was said: "If a man hath brought in a new invention and a new trade within the kingdom, in peril of his life and consumption of his estate and stock, &c., or if a man hath made a new discovery of anything, in such cases the king, of his grace and favour, in recompence of his costs and travail, may grant by charter unto him that he only shall use such a trade or trafique for a certain time, because at first the people of the kingdom are ignorant and have not the knowledge or skill to use it; but when the patent is expired, the king cannot make a new grant thereof. For when the trade is become common, and others have been bound apprentices in the same trade, there is no reason that such should be forbidden to use it." And in another case, decided in the reign of Edward III., it is said that arts and sciences which are for the public good are greatly favoured by law, and the king, as chief guardian of the common weal, has power and authority by his prerogative to grant many privileges for the sake of the public, although at first sight they may appear to be against common right. (*b*)

By an Ordinance of the Commonwealth, (*c*) it was provided that the grantee and his assigns, "after seven years of the term hereby granted, do and shall take apprentices, and teach them the knowledge and mystery of the said new invention."

Instruction of others the main object.

The instruction of others in the new trade, art, or mystery, is now provided for by the condition for the specification, introduced in the reign of Queen Anne, whereby the grantee is required particularly to describe and ascertain the nature of his invention, and in what manner the same is to be performed, by an instrument in writing under his hand and seal. Thus the knowledge of the invention, as full and ample as is possessed by the inventor, is preserved and perpetuated for the benefit of the public. (*d*)

The general grounds upon which the policy of what has been called the exceptional law of this country rests, will appear from the evidence already quoted. Most foreign countries respect the rights of the true and first inventor to such an extent as to grant him a patent, and looking upon the patent as a reward to the inventor, it would seem reasonable, as has been suggested on several occasions, to preserve the rights of the original inventor, and to give the patent in

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(*a*) The Clothworkers of Ipswich, Godbolt, 252, 254.

(*b*) See Year-Book, part iv. 40 Edw. III. fol. 17, 18, cited in Hindmarch on Patents, p. 4.

(*c*) See in Scobell, "Collection of Acts and Ordinances during the Commonwealth"—Buck's Invention, 1 Pat. Cases, 35.

(*d*) See "Origin of Specification," &c., and its objects, in note, p. 8, of my Patent Cases, and in my work "On the Subject-Matter of Letters Patent for Inventions," p. 65, 3rd edition.

this country to him only or his assigns. But looking upon the patent as the means of obtaining the knowledge for the public, the policy of the law is in favour of the English system—namely, of giving the reward to the introducer of the new manufacture.

Language of Constitution of United States.

41. The recognition by the Constitution of the United States of the rights of an author or inventor has been already referred to. (*e*) The language of the Constitution is as follows: (*f*) "The Congress shall have power to promote the progress of science and useful arts by securing, for limited times, to authors and inventors, the exclusive right to their respective writings and discoveries. And to make all laws which shall be necessary and proper for carrying into execution the foregoing power."

Consequences of the doctrine of natural rights.

As the recognition of this natural and inherent right of an inventor must necessarily be limited to the one original inventor, it follows that two different persons cannot fulfil that character in respect of the same invention, unless they happen to be contemporaneous or joint inventors; consequently, if such right has once attached it cannot attach again. In accordance with this necessary consequence of this doctrine, it is declared by Act of Congress, (*g*) "That any person or persons having discovered or invented any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvements on any art, machine, manufacture, or composition of matter not known or used by others before his or their discovery or invention thereof, and not at the time of his application for a patent in public use, or on sale, with his consent or allowance as the inventor or discoverer thereof, and shall desire to obtain an exclusive property therein, may make application in writing to the Commissioner of Patents, expressing such desire, and the Commissioner, on due proceedings had, may grant a patent therefor." And "the applicant shall also make oath or affidavit that he doth verily believe that he is the original and first inventor or discoverer of the art, machine, composition, or improvement, for which he solicits a patent; and that he does not know or believe that the same was ever before known or used." The effect, however, of the preceding is qualified by the following proviso: (*h*) "Provided, however, that whenever it shall satisfactorily appear that the patentee, at the time of making his application for the patent, believed himself to be the first inventor or discoverer of the thing patented, the same shall not be void on account

Act of Congress.

(*e*) *Ante*, 10.

(*f*) Constit. Art. I. s. viii. See Gordon's "Digest of the Laws of the United States."

(*g*) C. 357, s. 6, entitled "An Act to promote the Progress of the useful Arts, and to repeal all Acts and parts of Acts heretofore made for that purpose."

(*h*) S. 15.

of the invention, or discovery, or any part thereof having been before known or used in any foreign country, it not appearing that the same or any substantial part thereof had before been patented or described in any printed publication." This last provision, which was not contained in the preceding Acts of Congress, has to some extent relieved inventors from the consequences resulting from the recognition of the absolute and natural inherent right of an inventor. The law does not, however, recognise an introducer of an invention, not in previous use within the States, as thereby acquiring any property therein, a principle which, as has been already seen, is a leading feature of British Patent Law.

Law of France as to novelty.

In respect of the requirement of absolute and original novelty in an invention, the subject of letters patent, the law of France and the United States resemble each other. M. Louis Wolowski (*i*) says:

M. L. Wolowski.

"On the question of novelty, the French legislation is different from that of Great Britain in this respect: in Great Britain anything that has been written or published, or used in any foreign country, has no previous existence whatever in the eye of the law; in France, on the contrary, we require that the novelty should be complete, and not relatively to the country itself, so that if the process has been either used or described in a book in any other country the patent becomes void; this does not apply to so vague a description in a book as would not be sufficient for the working of the process; any description sufficiently definite to enable a workman to make use of the process would be fatal to the patent. This rule has been less severe since 1844 than it was before; before that time the courts of law, which are in general hostile to the rights of inventors, took advantage of any vague description, or even similarity of description, in any foreign work to void a patent. Before 1844, we had patents which we called '*brevets d'importation.*' These patents were given for inventions which were already patented in foreign countries, and those were granted to any person who chose to demand them. Since 1844, no one can obtain a patent in France for an invention previously patented in another country, except he be the original patentee or his assignee; the original patentee of another country may obtain his patent at any time before the expiration of the patent in his country; but that patent in France will only last as long as the patent in his own country continues. The right of patenting an invention which is already patented by an inventor in a foreign country, does not extend to that inventor whose invention has been described and published in a foreign country."

The prior description must be sufficient to instruct workmen.

Law of Prussia.

A similar principle prevails in Prussia, but is exercised with less liberality towards the inventor. Mr. W. Weddinge says: (*k*)

W. Weddinge.

"We have the principle in our country to give as much liberty as possible to every branch of industry, and considering every sort of patent

(*i*) Evidence, House of Lords, on Patent Bills, 2nd June, 1851 [2499—2500].

(*k*) Evidence, House of Lords, on Patent Bills, 27th May, 1851 [2146—2147].

as a hindrance to their free development, we are not very liberal in granting them. We merely grant a patent for a discovery of a completely novel invention, or real improvement in existing inventions. If the members of the Patent Commission acquire the opinion that the subject presented to their judgment does not bear the distinct character of an invention or real improvement of an existing invention, the patent is refused. Use and publication abroad would have the same effect as use and publication in Prussia. It is not one of our objects in granting patents to reward the inventors for discovering his secret to the public. I think we should be a little more liberal; it is very difficult to judge respecting novelty. I think an inventor loves his invention just as a father his child; he always thinks it is the best which exists; therefore I think we should be a little more liberal in granting patents; we intend so to do in fact. (*l*)

W. Weddinge.

Disclosure of the secret not the object in Prussia.

"I think that patents contribute to the diffusion of other discoveries; sometimes the invention of an inventor is completely lost in consequence of our judgment; the application of a wheel more or a wheel less, which we regard at present as not altering the invention, does not alter perhaps the principle of the invention, but contributes to the improvement of the invention, has therefore a great influence, directs the attention of the public upon the improvement, encourages the inventor, and can, perhaps, contribute to the general profit of the country. I should think that granting patent rights with greater facility would increase the number of inventions; I would not say that we should go as far as you go in England, and promote patents for every invention without an examination." (*m*)

Relaxation of the rule as to absolute novelty.

42. The modifications referred to in the preceding article have considerably relaxed the rule requiring absolute novelty and originality in the subject of a patent, and approximate to the principle of the English system, which regards the absence of knowledge, or means of knowledge in this country, as the requisite condition. As the patent system becomes better understood in the several countries, the objection to the practical application of such a rule become more apparent, and the tendency of all countries is to approximate to the English system.

Obstruction of patents.

The opinion expressed above, as to every species of patent being an hindrance to industry, differs in some respects from, although closely allied to, the objection of patents being monopolies. (*n*) If sufficient inducement could be afforded, on any other system to the inventor, either to invent or to disclose his secret or invention, it might be a good substitute for the patent system. But the experience of all persons whose attention has been seriously directed to the subject is in favour of a system analogous to that of patents, by which the reward is generally proportioned to the utility of the invention to the public, and the patent expires after a period

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(*l*) Evidence, House of Lords, on Patent Bills, 27th May, 1851 [2183—2184].

(*m*) *Ibid.* [2225—2226].

(*n*) See *ante*, p. 21.

not longer than generally necessary for the establishment of the invention with the public.

In some extreme cases, and in a certain theoretical sense, the patent may be an obstruction to industry; but such instances are of rare occurrence, and they result more from obvious defects in the system than as inherent to the system itself. The case of a capitalist holding patents and refusing licenses on reasonable terms is not of common occurrence, and it would be highly expedient in such cases to apply powers analogous to those of compulsory purchase, as already suggested. (*o*)

Compulsory sale of licenses.

Prior knowledge, use, and publication.

43. The nature and extent of prior knowledge, use, and publication, which will vitiate a patent, admits of a variety of degrees, and is a subject which has given rise to great difficulties in the administration of the law in all countries. If an invention be in use by others at the date of the patent, the grant will be invalid; if the inventor has made commercial profit of his invention before the date of the patent, or used or published it, otherwise than experimentally, or to an extent more than necessary for ascertaining its practicability, the patent is invalid, because a person is not permitted to work his invention in secret, deriving profit from such working, so long as he can do so in safety, that is, without the secret being discovered, and then when he may fear the secret is about to eke out obtain a patent for the invention. Such a use is a dedication by the inventor of the invention to the public; and what has once been dedicated to the public cannot be resumed from the public, so as to divest them of any rights which they may have acquired.

Prior use by the inventor a dedication.

Furthermore, such a practice would be contrary to public policy, inasmuch as the public would run the risk of losing the secret altogether by the death of the inventor, and if allowed, the inventor might have the exclusive advantage of his invention for a longer term than fourteen years, namely, the term of his secret use, and the term of the patent when granted. (*p*) The sale then of the product of an invention by the inventor, or its use by the public with his knowledge and assent, before the date of the patent, will invalidate such grant whenever made.

Discovery of an unknown property in a known article.

Another class of cases, however, exists, in which an article having some unknown property, the discovery of which fits it for some special application, may have been before the public for other purposes before the date of the patent as an article having some known properties or uses, but the method

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(*o*) See evidence of M. D. Hill, Q.C., *ante*, p. 28. (*p*) See 1 Pat. Ca. 125 and 194, and notes.

of producing which, or the manufacture of which, is not known. Substances, such as malleable cast-iron, or welding cast-steel, or vulcanised rubber, known only by their properties or qualities, give no information as to the nature of their manufacture, nor in many cases can chemical analysis afford any clue to the secret. The existence of such an article, or its use by the public, neither does nor can afford any knowledge of the process, or manufacture, or trade, which might be founded thereon; the effect of such use on the patent of an inventor who may discover by independent research the quality of the substance, and its application to a useful purpose, or the manufacture of the substance, deserves more consideration than it has hitherto generally received.

Use of substances known only by their qualities.

In a recent case (*q*) it was alleged that certain goods of rubber so treated by sulphur and heat as to have undergone the change, which it was the object of Hancock's invention to produce, had been imported into England, and sold or exposed for sale, before the date of Hancock's patent. The introduction of such goods was denied on behalf of the patentee, but it was further contended that inasmuch as the importation or use of such goods would convey no information whatever as to the manner of manufacture, their publication could not affect the validity of the patent. Upon this point Mr. Justice Williams directed the jury as follows: "The use need not be by the public, it must be a use in public, contradistinguished from secret use. If you should be of opinion the material was so before the public, in public use before the date of the patent, then the question would be this—it is said on behalf of the plaintiff, first of all denying that there is any evidence of the material having been at all in public use before the date of the patent, that even if it were so, that although the material was before the public, yet the invention was not, that the invention required to be discovered. On the other hand, on the part of the defendant, what is said is this, that the material being in public use, the ready means of the invention were also necessarily before the public, because it is said that the article presented in itself such means of knowledge to the public as to enable every one of ordinary competence to reproduce the article. And if you should come to the conclusion upon the facts that the material was in use before the date of the patent, then the question resolves itself into this, what is your opinion as to whether the publication of the material was substantially a publica-

Direction of Mr. Justice Williams.

Though article in use, the invention may remain to be discovered.

(*q*) Hancock *v.* Sommervell and Burr, Trin. Vac. 1851.

Publication of product not the publication of the invention.

tion of the invention? If you should find that the material was in public use, but that notwithstanding it were so the invention remained still a matter to be discovered, why then, in my opinion, the plaintiff's case would not be affected by the circumstance of the material being in public use. But if, on the other hand, you should think not only that the material was in public use—and I would here say that I do not think it necessary the use should be an actual sale; it would be sufficient, for instance, if it were in use, handed about the country for the purpose of attracting customers—if you should think, also, that the material being so in use it was so palpable how you could make it that substantially the disclosure of the material was a disclosure of the means of making it, and if you do not think that, then I think the plaintiff's case is unaffected by the circumstance of the material being before the public in the way I have just been describing." (r) The jury found a verdict for the plaintiff, and the direction of the learned Judge was not questioned by the defendants by being made the subject of motion or review in the court above.

Sir N. C. Tindal, C.J.

The direction of Lord Chief Justice Tindal, in Muntz's case, involves the same principle of law. It was objected that the compound of copper and zinc constituting the plate and having the property of rolling hot was in prior public use and the subject of a prior patent, and all that Muntz had discovered was the property of such a plate to oxidise sufficiently, and by reason thereof its applicability to sheathing. In overruling this objection, Sir N. C. Tindal, C.J., said: "I cannot think, as at present advised, that if it were shown (as possibly might be) that sheets had been made of metal before, in the same proportions which he has pointed out, that if this hidden virtue or quality had not been discovered or ascertained, and consequently the application never made, the patent would fail on that ground. I look upon it that there is as much merit in discovering the hidden and concealed virtue of a compound alloy of metals as there would be in discovering an unknown quality which a natural earth or stone possessed. We know by the cases that have been determined, that where such unknown qualities from the result of experiment have been applied to the useful purposes of life, that such application has been considered as the ground, and a proper ground, of a patent." (s)

Discovery and application of properties the subject of a patent.

In a recent American case (t) the patentee had discovered

(r) See note on this subject to Carpenter v. Smith, 1 Pat. Ca. 543, note *k*.

(s) In Muntz v. Foster, in the C. P. Hil. Vac. 1844. 2 Pat. Cases. See *ante*, p. 35.

(t) Le Roy v. Tatham, 14 Howard, 156. The case of Muntz v. Foster was not referred to by the learned judge; no report of the case being then published.

that lead, when recently set and solid, but still under heat and extreme pressure, in a close vessel would reunite after a separation of its parts, as though it had not been divided; and he applied this property, by known apparatus, to form pipes under pressure. It was objected that this was not the subject-matter of letters patent; but the Honourable Judge Nelson, in the course of an elaborate judgment, in which most of the English cases are cited, said: "If he has discovered a law of nature, or property of matter, and applied it, he is entitled to the patent." Opinion of Judge Nelson.

44. The direction of the learned judge, Mr. Justice Vaughan Williams, in the above case, that the invention might remain to be discovered although the article was in use, by or before, the public recognises an important distinction which has hitherto been but little attended to, and in many cases altogether disregarded, in the application and meaning of the word "use" in grants of letters patent and questions of infringements. Meaning of word "use."

A learned American author (*w*) says: "In the case of a patented paint can the lessee who occupies a house painted with the patented article be said to use it? or can the hirer or purchaser of a chaise varnished with patented varnish be said to use the varnish? In either case we shall readily answer in the negative." Nor can the purchaser of a patent medicine be said, by taking that medicine, to use the invention, the subject of the patent, in the sense of a prohibited or unlicensed use. The statute allows a grant of letters patent for the sole working or making of any manner of new manufacture; the letters patent grant to the patentee or his assigns to make, use, exercise, and vend, and prohibit other persons, without his license, to make, use, or put in practice, the invention, or any part of the same; (*x*) the several words being specially applicable according as the novelty consists in the article or mode of producing it. It has been decided (*y*) that an exposing to sale is not an infringement of the patent, so that in one sense there may be a using and exercising not prohibited, but there can be no making of the invention not prohibited. (*z*)

45. It has often happened that a result has been produced accidentally in the course of a series of experiments, but the means by which it was produced, or the capability of reproducing it, have eluded for a long time the most industrious efforts. Results accidentally obtained.

(*w*) Willard Phillips, in his "Law of Patents for Inventions," p. 363.

(*x*) See Law and Practice, Pr. Forms, xiii. and notes.

(*y*) See Minter *v.* Williams, 1 Pat. Ca. 135.

(*z*) See Jones *v.* Pearce, 1 Pat. Ca. 125.

Metallic rubber.

The history of the metallic rubber in America presents a curious illustration of this. Persons had been engaged for many years in endeavouring to treat rubber so as to render it less subject to the atmospheric influence of heat and cold, and had been operating with materials and agents, some of which, as the discovery of Mr. Hancock has shown, were essential to producing the heat and cold resisting qualities, and others which were unessential and produced no effect on that result. It was stated, in the course of legal proceedings in America, that a piece of rubber, having some of the properties of what is now known as Hancock's changed or vulcanised rubber, was shown as early as 1839 to Professor Silliman, of the United States, who certified as follows: "Yale College, October 14th, 1839—Having seen experiments made, and also performed them myself, with the india-rubber prepared by Mr. Charles Goodyear, I can state that it does not melt, but rather chars by heat, and that it does not stiffen by cold, but retains its flexibility in the cold even when laid between cakes of ice.—B. Silliman." The same eminent man stated in evidence in the legal proceedings referred to, that Mr. Goodyear did not at the time of this experiment disclose to him the process by which the specimen had been prepared; that he was not acquainted with the properties and qualities the india-rubber preparation, commonly known as metallic or vulcanised rubber, otherwise than as the whole community know them, and he did not know of any means of ascertaining by what process the india-rubber preparation which he experimented with is or was made; that the ingredients might be discovered by analysis, but analysis would not show anything more than the ingredients composing the preparation. (*a*)

The concurrent testimony of this veteran philosopher, and of the most eminent chemists of this country, (*b*) that the substance would give no indication of the process by which it was produced, and that from their previous experience of low degrees of heat on rubber, they would have been rather deterred than otherwise from trying higher degree of artificial heat, shows the accuracy of the judgment of Professor Silliman. The process by which this effect could be produced was the subject of letters patent in the United States, bearing date 15th June, 1844, nearly five years after the date of the certificate of Professor Silliman. There are some grounds for supposing that from time to time prior to the date of the above patent, the operators on rubber, which

(*a*) See evidence, February 11, 1852, in Goodyear *v.* Day, in the Circuit Court of the United States, District, New Jersey.

(*b*) See evidence of Professor Brande, Professor Graham, C. Aiken, and J. T. Cooper in Hancock *v.* Somervell and Burr, Trin. Vac. 1851.

had by this time become an extensive business in the United States, were from time to time possessed of specimens presenting similar properties, but the ability to produce them at pleasure, or the knowledge of the process, must have been unknown till about the date of the patent, inasmuch as the existence of this specimen in 1839, and of other similar specimens anterior to the date of Goodyear's patent, had no effect in impeaching the validity of that patent, as the first publication in the United States of an available process for producing that result, and the owners of the patent were successful in the suit above referred to, in the District Circuit Court of the United States. (*c*)

Publication by use of an article and in a book compared.

An article in the hands, or before the eyes, of the public, but from which they have not derived nor can reasonably be expected to derive any information, may be compared to a book in an unknown language, or deposited in a library unfrequented by the public, or to the mere speculations of an ingenious man, which, in the language of Lord Abinger, C.B., (*d*) may be fruitful of a great variety of inventions if they are brought into actual use, but ought not to stand in the way of other men equally ingenious, who may afterwards make the same invention and apply them.

Distinction between discovery and invention.

46. The misapprehension or misapplication of other terms also produces some confusion of opinion on these subjects. For instance, the terms discovery and invention are frequently used indifferently, whereas in their more strict and etymological meaning, as well as in their general use for the purposes of life, there is a substantial difference. A person is said to discover a law of nature or general physics—gravitation, heat, chemistry, electricity, &c.; a property of matter; the elasticity of steam; the relations of pressure and density; the longitude at sea; or rotation of the earth, &c.; these were facts existing from the commencement of the present creation, awaiting only the mind of the philosopher of adequate powers and perseverance to discover and announce the fact; no one could be said to have invented those; the term discovery would be proper, and the term invention improper, as applied to any of those subjects.

Fresh combinations are created.

But a person is said to invent a machine or apparatus whereby those laws and properties may be ascertained, and made appreciable by the senses or available to the use of man; as the pendulum, the barometer, the sextant, the

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(*c*) Various questions were raised, some of which are still pending in the Supreme Court of the United States, on the validity of a re-issued patent, the original patent being subsequent to the date of Thomas Hancock's patent in England of the 21st of November, 1843, for vulcanising or changing rubber by heat and sulphur; but these questions do not, I believe, affect the illustration for which the case is cited.

(*d*) In Carpenter *v.* Smith, 1 Pat. C. 534.

mariner's compass, the pressure guage, &c. The term creation, is more applicable than the term discovery, to the latter subjects. It is true that man cannot give to or take from matter any of its properties; the laws according to which it combines are subservient to the Creator of all things alone, but man having discovered these laws, can devise new combinations so as to create fresh substances or new materials.

Particular species of steel.

For instance, steel is an artificial substance, the means or method of manufacturing it being devised by man, who thereby becomes the inventor or creator of a new substance. Again, welding cast-steel made from common iron, steel made by the use of carburet of manganese, and vulcanised or changed rubber made by treating rubber with sulphur and high degrees of artificial heat, are new substances, invented or created by the wit of man.

Manufactured matter.

Such new substances or creations of man may not inappropriately be termed "manufactured matter," (*e*) and just as new substances are created by new combinations of elemental matter and its laws, machines, instruments, and other artificial structures, are created by the combinations of manufactured matter, according to arrangements devised by man, and thus may man be said to invent or create a machine, structure, or substance. (*f*)

In some cases terms may be used indifferently.

In some cases the terms discovery and invention may be applied indifferently without producing any confusion, and the mind instinctively, as it were, selects the more appropriate term to be used, according to the nature of the subject and the character of the agencies to which reference is made.

(*e*) See "On the Subject-Matter of Letters Patent for Inventions," pp. 8 and 9.

(*f*) The accurate use of terms is of more importance than would at first appear. Mr. Hindmarch's valuable work on Patents, p. 228, contains the following paragraph: "An inventor, in fact, does not create, but only invents or finds out something which had a prior existence, although unknown to the world, in precisely the same way as persons make discoveries in geography and astronomy." It appears to me that such a statement involves a misapplication of terms, and that Watt may be said to have created his particular steam-engine in the same sense that Milton may be said to have created "Paradise Lost."

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