[Communicated to the Counell,
to the Members of the League
and to thie Delegates to thy Assembly]

A. 38. 192

Geneva,
September, 1st, 1923.

LEAGUE OF NATIONS

COMMITTEE ON INTELLECTUAL CO-OPERATION

REPORT

ON

SCIENTIFIC PROPERTY

submitted by Senator F. Ruffini and approved by the Committee.

FIRST PART. — CRITICAL SURVEY.

§ 1. THE PROBLEM.

Two main considerations have led the Committee on Intellectual Co-operation, nominated by the Council of the League of Nations, to concern itself especially with the protection of scientific work and to examine, with this end in view, the possibility of extending to work of this nature the rights enjoyed by authors and inventors, rights which, in respect of artistic and literary property or industrial inventions, are recognised by the laws of all civilised States and by all international conventions.

The first of these considerations arises directly out of our inquiry into the present conditions of intellectual life. This inquiry has revealed, in a most distressing light, the critical condition of scientific work in all countries, as a result of the great war. It is a state of affairs which may shortly bring disaster upon our civilisation and which will, without doubt, become acute as soon as the present generation of eminent men of science has passed away. The war has thinned the ranks of the younger generation ; the rapid rise in the cost of living and the universal desire to acquire rapid and large fortunes have still further diminished the number of those who had intended to devote themselves to pure scientific research. In truth, even greater than the shortage of money is the present shortage in the laboratories and, in general, in all scientific institutions of recruits of a high standard, of whom there was formerly a constant and certain supply.

It is therefore imperative that we should consider what means can be devised to remedy this critical condition of affairs. Among proposed remedies, that of affording the young generation the prospect, not only of future fame, but of an adequate rate of remuneration would not be the least efficacious.

This first consideration, which arises out of temporary conditions, must be supplemented by another consideration, of a permanent character. I refer to the flagrant and intolerable injustice — quite apart from present conditions of difficulty — which characterises the provisions of the laws regarding scientific work and inventions, in comparison with their provisions in regard to artistic and literary work or industrial inventions. It may be said that hitherto the law has only recognised the two extremes of intellectual work: the base and the summit. The inventor of a new kind of india-rubber heel, than which one can imagine nothing more earth-to-earthly, may acquire a fortune by patenting his invention. At the opposite extreme is the musical composer who could give to the world a Ninth Symphony, that is to say, the highest approach to the ideal made by the mind of man. For him, universal applause is not the only reward ; the law regarding author's copyright enables him to secure the pecuniary profits which are his due. But to the man of science who observes a truth from which humanity will in the future draw immense and durable advantages, the law accords nothing. This omission will undoubtedly be a source of astonishment to future generations, just as we experience surprise at the defects in the legal systems of earlier times — defects which would be impossible at a later stage of civilisation. A link is wanting in the chain of law which should secure due recognition to all the creations of the mind, from the most positive, the most concrete, the most practical to the most abstract, the most transcendental and the most ideal.

In all countries, as will be seen, legal theory, even when it emanates from authors of the highest repute, has hitherto failed to explain so strange a phenomenon, except by inadequate or purely utilitarian reasons. These authors have even at times contented themselves with denying the existence of the problem in order to avoid acknowledging their inability to solve it.

It appeared to us, in the first place, that it was perhaps one of the duties of an organisation of a great institution, such as the League of Nations, for establishing universal justice, to study the problem and to propose means of putting an end to so flagrant an injustice. There is a great work of justice to be done and an ill to be redressed. Intellectual work, which, as a result of the great war, has been subject to the most disastrous restrictions and curtailments, might receive

S. d. N. — 1300 (F.) + 1200 (A.) 9/23. — Imp. Kundig.

compensation for these sufferings by developing the laws regulating these intellectual rights in such a way that the resulting progress would be decisive, fruitful and beneficial to humanity.

On the other hand, it is evident that the more effective the League of Nations can prove its authority in this sphere to be, the wider and more extensive will be the approbation which it will arouse in all the intellectual circles of the world, where there is undeniably a certain scepticism, we might even say disenchantment, in regard to the League. The task which we propose would therefore constitute an appropriate and effective means of propaganda in circles at present in little sympathy with science, but which it is of great importance to gain to our cause.

(See *La protection internationale de la propriété intellectuelle et la guerre mondiale* 1914–1918, a collection of documents published by the Bureaux Internationaux of Berne ; Berne, 1919.)

§ 2. THE METHOD.

It is of great importance that we should avoid questions of pure terminology. The scientific world, it is clear, is still very far from being agreed on the matter, and discussion is not unlikely to lead to serious difficulties. It proved, at the very outset, an almost fatal stumbling-block to the Convention of Berne of 1886, the French advocating the term "literary and artistic property" (*propriété littéraire et artistique*) as against the term "author's rights" (*droit d'auteur*) proposed by the Germans. The situation was only saved by the adoption of the intermediate formula "authors' rights in their literary and artistic works" (*droit des auteurs sur leurs œuvres littéraires et artistiques*), which occurs in the first article of the Convention. We cannot, therefore, do otherwise than agree with the rapporteur of the Italian law, Antonio Scialoja, who, despite his own firmly-established and clear opinion in the matter, expressly declares, in his admirable Report, that he intends to refrain from attempting any definition of the rights to be protected or from determining their legal nature. Let us, therefore, on the above analogy, simply use the term: "rights of men of science in their scientific works or discoveries", or, as we have expressed it, for the sake of brevity: *"scientific property"*, thus distinguishing it from *literary and artistic property* and from *industrial property*. For the sake of still greater brevity, we may include the three separate types under one common term: *intellectual property*. As was remarked by Eugène Pouillet (in his preface to the first edition of his famous *Theoretical and Pratical Treatise on Literary and Artistic Property*, 3rd edition, revised by MM. Maillard and Coro, Paris 1908, p. 9), this title comprises the rights which the law recognises as vested in the author in respect of the products of his brain, whether they be of the nature of an industrial invention or of a literary or artistic work. It is, moreover, as we have noted above, the terminology adopted by the Berne Bureaux.

Further, it is, for various reasons, important that we should exclude all questions of pure legal theory.

In the first place, there is no branch of legal science in which opinions are more varied or more widely divergent. We are still far distant from the time when we can flatter ourselves that we have arrived at a final and united opinion in regard to the determination and classification of the rights which the law recognises to be vested in the artist, the author or even in the inventor. It would therefore be dangerous to imagine that it would be possible to build a solid structure of law on the shifting sands of theory.

The legislator who deduces his laws from theoretic premisses, instead of obtaining them by induction from the circumstances of life, works in vain. Good laws, as was said by the sages of old, should arise *"rebus ipsis dictantibus et necessitate exigente"*; — or yet again, *"lex imperat non docet"*, that is to say that it is not incumbent on the legislation to give definitions. Although we are not here acting as legislators, our labours are preparatory to a work of a legal character, and since they partake of its nature, they should be subject to the same rules.

In order to prove the truth of these assertions, it will suffice to recall that the tyranny of traditional conceptions, inseparable from the classic definition of property rights, for a long time placed the most serious obstacles in the way of the recognition of artistic, literary and industrial property. Josef Kohler (*Lehrbuch des Patentrechts*, § 1, No. VII, Text book on Patent Rights) regarded the protection which was formerly accorded in Germany to inventors as being insufficient, in comparison with what had been done in England, for example, since the date of the celebrated Statute of 1623, or in France since the legislation of the Revolution, which Kohler himself characterises as grandiose. German inventors had therefore to go to England or elsewhere to secure protection. Pilenko, a Russian author (*Das Recht des Erfinders*, Rights of Inventors, translated from the Russian by Augustin and annotated by Siebenbürgen, Berlin 1907, p. 78), considered that he had succeeded in proving that the reason of this inferiority lay herein, that, while France had arrived at the desired destination by a stroke of the pen and England by the incomparable practical sense of her jurists, Germany was, impeded from advance and, as it were, overweighted by excess of thoroughness (*Gründlichkeit*) in her authors, who were too scrupulously attached to the traditions of Roman Law.

We may here, with advantage, mention a very recent example, from which we shall later draw some very profitable deductions.

The last word of the men of science appears to have been said, in the course of the lively and celebrated controversy on the legal character of *author's and inventor's rights*, by the two eminent professors of the University of Berlin, Otto Gierke and Josef Kohler, whose deaths the world of science has recently had to mourn.

This controversy still forms the basis of all constructive theory in the matter, as may be seen in the most recent work of a German specialist, Professor Allfeld "Copyright and Patent Law,

Urheber- und Erfinderrecht") in the *Encyclopaedia of Law and Political Science*, by Kohlrausch, Kaskel and Spiethoff (Vol. XIV, p. 2 et seq.), or in the works of specialists of all countries (*e.g.*, Julio Lopez Quizoya: *La propriedad intellectual in España*. Madrid 1918, p. 11 ; Sfetea: *De la nature personnelle du droit d'auteur*, Paris 1923, etc.).

Developing a thought of Emmanuel Kant (*Die Metaphysik der Sitten*) in *Samtliche Werke* (Vol. V, p. 97 et seq.), Gierke (see his famous treatise, *(Deutsches Privatrecht)*, German Private Law, Berlin 1885, Vol. I, p. 748 et seq.) recognises that a right of personality subsists in the works of the mind, not only at the moment of creation but also after publication, such rights being the outcome of a faculty which is inseparable from the creative faculties of the individual. Thus all privileges arising out of an author's rights, even those of an economic character, fall within the sphere and under the protection of his personality, of which they were an emanation. For this reason creditors cannot claim publication rights in the unpublished work of an author, such publication being entirely subject to the author's wishes. Similarly, in the case of a work published and adapted to an economic purpose, the relations between the author and his creative work do not cease. The author retains, even after he has alienated the rights in his work, a right of action, a moral right (*un droit moral*, as the French say) against all persons who disfigure or modify this work, so that, in fact, he only transmits the exercise of his right without alienating the substance.

Josef Kohler, who quotes a passage of Schopenhauer (*Nachlass*), published by Frauenstädt, p. 380 et seq.), has, in many of his writings, more particularly in *Urheberrecht an Schriftwerken und Verlagsrecht* Author's and Publisher's Copyright, Stuttgart 1907, § 1, No. II, p. 3, etc.), actively contested the theory which we have just advanced. He maintains, on the contrary, that intellectual creation confers on the author rights analogous to the right of property, with this difference, however, that the right of property is in respect of material possession, while the right of an author, on the other hand, extends over immaterial possessions. Hence one may define the rights of an author as a right in immaterial possessions. It is therefore not a right of personality vested in one of its emanations, but a property right, if one may thus enlarge the traditional categories of objects in which property originally subsisted. Property in material possessions presents a close analogy with that in immaterial possessions. They both denote an exclusive and absolute right of use, apart from the person, a right which may be alienated or exercised. They also present characteristic differences, one permanent, the other temporary. The rights of the creator of the idea — in virtue of its own nature and not of legal provisions — expire in the course of time, for, though the idea arises in the brain of the individual, it yet inevitably becomes in the end the property of all. Society cannot indeed admit the idea of a perpetual right in inventions.

The two theories have had a considerable repercussion in all countries, — in France, in the first place, and, to a still greater degree, in Italy — a repercussion which was all the stronger because a theory almost identical with that of Kohler was at the same time advanced by the Belgian jurist, (Picard, *Des droits intellectuels*, Brussels 1879), in various subsequent works and, more recently, in the preface to a book by G. Van der Hoeghen (*Ce qui peut faire l'objet d'un brevet d'invention*, Liège 1916).

We now come to a law which is the most notable of all modern laws, I mean the French law of May 20th, 1920, which establishes *le droit de suite* (continuous rights) in respect of work of artists, and which takes an unconscious but decisive attitude in regard to this doctrinal controversy, oversetting all previous conceptions and conclusions. This law is the product of a revolt of the national conscience, "a movement of indignation", as is well said by M. Albert Vannois (*Droit d'auteur* Rights of Author, 1920, p. 101), against the flagrant injustice that a person who acquires a work of art can become rich, owing to the selling price rising with the celebrity of the author and with the increasing recognition of the value of the work, while the author himself is denied the right to benefit in his turn by this increase in value of works which are an emanation of his personality. The law of 1920 bears the stamp of a great pioneer law, inspired by living reality and not by scientific speculation. In this connection, Kohler himself (*Handbuch*, § 1, p. 13), although conceding to Germany the first rank in the field of constructive theory, recognises the merit of foreign countries and, in particular, France, as will be seen below. It is perhaps not out of place here to recall the most characteristic provisions of the French law of 1920. Article I reads: " Artists shall have an inalienable continuous right in those of their works which are placed on public sale". The *proportional part* of the sale price reserved to the artist, through all the changes of property which affect the work of art, shall continue unaltered even if the price of the work has fallen. The same right shall pertain to the heirs of artists for a term which is equal to the duration of the term of artistic property. Finally, this law lays down that the *droit de suite* "may be exercised despite any cession of artistic property which may have been made by the artists, their heirs and assigns prior to the passing of the present law".

It is evident that French legislation, while recognising the artist's power of alienating his work and transferring the property to others, has to a certain extent adopted the theory of the right of property in immaterial possessions; but, on the other hand, by instituting a sort of higher right (*domaine éminent*) which continues to link the creator and his production, and by declaring this *droit de suite* as inalienable, it has created a "right strictly attached to the person". The law is intended to protect artists against themselves, after the example of ancient law which declared personal liberty to be inalienable, with a view to preventing citizens from selling it or (as Tacitus states was the custom of the old Germans) from staking it on a wager. French law has, thus, unreservedly adopted the theory of individual rights.

The foregoing statement proves that the out-and-out partisans of one or the other theory — that of property in immaterial goods or that of the right of personality — have only dealt with one aspect of the truth. It is fortunate, therefore, that the authors of the law of 1920 were not dominated by any doctrinal prejudices !

Nevertheless, apart from all observations in regard to this method, this new and exceptional right allowed to artists by the above-mentioned French law (and also recognised by a Belgian law dated 1921 and bearing the signature of our eminent colleague, J. Destrée) makes the contrast between the position of artists and authors on the one hand, and of men of science on the other, all the more striking from the legal point of view. It is imperative that a method should be found to eliminate this injustice.

§ 3. AUTHOR OR INVENTOR ?

If we examine the present state of the law in regard to protection of the creations of the mind of man, the first fact which strikes the observer is the duality of the systems adopted for this purpose.

The legal title which confers such protection: *"author's rights and inventor's rights"*, is a dual title. The first term comprises "men of letters, composers, artists of all classes"; the second, "inventors and creators of industrial designs and models".

The method of protection is also a dual one: in respect of the first class, only *author's rights* are recognised; in respect of the second class, *patents* are conferred.

In every State also there is a dual system of internal laws dealing with the two questions: literary or artistic property; and industrial property.

The International Union is also dual in character and there are therefore two international instruments conferring protection in respect of these rights: the Convention of Paris of March 23rd, 1883, regarding inventions, and the Convention of Berne of September 9th, 1886, regarding author's rights.

Finally, the central organisation created for the purpose of applying these Conventions is dual in character. It comprises, first, the Bureau International de l'Union Industrielle, established at Berne in 1884, which since January 1st, 1885, has published a monthly review entitled *La Propriété industrielle* and secondly, the Bureau de l'Union Littéraire, established in January 1888, which also publishes a review, entitled *Le Droit d'Auteur*, of which the first number appeared on January 15th, 1888.

Those who have occupied themselves, even if only for practical reasons, with this dual question have not failed to realise the fact that the two protected rights are in essence identical.

The differences consist only in the scope of the rights inherent in the work created and in the method by which this right is exercised; they do not lie in the character of the right itself. They arise not out of the nature but out of the importance, the dignity, the immediate practical utility of the intellectual work. In essence, the inventor is the *author* of his invention, as the creator of industrial designs is the *author* of his designs, in the same way that the artist is the *author* of his work of art (cf. for example, Allfeld, *op. cit.*, page 1).

The fundamental reason for such legal protection as is accorded to these two different categories of workers is indeed a single one, that is to say, respect for the creative activities of the intellect or, as it has been recently expressed by Professor Allfeld, protection of work of the mind against the depredations of other persons.

Professor Ferrara has observed with reason (*La concezione economica dei diritti su beni immateriali*, The Economic Conception of Rights in immaterial Property), Naples, 1910, page 25) that the best proof of the identity of substance in different categories of authors' rights is to be seen in the tendency to determine these rights in a single law, sufficiently comprehensive to include all the various categories of rights. There is also a tendency to adopt an identical terminology. This close internal connection of substance is manifest also in external signs: the two international bureaux mentioned above have indeed been placed under a single directing body and a joint answer has actually been sent by the two combined bureaux to the questionnaire submitted by our Commission.

It is true that it pleases authors to speak of *author's rights* and *inventor's rights* as distinct, but what mankind has not yet been disposed to accomplish has already in part been brought about by the force of circumstances.

It should be remarked that, in spite of this distinction, the selfsame disquisitions on the legal nature of the rights which claim protection are to be found in both classes of treatise. Josef Kohler, for example, maintains his theory of immaterial property both in his book on authors' rights and in his treatise on patent rights. His attack on Gierke (if I confine myself to the most recent Italian literature which I have at hand) may be found in the two volumes of Professor Nicola Stolfi: *La proprietà intellettuale*, Turin 1915, Vol. I, page 216 et seq., or in the two volumes of the barrister Enrico Luzzatto: *Le privative industriali*, Milan 1914, Vol. I, page 108 et seq.). A certain tendency towards unification is, however, apparent at the present time even in the field of science; it is sufficient to cite the work already mentioned of Professor Allfeld, or that of M. Couhin: *La propriété industrielle, artistique et littéraire*, Paris 1894 to 1898, or that of Professor Di Vranco: *Proprietà industriale, letteraria ed artistica*, Milan 1915, etc.

But there is a further and more important fact, namely, the purely abstract tendency towards unification. Two questions arise, both of which are exceedingly significant from our point of view.

In the first place, under what system should the protection of applied works of art be placed, that is to say, industrial designs and models ? For it is evident that they constitute in some sense a connecting link between art and industry, between authors' rights and patent rights.

In the second place, there are classes of invention, such as methods of stenography, book-keeping, etc., which, while capable of industrial application, that is to say, capable of satisfying the practical needs of social life, cannot be simply disposed of as subjects for patents. These

inventions, it is obvious, constitute a connecting link, in a sense inverse to that of the preceding case, between industry and art, between patent rights and author's rights

Certain legislators have found a way out of the difficulty by enacting separate laws in regard to industrial designs or models, on the one hand, and patent and author's rights on the other. As regards the industrial inventions mentioned above (methods of stenography, book-keeping, etc.), they have, it might almost be said, arbitrarily relegated them to the sphere of author's rights.

Abstract theory has had greater trouble in overcoming this difficulty. It has found a way out by maintaining that the outcome of intellectual activities (industrial designs and models on the one hand, methods of stenography and book-keeping on the other) constitutes, so to speak, a *neutral zone* between the fields of industrial privilege and author's rights.

The truth is indeed far other and more serious than this. The truth is that we are confronted with an edifice of legislative enactment and doctrinal theory which is incomplete and imperfect, an edifice which has been founded upon a base of practical utility and which has been completed under the inspiration of the loftiest ideals. But in this edifice there are more dark places to be illumined and more empty spaces to be filled up than in the so-called neutral zone. We refer to the important zone in which scientific work, properly so called, is developed, in which are inherent the rights of author and inventor, and which yet constitutes an intermediate and highly important zone between the two territories. Far larger space must therefore be given to scientific work in the system of protection which has been evolved with a view to promoting works of the human intelligence. The object of this fresh class of protection should be to constitute a connecting link or, as we might prefer to say, a bridge between the two parts of this system which have been already defined by legislators and elaborated by jurists.

Two remarks may be made in conclusion.

It is obvious that any attempt to secure for scientific work such recognition as it deserves, and such protection as is properly due to it, would in itself not only constitute a work of justice but also a contribution towards a development of that system of existing law which has been shown to be rudimentary and imperfect from all points of view.

But another remark remains to be made: scientific work has hitherto enjoyed the protection of law when it has been in the nature of literary work. The result, however, of this protection is, so to speak, paradoxical, since it is obviously not the substance which is protected, but only its external apparel — not the idea itself but the publication of the idea. A professor of the Faculty of Science at Lille published before the war a collection of his lectures on the dynamics of motor-cars. Having remained at Lille during the period of German occupation, he learned in 1920 that a young engineer had just brought out at Paris a volume on explosive engines of which a large part had been taken from his book. The Court of Paris delivered judgment to the effect that it was impossible to establish a claim in respect of every conception, discovery, or scientific theory unless they had been applied in industrial practice or unless, independently of the substance, the form or the literary method had been pirated by the offender. The Court could have given no other judgment, having regard to the existing system of law. But it must be conceded that there is a certain irony in a decision of this character.

In other words, only the forms, that is to say, the least important and the least disinterested part of scientific work, such as treatises, explanatory works, etc., are at the present time entitled to the benefits of the law ! The protection of law, as Berthelot has said in his memoir on Denis Papin, tends inevitably to raise a genius of the second rank, or even a commonplace man who has no genius at all, above a genius of the first rank !

§ 4. GENERAL OBJECTIONS.

The chief objections which are at present opposed to the recognition of the scholar's rights over the creations of his mind are the same as those formerly raised against the claims of the artist and the inventor. If a comparative table were drawn up of the former and present objections, they would be found to coincide exactly. The comparison would convince us that these objections will be overcome to-day, just as they were in former times, by the exigencies of life and progress and through the instrumentality of legislation and education. Indeed, it may be considered that arguments on this point have been exhausted.

In the first place, it is affirmed that every new idea, every fresh discovery becomes at once part of the general heritage of mankind, the creator or author finding sufficient compensation in glory and the gratitude of the world. Bacon has already given expression to this idea in his *Novum Organum*, in which he commends the ancients, who accorded divine honours to inventors for having deserved well of all mankind, while to heroes who had but rendered service to their own country they granted a reward. In more imaginative language, though expressing the same idea, the Great Encyclopædia says, under the word "Invention": "Throughout history the principal apotheoses fall to the share of inventors, whom the Earth adores as visible gods. Is it a wonder then that they should be sensitive regarding the honour of their discoveries, that being the last thing which man can surrender. Thales, after having discovered the proportion of the diameter of the sun to the length of its orbit around the earth, divulged this discovery to one, who, as a return, offered him anything he might ask. Thales only begged that he should preserve for him the honour of his discovery. This Grecian sage, poor and bowed with years, was insensible to money gain or any other advantage, but not to an act of injustice which would wrench from him the glory he merited".

It need not be a matter of surprise to us, therefore, that men like Prudhon, Macaulay and Mazzini were equally opposed to any sort of recognition of intellectual property. Mazzini wrote

as late as 1866 to a Milanese editor: "I have never believed in literary property rights, as understood to-day. If a writer capable of producing really profitable work is without means, he should, in a well-ordered republic, receive the assistance and the encouragement of the nation; but thought made manifest belongs to everyone, constitutes social property. The breath of the human spirit cannot form a monopoly. It is the duty of all to encourage, of none to shackle or restrain the diffusion of truth".

There was, moreover, determined opposition from experts, specialists, authorities. Jurists and economists of all nations have seized upon the objection expressed by these great thinkers as a means of combating every form of intellectual property. Experts, it is true, always prefer to maintain an attitude of prudent reserve. Specialists do not care to be disturbed in the well-defined limits of their specialities or in their mental habits; and has not Gladstone said somewhere that no great feat of social or legal progress has ever been accomplished within the memory of man without encountering the objections of the experts ?

Let us consider what has taken place as regards patents. In France they were the object of the most lively and even violent attacks during the second half of the last century. A famous economist, Michel Chevalier, became the special apostle of the new doctrine, going so far as to say, in a letter subsequently published in 1863, that the system of granting patents was *an outrage on liberty and industry, an obsolete legacy of the past*, and consequently should disappear. The system of granting patents is not perfect; on that we are all agreed. But who to-day would endorse the absurd and final verdict pronounced by M. Chevalier ? Did not the Committee of Inquiry formed in England to consider this question as early as 1872 express its opinion that *the protection of inventions is favourable to the progress of industry ?*

Again, an English jurist, Mr. Carrol Romer (Reports of the Italian Society for the Study of Industrial Legislation, 1922, p. 20 et seq.), has recently made a graph showing the grants of patent rights and export licences, by which it is seen that these correspond perfectly.

In the second place, it is said that scientific work is the result of collective co-operation. But has not the same remark been passed with regard to art and could it not be still more fitly made with reference to industrial inventions ? All the mediæval writers borrowed from the ancients whatever is finest in their works. Shakespeare and Molière obtained their material from Italian comedy and, though Berthelot could say, "Science is collective work", Goethe no less rightly affirmed the same with regard to literature. In his Report, which we will presently consider, Professor Barthélemy very appositely quotes the following remarkable passage from Goethe: "The greatest genius produces nothing of value if he has to draw entirely on his own mental resources. Every one of my works has been suggested to me by thousands of persons, thousands of different objects; scholars, ignorant persons, sages and fools, children and greybeards — all have collaborated in my art; my work merely combines multiple elements, all drawn from the world of reality, and this whole bears the name of Goethe".

Moreover, since every discovery is the result of various previous discoveries and is occasionally the simultaneous result of the work and research of several men of science, the objection is raised that it would be very difficult — nay, impossible — to determine the priority of the discovery and the part played by each of those who really had contributed thereto and, consequently, the recognition of scientific property would entail inextricable complications, unceasing conflict and law-suits interminable.

But as regards author's or patent rights the same questions and difficulties present themselves, and yet no one considers them as conclusive objections against literary, artistic or industrial property. Law-suits concerned with scientific property will neither be more numerous nor more subtle that those regarding literary, artistic or industrial property.

A distinguished fellow-member of the Committee, Senator Lafontaine, has told us in this connection how, when defending the priority of Edison's electric lamp patent, he found himself confronted with 74 prior claims. Experts were called in to assist in the conduct of the case. There and then nine-tenths of these prior claims were set aside, and, after a few sittings, Edison finally won his case against the remaining claimants.

One of the most successful musical works of recent years, *Cavalleria Rusticana*, was the subject of a legal dispute which was ultimately decided by the Court of Cassation at Turin. This tribunal, basing its judgment on the advice of experts, determined the proportions of merit in the success of the piece due respectively to the author of the drama, Giovanni Verga, to the author of the libretto, Targioni-Terzetti, and, finally, to the composer, Mascagni. Would not a decision of this kind with regard to scientific matters be arrived at more easily, seeing how much more favourable to exact judgment are the factors and criteria which have to be determined.

Assuredly law-suits regarding scientific paternity will often prove of a most delicate nature, as indeed must every law-suit for the establishing of paternity. But could one conscientiously deny the claim of parenthood to a woman who had only had to do with one man solely because some other woman could not indicate which of a number of males was the father of her child ?

There is always difficulty in establishing paternity, but in the case of scientific work there will presumably be less difficulty than in other cases (as is noted, with justice, by Mr. Dalimier and Mr. Gallié in their Report, which we shall consider in greater detail later), for a classification of discoveries will become necessary and it will be possible to prepare a genealogical table (none exists at present). Moreover, it will be easier to secure experts in this subject than in any other, for any cases which may come before the courts.

Then finally, the question of complications is mentioned. M. Barthélemy rightly and wittily observed that complications and progress necessarily go hand-in-hand and, consequently, the justice meted out to men of science would obviously be more complicated than the brutal injustice of which they had hitherto been the noble and uncomplaining victims.

§ 5. SPECIFIC OBJECTIONS.

A. *Invention and Discovery.*

We shall now confine ourselves exclusively to the consideration of the specific, hence essentially technical, objections raised against the recognition of the savant's rights to his idea or discovery. They are mainly of two kinds:

(a) *Real invention*, it is said, is a different thing from *pure discovery.*
(b) *Artistic literary creation*, they add, is similarly different from *scientific conception.*

It is to be observed that, from the point of view of the relations they establish between *invention* and *discovery*, the principal systems of legislation can be subdivided into three groups.

First, the Latin group, which, inspired by the French law of 1844, declares *inventions* and *discoveries* to be capable of being patented (Article 2), excluding, however, from the latter category *"theoretical or purely scientific discoveries and ideas"* (Article 30). Similar provisions are contained in the Italian law of 1859 (Articles 1, 6).

Secondly, the Anglo-American group, which, so to speak, makes no allusion to the existence of any difference between invention and discovery. Laws of various dates in force in the United States, and the Regulation of June 17th, 1907, simply mention *"any new and useful art, machine, manufacture or composition of matter or improvements thereof"*. And the English law of 1907 says: *"invention means any manner of new manufacture"*.

Thirdly, the Germanic group, while, of course, acknowledging the difference between inventions and discoveries which have already been admitted in a general fashion in jurisprudence and legal doctrine, avoids making any allusion to discoveries, and only refers to "new inventions capable of being applied to industry". "Patente werden erteilt für neue Erfindungen, welche eine gewerbliche Verwertung gestatten". See Article 1, German Law of 1891.

As is seen, protection is refused, by all three systems alike, to purely scientific discoveries; by explicit exclusion in the Latin group, by the absence of any mention in the Germanic group, and implicitly, by the enumerative and descriptive wording of the laws, in the Anglo-American group. These diverse methods of exclusion are not, however, devoid of serious consequences, as regards the jurisprudence and legal doctrine of the different countries.

It must especially be noted that, according to German law, the grant of a patent is not only refused in the case of *theoretical or purely scientific discoveries*, but of all discoveries in general, even of *discoveries immediately operative*, to use Antonio Scialoja's happy expression, *i.e.*, those which are at once put in practical application.

Certain eminent exponents of German legal doctrine, particularly Kohler, have emphasised the difference referred to between invention and discovery. According to Kohler (*Handbuch*, paragraph 4, page 89), invention in the technical sense is a kind of new creation of the human intellect, or more, precisely, a creation which tends to dominate nature by utilising forces pre-existent in nature. "But creation," he affirms, "is the antithesis of discovery." Discovery is but the revelation of that which exists in nature, and all science of this nature is excluded from the protection afforded by patent. Kohler himself displays a certain *naïveté* in the passage in which he endeavours to demonstrate that, if the invention is preceded or accompanied by a discovery, this is not a sufficient reason for refusing a patent to the inventor — as if discovery were a lesser, more imperfect form of intellectual activity !

It would show lack of appreciation not to recognise the praiseworthy efforts made by German science to solve this difficult question, upon which it has expended all the resources of its learning and speculative powers. But it has entirely failed to produce any positive or even relatively consistent results. Professor Schanze ("Erfindung und Entdeckung" in Hirt's *Annalen des deutschen Reichs*, 1894, pp. 653–721) says, for example, that, while invention is *productive*, discovery is only *receptive*. Herr Damme (*Das Deutsche Patentrecht*; Berlin 1906, p. 136), on the other hand, basing his opinion on Wundt's psychology, maintains that the difference between invention and discovery is that the former signifies the relation of the individual to a thought originating and existing solely in his brain; the second is the relation of an individual to an object outside and apart from himself. But Professor Osterrieth (*Lehrbuch des gewerblichen Rechtsschutzes*, Leipzig 1908, p. 61) urges, as an objection to Professor Schanze's theory, that in discovery also there are productive elements, and phases where voluntary action comes into play, just as, he goes on to say, "in the discovery of an island there is the phase of discovery and the phase of occupation". As regards Herr Damme's theory, it is obvious that its very fragile basis could be all too easily shattered by any other philosophy or psychology which might be in fashion. Kohler's teaching, founded, as we have seen, upon the criterion of *creation* (which he supposes is non-existent in discovery, though existent in invention), has also been attacked in a work — perhaps the most original on this subject — by M. Du Bois-Reymond (*Erfindung und Erfinder*, Berlin 1906, p. 65), which excludes this factor even from invention and demonstrates, by some happily chosen examples, the numerous cases in which discovery and invention are either coincident or co-related or even intermingled. M. Pilenko, a Russian, although professing to be the grateful disciple of the greatest German jurists, makes a no less determined attack on Kohler in regard to this matter (*Das Recht des Erfinders*, Berlin, 1907, p. 227). This very detailed and exhaustive work was received in the most flattering manner by the most eminent German authorities.

A more important and more striking fact is that in Germany, notwithstanding the letter of the law of 1891 (the perspicuity of which Herr Damme extols as being sufficient to remove all difficulties), and notwithstanding the opinions of the most competent writers, the jurisprudence

of the Supreme Imperial Court (Reichsgericht) has not been able to refuse patent rights to discoveries suitable for industrial application. The tribunal referred to has simply avoided the difficulty by covering real and veritable *discoveries* with the name of *inventions*, in order to grant them the protection and privilege of the Patent Laws.

Hence we need not marvel that several authors, occupied solely with the practical side of the question, as, for example, the French lawyer and engineer Bonnet (*Etude de la législation allemande sur les Brevets d'invention*, Paris s. a., p. 34), or the commentator on German law, Kent (*Das Patentgesetz vom 7. April 1891*, Berlin, 1906, p. 50), have had, for the sake of peace, to agree that, since it had been found impossible to trace a very definite line of demarcation between discovery and invention, and hence to find a truly scientific definition of the latter, the diverse factors furnished by experience had been brought together with a view to forming a *practical definition*. But Kohler himself supplies us with an example of the length to which juridical casuistry may go when he says (*Handbuch*, paragraph 37) that there is *industrial utilisation* and hence the possibility of obtaining a patent, for an invention, concerned with church ritual, which tests the degree of purity of the wine in the Communion chalice and so prevents its sacramental character from being imperilled by adulteration. Truth to tell, it would be difficult to say whether this illustration is the more impious or absurd.

It is therefore somewhat surprising that Kohler's teaching, which is opposed to any recognition of discoveries, taken as whole, has found supporters not only in Germany, where at least he had the letter of the law in his favour, but also in Italy in Ramella (*Trattato della proprietà industriale*, Rome, 1909, p. 38), and in France in Huard (*Traité de la propriété intellectuelle*, Paris, 1903-1906, I, p. 46). And yet the texts of the respective laws of these two countries are opposed to the exclusion of discoveries capable of practical application. To get over the difficulty, Huard does not hesitate to assert that French law has attributed a different meaning to the word *discovery* in each of the two articles quoted (2 and 30). In Article 2 *discovery* is, he contends, employed simply as a synonym for *invention*, while in Article 30 it is employed in the sense of *discovery* properly so called. Similarly, M. Moinié (*Brevets d'invention*, Paris, 1896, Vol. I, p. 10) says: "The word *discovery* in Article 1 of the law is not to be read in any other way than as a repetition of the word *invention*".

This affirmation is in contradiction with the precedents of French law, among which there was the celebrated debate between Philippe Dupin, rapporteur of the law of 1844, and Arago on Article 30 of that law, a debate which ought to have sufficed as a guide to French experts. And yet, according to M. Couhin (*op. cit.*, Vol. I, p. 333), even a man like Pouillet has not always exactly understood the lesson to be learnt from that debate. The truth is that this eminent writer's conclusions are quite superficial as regards this point. He too satisfies himself by referring the reader to the works of Kohler, who, for his part, had plainly stated that the works of the Frenchman were absolutely *anti-scientific* (*Urheberrecht*, p. 501).

The greatest fault in the French, and to a certain extent in the Italian doctrine also, is the desire at all costs to introduce into a legislative system which has already many defects debatable theories which are of foreign origin and have been evolved with regard to an utterly different legislative system also not exempt from defects.

The more practical, more elastic and, from a scientific standpoint, more unpretentious formulation of their laws has permitted English and American writers to overcome the difficulty with the most perfect ease. Mr. Walker confines himself to the pronouncement that "the discoveries of inventors are inventions"[1] (*The Patent Law*, New York, 1904, Par. 1), and Mr. Roberts says, in *The Grant and Validity of British Patents*, London, 1903, p. 34): "Discovery constitutes patentable invention when it produces a new industry".[1] And that is all. The American writer Macauber (*The Fixed Law of Patents*, Boston, 1909, Par. 347) exclaims: "It has never been possible to establish a line of demarcation between discovery and invention. It is said that it is possible to establish between them a fine psychological distinction. As it is not, however, the mental act but the description of it in concrete form which constitutes patentable invention or discovery, this distinction is of no importance"[1].

But the most important result is that Anglo-American jurisprudence has had free scope to extend the protection of the law to every kind of discovery, provided that it could take its place among *useful manufactures*.

Was not, then, the young Italian writer and lawyer, Luzzatto (*op. cit.*, Vol. 1, p. 220) mistaken in his conclusion that, because a firm juridical foundation had not hitherto been given to the distinction between invention and discovery (the only efforts which had been made being based on etymological and philological data, or on appeals to psychological and philosophical standards), the distinction referred to would be foreign to the domain of law, and hence quite useless for the application of the law.

One further remark which has more direct bearing upon our subject. We read, for example, in the very eloquent introduction which an authority like M. Pouillet has put at the beginning of his famous treatise on patents and on literary property, passages like the following (*Traité de la propriété littéraire*, p. 11): "the world created exclusively by human thought, though infinite as that thought, is just as much open to conquest as is the material world". And here one would be tempted to conclude that a mind so elevated and so profoundly imbued with a sense of justice must also necessarily espouse the cause of scientific property. But no! The author is like all the others: he too disposes of scientific discoveries in a couple of curt, dry and peremptory words (see *Traité des brevets*, No. 7). But we must not neglect to call the reader's attention to one exception, the more praiseworthy in that it appears to be the only one. The Italian writer already

[1] Quotation translated from French text.

mentioned, M. Luzzatto, writes (Vol. I, p. 17 and p. 214): "It is not surprising that the ancients did not recognise any sort of intellectual property, since the same phenomenon appears, with the same flagrant injustice, in our present civilisation without an effort being made by anyone to remedy it and, indeed, without any consciousness of the injustice that is committed every day. And in truth, what recompense is offered by modern civilisation to the men of science who make great discoveries which will perhaps bring about marvellous changes and enormous advantages to industry and enable others to become fabulously rich ? Nothing ! In other words, jurisprudence, which, in the course of its evolution, has already succeeded in evolving and protecting the rights of the author and inventor, has not yet succeeded in evolving the rights of the man of science nor in finding a means of rewarding him."

§ 6. (*b*) ARTISTIC CREATION AND SCIENTIFIC CONCEPTION.

Pure scientific discovery, already excluded from the protection accorded to invention, on the ground that it does not present a *quid inventum*, is equally excluded from that accorded to works of art because it does not present a *quid creatum*.

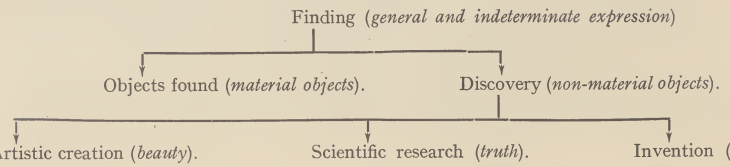
In this connection, let us once more consult the most accredited of the law authorities, Herr Kohler (*Urheberrecht an Schriftwerken*, Stuttgart, 1907, Chap. I, p. 10 et seq.), who differentiates in the most definite fashion between invention, as well as literary work and pure discovery. The right of the author and that of the inventor may, he says, be regarded as exactly on the same footing. The differences of a secondary order which they present is not in substance, but solely in quality; and it may be formulated thus: the right of the author is connected with an *æsthetic conception*, while the right of the inventor relates to a *technical conception*. The conception may indeed be æsthetic in a material sense, when it is concerned with images far removed from reality, and in a formal sense when it clothes a scientific idea in literary form. So that the right of the author can never be exercised in respect of a scientific idea or discovery itself, for science is free. The æsthetic conception has only a claim to protection if it is made concrete in the form of ideal representation, and in the same way a technical conception enjoys protection when it tends towards a goal, that is, towards the satisfaction of any human need. Consequently, the right of the author and the right of the inventor, although different in quality, may enjoy the same protection and obtain recognition of priority before the courts. The same cannot be said of discoveries in the strict sense of the word. The question of priority with regard to them cannot be submitted to the courts, whose duty it is, not to pronounce upon the degree of accuracy of an assertion, but solely to decide to whom a certain right belongs. The question of scientific priority could only be put to the judges as an *a priori* question, for example, if a decision was required as to who should receive some scientific prize awarded by an endowment in recognition of a certain kind of scientific research.

However, the lack of objectivity and exactness of the standard by means of which it is desired, as regards every intellectual creation, to differentiate and separate pure discovery from other forms of mental activity, is shown by the following simple observation: among the English jurists we note a marked tendency to minimise the value not only of discovery but of invention itself as compared with works of art; and as regards the latter, precisely on the ground that invention also lacks the character of true creation. One of the most competent of these jurists, Frost (*Law and Practice relating to Letters Patents, London*, 1906, Vol. II, Chap. 3), writes that the author of a literary work possesses a moral and natural right to his work from the very fact that it is his creation; that his right is equivalent to that of the man who produces a material object by the work of his hands; that, consequently, this right exists independently of any concession from society; but that it had to be created by legislation because it did not exist in common law. The inventor, on the other hand, does not create in the same manner as the author, therefore he possesses no natural or moral right to his work. "In the case of the author", says Frost, "the result of the work only begins to exist when the author puts his thoughts upon paper; in the case of an invention, as the law understands it, the inventor only utilises natural laws, pre-existent, although perhaps hitherto unknown; by applying them in accordance with new principles, he produces a result which no one until then had yet obtained. The difference between the production of great literary works and the discovery of great inventions is rendered evident when one compares one of Shakespeare's plays, "Hamlet" for example, with one of the inventions which have transformed the world — like Watt's steam-engine. If Shakespeare had not written "Hamlet", it is certain that this work would never have existed, and the literature of the world would have been the poorer thereby; but it is difficult to think that, if Watt had never lived, the improvements which he made in the steam-engine would for long have escaped the penetration of other mechanicians. This is why the law only concedes to the inventor a temporary conditional right, and that solely because he makes his invention known to the public and is the first to divulge it; for the same reasons, the law concedes this right to the first inventor as well as to the first importer[1]."

But the English doctrine has its counterpart, one might even say its antithesis, among the Germans. Thus, M. Du Bois-Reymond (page 65), as we have seen, denies all creative character to invention, reserving it to works of art or literature. The Russian writer, M. Pilenko, whose remarkable work we have already quoted (page 223 et seq.), goes much further. He begins by observing that in life, and especially in the life of the mind, there is *finding* and *finding*. The discovery of a plant, of a continent, or, again, of a work of art which has strayed into some gallery, are quite different things.

[1] Quotation translated from French text translation.

In short, he finishes by proposing the following classification:



We shall be careful not to make any commentary upon these theories; and shall confine ourselves to pointing out that, in the opinion of a specialist like M. Pilenko, science ought to be put on the same footing as art and industry.

Nor has this idea been devoid of consequences, to judge by what has been written very recently by another specialist of great repute, M. Osterrieth (*Das Geistliche Schaffen in Wissenschaft, Technik und Kunst; in Gewerblicher Rechtschutz und Urheberrecht*, XXVIII year, 1923, No. 3, page 49 et seq.). This author, who formerly inclined perhaps a little too much to the side of Kohler in that he also denied creative character to discovery (*Lehrbuch*, p. 62), to-day admits that, even in scientific research, there is an element of personal creation "ein persönliches, schöpferisches Moment", and points to the protection of the creative personality "die schöpferische Persönlichkeit" as the supreme object of the recognition of so-called intellectual property.

To sum up, we have alluded above to the quicksands of this theory; but everyone can henceforth perceive the uncertainty which it presents in practical application. The whole question is dominated by — the terms are not too strong — crudest utilitarianism, empiricism unhappily disguised in scientific nebulosity, and, finally, the most disconcerting arbitrariness.

However, we shall rely unhesitatingly and without scruple upon the common feeling of justice, that profound and infallible feeling which tells us that here is a wrong which must be righted.

SECOND PART. — PROPOSALS.

§ 7. — HISTORICAL RETROSPECT.

The question of the protection of scientific work has, like all other questions, been raised in the past, but on rare occasions and with insignificant results.

At the Congress of the International Literary and Artistic Association, held in London in 1879, Dr. Déclat, a solitary doctor who had, as it were, strayed into the company of men of letters, timidly asked the Congress "also to take measures to protect invention or discovery, whether of a method, a preparation or a substance, which might assist humanity in protecting itself against epidemics and in curing serious diseases. He wished, at least, that this question might be included in the agenda of the next Congress". M. Edmond About protested against the introduction of this subject into the work of the Congress. M. Jules Clère insisted that the Conference should proceed with its agenda. The unfortunate man of science, who had been so bold as to trouble the pure waters of literature, was obliged to hold his tongue as being a simple..... unlettered person.

It was only at a much later date, at the Congress held at Venice on September 22nd, 1888, that M. Jules Oppert, a German resident in Paris, remarked that the Association had been constantly occupied at its meetings with the protection of the works of men of letters, but that, side by side with these works, there were also works of men of science which were equally worthy of protection, and he requested the Congress to take in hand protection of scientific works from the same point of view as that of literary works, in such a way that there should be no distinction between them. M. Pouillet, at that time vice-president of the Association, thereupon expressed regret that M. Oppert had not submitted his recommendation during one of the meetings of the Committee, in order that a proposal might have been formulated and submitted to the Congress, and he declared that this proposal should be submitted to the Committee of Enquiry, with a view to its inclusion in the agenda of a subsequent Congress.

But the question was not brought forward, nor was it raised at any Congress until 1896, when, at Berne, there was a discussion of a draft law regarding author's rights, and M. Davanne proposed to substitute the words "œuvres intellectuelles" for the words "littéraires et artistiques", and to add scientific works to the category. M. Davanne proposed "that scientific works should be specified in order that they might be protected, even if they had not appeared in a literary form". Moreover, he would prefer the word "intellectuelles". M. Desjardins supported the proposal of M. Davanne and expressed the wish to see the term "œuvre intellectuelle" authoritatively adopted in France. M. Maillart proposed to refer to the Monaco Congress the enquiry into the protection of scientific works. He conceded, however, that the author of a scientific discovery should, in default of a monopoly, have the right to prevent a third party from claiming for himself the honour of such discovery.

Nevertheless, the question of the protection of scientific works was not included in the agenda of the Monaco Congress, nor did it appear on the agenda until the Congress of Turin in 1898, twenty years after the proposal had first been put forward by M. Déclat. The Congress expressed, in a general recommendation, its wish that all works of the intellect which were at the time outside the protection of the law should be placed on a footing of equality with literary and artistic works.

The Italian architect, Pesce, Technical Counsellor at the Italian Embassy at Paris, succeeded in inducing the members of the Congress held at Heidelberg, in 1899, to include in the agenda of future congresses the question of the protection of scientific works.

M. Pesce also laid before the Congress of Weimar in 1903 a report on scientific property, regarded almost exclusively from the point of view of civil engineering and architecture. At the same Congress, M. Vannois, a Paris lawyer, dealt with the protection of historical and critical works. He observed in his report that no protection was accorded to the historian who conducts researches in order to bring to light an unknown truth; to the critic who discovers an author of bygone times; to the man of learning who reconstructs a text which has been falsified, or to the scholar who deciphers the enigmatic inscription of an extinct nation, or translates ancient inscriptions written in unknown tongues. Such men are almost invariably despoiled of the fruits of their labour, and even their names are not always quoted. M. Vannois, however, came to no conclusion as to the manner in which this protection should be exercised, and confined himself to declaring that it was necessary to specify clearly all the various emanations of the personality of the author, so that this personality might be protected in all its manifestations. Professor Osterrieth, of Berlin, also referred to this problem in the report submitted to the Congress in question, but the work was negative in tendency, nor did he disguise his fear that injury might be done to scientific studies. He made an exception in favour of authors who published what is called the *editio princeps* of a text which is little known, or entirely unknown. In order to prevent the onerous work of the man of science, or the heavy expense incurred by the publisher, from being exploited by others, he proposed that protection should be accorded during a limited period of ten years, during which the *editio princeps* should be considered as constituting the publication of a new work.

The International Congress of Inventors' Associations, held at Paris in 1900, adopted the following resolution:

"Whereas men of science are continually being deprived of the fruit of their discoveries and inventions by more or less close imitations of their works, which are not at present subject to any penalty, the Congress adopts the following recommendation:— That men of science should be protected by formal and effective legal provisions against the piracy to which they are constantly exposed and which is prejudicial to their most valuable possession, namely, their reputation, in that they are deprived of their rights of authorship in a work of discovery or a principle in respect of which they can acquire no patent, and which does not bear the obvious stamp of personal authorship, but in regard to which they can demonstrate that they are creators or inventors by virtue of a special deposition to that effect, or by virtue of a publication or academic communication prior to the act of those who have deliberately or innocently plagiarised it."

It is obvious that the question had not hitherto advanced beyond the stage of simple recommendation.

It must therefore, in justice, be admitted that France was the first to take the great step in advance; it was in France that bills were first introduced with a view to securing such protection for scientific property as should place it on an equality with literary and artistic or industrial property.

Two draft laws were in fact laid before the Chamber of Deputies. One of these was prepared by the Confédération des Travailleurs Intellectuels, and its history and purpose are set forth in a treatise entitled *La propriété scientifique : le Projet de la C. T. I. : Création d'un droit d'auteur pour le savant et l'inventeur*", par MM. R. Dalimier et L. Gallié (rapporteurs of the bill; preface by M. E. Borel, Academy of Sciences, Paris; Rousseau, 1923. The other law was prepared by the Union des Syndicats d'Ingénieurs français, which had requested M. Joseph Barthélemy, Professor and Deputy for Gers, to introduce a bill. The history and subject of M. Barthélemy's bill are set forth in the following official publication: *Proposition de loi sur la propriété scientifique et la réforme de la loi du 5 juillet 1844, sur les brevets d'invention*, Chamber of Deputies, 12th Legislature, Session of 1922, annex to the Minutes of April 4th, 1922.

No similar steps appear to have been taken in other countries.

§ 8. NATIONAL LAW, OR INTERNATIONAL CONVENTION ?

When the above-mentioned proposals, drafted with a view to the preparation of a law for the protection of scientific work, became known in France, they immediately encountered the following objection, which was raised by persons of authority interested in the question (see *Propriété industrielle*, 1922, page 23): "Except by means of an International Conference at which all great civilised countries are represented, it would be impossible to contemplate any further restriction of the freedom of business transactions without placing France in a position of being able to offer the least resistance in economic competition". The same opinion has been expressed by an expert, M. Fernand-Jacq, author of a book on patents (*Manuel pratique de la propriété industrielle et commerciale*, Paris, 1914), who, in two articles ("Le droit de suite des inventeurs sur leurs découvertes, in the *Journal des Economistes*, 1922, page 332 et seq., and La propriété scientifique, in the *Revue Générale de l'Electricité*, 1923, page 463 et seq.), claims that the question should at least be submitted to an international conference. Let us state at once that this fear appears to us to be exaggerated, as would be the fear that free trade would ruin the commerce of a nation,

or that the lowering of transport rates would be prejudicial to public finance, etc. When the Factory Acts in England first limited the working hours of women and children, the great English cotton industry was loud in its complaints, whereas, in actual fact, the Acts proved to be of great advantage to the industrialists. In any case, the harm done to industry would be only temporary in character, and would be largely compensated by the advantages which would ensue from the adoption of this proposal; for it is a fact that the increase in the number of patents in any country has always been followed by an industrial revival.

The same results would follow from the protection of science. Industry draws its sustenance from science and will continue to do so, but with this difference — as has been ironically and justly observed by M. Dalimier and M. Gallié in their Report — that men of science will be eliminated from the menu !

We think, however, that remarks made in France by persons of such great authority are worthy of attention, since they constitute an important psychological factor and may form an insurmountable obstacle to the innovations which we are advocating and to the propaganda which we are pursuing; this is all the more true because the method advocated by these authors appears to us to be the one which should be adopted, although for reasons different from those which they themselves put forward.

Those who have taken the initiative in France in the movement for protecting the rights of men of science have recognised the necessity of completing their work by appealing for the support of all nations. Professor Borel, the eminent President of the Confédération des Travailleurs Intellectuels, who wrote (see "La propriété scientifique" in the *Revue de Paris*, 1923, page 853) that the Association itself "had not failed to realise that, in a matter of this kind, it was not sufficient for one nation to take the initiative. It was only by means of an international understanding that effective action could be taken".

We must note that the method proposed in France by both parties (as we have already seen) was opposed by the combined International Bureaux of Industrial, Literary, and Artistic Property of Berne (Bureaux Internationaux Réunis de la propriété industrielle, littéraire et artistique de Berne), the organisation best qualified to deal with the subject. Their report, submitted to our Committee and drawn up by Professor Ernest Röthlisberger, director of the combined Bureaux (see *Le droit d'auteur*, 1923, p. 5 et seq.), contains the following noteworthy observations: "Progress in this direction has hitherto never been effected directly through international channels. Reform has been preceded in every country by experiment and trial. Obstacles are first removed within a limited sphere; the example is next followed elsewhere, and finally, the reform is adopted in international relations". The *droit de suite* (continuation rights), adopted in France and Belgium in regard to artists, should first be tried in both these countries and be recommended by private associations before there can be any question of incorporating them in the form of an article in an International Convention. Evolution is, in this respect, extremely slow. Violence must not be done to the spirit of time: such is the wise rule of international life. For every reform there comes — whether it be sooner or later — the propitious moment which must be turned to good account. This rule will also hold good in regard to the transformation of ideas on the subject of scientific property".

We are further faced with the following problem: should the route before us lie from national law to international convention, or in the inverse direction ?

For our own part, although recognising the high value and wisdom of the recommendations of the International Bureaux of Berne, we cannot fail, in the first place, to note that the example which they cite, viz., the French law regarding the *droit de suite*, does not appear to us conclusive. A right of this kind may very well exist in a single country without placing it in a position of economic inferiority in regard to other countries. At most, art dealers might be affected, but the fate of this industry would have no influence whatever on the national balance of trade; and the fact that their profits might possibly decrease would be amply compensated for by the advantages which accrue from the law in question both for artists and for the arts. Quite different, however, would be the case of a scientific discovery protected only in a single country; a circumstance of this kind might place the sound and non-parasitical industries of the country in a position of inferiority which, even were it temporary, as we have said, would need to be considered.

Nor does it appear to us that the Bureaux have taken sufficient account of one decisive fact. The protection of literary and artistic property and of industrial property has, by the very necessity of the case, been undertaken by each country independently, because they were all at the time in a position of almost complete isolation. With whom could England in the seven-teenth century, or France at the time of the Revolution, have come to an understanding when they drafted their first and celebrated laws on this question ? All that can be said is that their example was followed later on by other nations. Circumstances are very different at the present time, for an organisation has already been established which comprises the majority of the States of the world; we refer to the League of Nations. And it would be a fatal mistake to think that the activities of this organisation were entirely absorbed and exhausted by political questions.

Moreover, the tendency of the subject with which we are concerned is very strongly in the direction of internationalism. Is not the continued existence and the extension of activities of the International Bureaux a striking proof of this fact ? Kohler, an author whom we have already quoted several times, observed that in no other field, except the international field, could comparative law lead to a systematic unification of national laws in regard to authors' rights which are on the verge of becoming universal rights "ein Weltrecht". At the Congress of Vienna in 1873 and at Nancy in 1909, the International Association for the Protection of Industrial Property submitted a recommendation that national law in regard to patents should be unified. No less earnest recommendations were formulated in regard to the institution of a universal *patent-trade-mark and of an international inventors' patent.*

The International Association of Industrial Property, at its Congress at Zurich in 1899, noted with satisfaction the ratification of the Hague Convention, and decided that an enquiry should be undertaken into the question of regulating international jurisdiction in regard to industrial property. The International Congress of Industrial Property, which met at Paris in 1900, decided that it would be desirable to consider the question of instituting an international tribunal to give judgment in actions concerned with the revocation of trade-marks and with the counterfeiting of trade-marks.

In Belgium, initia lsteps were taken for the institution of an international system of justice in regard to industrial property; it was claimed, that such a system should be established by the Peace Conference. In the United States of America a society was founded which proposed " to submit to the Conferences which were concerned with the establishment of Peace and with the constitution of a League of Nations, all questions relating to treaties concluded, or to be concluded, in regard to patents and other rights". Finally, the Genoa Conference (April to May 1922) also concerned itself with the protection of literary and artistic property and recommended that, in the first place, all European States, and subsequently all non-European States, should adhere to the International Conventions as already concluded.

Finally, it is evident from the foregoing sketch that the centre of gravity of the system of protection of the rights in question is rapidly shifting, and is passing from a national to an international stage, that is to say, as regards individual nations Members of the League of Nations.

"One more remark may be made which concerns our Committee more directly, but which, in our opinion, does not admit of question. Our task has been entrusted to us by the League of Nations, and not by a single State, or by several individual States; we ought, therefore, to adopt the standpoint of the Authority on behalf of which we are acting, and we should adhere to their point of view. It is easily intelligible that the French proposals, as specified above, should have taken French law for their basis, and should have suggested modifications of this law; but so far as we are concerned, what laws should we take as a foundation for our work ? If we take our stand on the laws of the principal States should we not end by producing a work which would be analytical, disjointed and confused, a work which would be more in the nature of legal casuistry than of genuine reconstruction ? Should we not be acting ill-advisedly if we were to undertake the criticism of the laws of any special country, and should we not run a risk of alienating the public opinion (which is always sensitive) in the country in question ? We must also take account of the fact that the inverse process would inevitably raise the question of the different provisions in force in different States, a question which is at all times a stumbling-block and source of perplexity in international conventions. This point can easily be demonstrated from the example of the Conventions of Berne and Paris, to which we have already referred, and from the articles which have been added to them from time to time.

§ 9. HOW IS THE SCIENTIST TO BE REWARDED ?

When referring to the right of the scientist to receive a reward for his intellectual work, we have hitherto confined ourselves to the formal side of the problem, or, we might almost say, the mere question of procedure. We have now to consider the root problem: what should be the nature of this reward ?

While our Committee was in session, M. de Torres Quevedo, a colleague possessing exceptional experience of the subject by reason of the particular branch of science to which he so successfully devotes his energies, submitted to the Committee a proposal, the most important part of which reads as follows:

"It is desired to establish the rights of persons who have communicated an idea, subsequently embodied in the specification of a patent, to obtain a share in the profits obtained through that patent, and also to assure the participation of national laboratories in the profits which they have generally had a large share in producing. It is desired to attain this object while causing no harm, or, at any rate, the least possible harm, to the interests of persons who take out such patents and who are very often the authors of a considerable part of the invention, and have always run financial risk. In order to facilitate an understanding with these persons, a charge will be fixed (for instance, 30 % of the profits), to be paid by them if necessary, and they will receive in exchange certain advantages, such as a considerable reduction in the charges made for granting a patent, the abolition of the requirement that the patent shall be exploited, and so on. They will, in short, be released from certain payments and obligations which are most unwelcome at the time when they are beginning to develop their inventions, on the sole condition that they shall pay a royalty, the amount of which is fixed in advance, when they commence to obtain profits. They will be able to establish their business without any difficulty or fear of legal action. The 30 % levied on the profits will be divided between the laboratories and the authors of the ideas utilised in the patents, in a proportion fixed by a tribunal of experts. It may be possible to fix a *minimum* sum payable to the laboratories; but, in any case, the experts will have to fix the portion due to each of the persons laying claim to the authorship of an idea. The remainder will go to the laboratories. If an invention begins to become productive before these questions are settled, 30 % of the profits, or that portion of the 30 % of which the destination is still unknown, shall be paid into the Exchequer with a view to its being distributed later. The controversies between the intellectual workers and the laboratories will be less bitter than those which take place with the owners of the patents, will not hinder the development of the enterprise, and, in any case, will never lead to the total spoliation of some distinguished scientist."

Subsequently, our Committee learned that the International Bureaux in Berne were also engaged in drawing up a scheme, the provisions and constituent features of which will appear in the September and October 1923 numbers of the review *Le Droit d'auteur*. Through the great courtesy of Professor Ernest Röthlisberger, Director of the United Bureaux, and Professor Galier, Sub-Director of the same Bureaux, who drew up the scheme, we have been informed in advance of its main characteristics.

"The scheme is conceived on the same lines as that of M. de Torres Quevedo. Starting from the idea that the right of the scientific worker to his discovery cannot be regarded as an absolute right, and is therefore comparable in every respect with the right of the author of an artistic or literary work, and not with the right of an inventor, Professor Galier draws the conclusion that the remuneration of the man of science must also be on a different plane. It should take the form of a reward paid out of a fund formed from subscriptions paid by, or contributions levied on, the industries profiting by the discovery. The share of the reward allocated to each of the men of science who have contributed to the discovery will be determined by a commission, on which the industrial representatives most directly concerned, and consequently best able to judge, will be in a majority. The scheme elaborated by the Bureaux, which has been conceived and drawn up from a purely national point of view, might also be adapted to conform to international requirements and relations by means of a standard law which would be submitted to States adhering."

The aboveis a very concise and perhaps not entirely correct summary of the viewpoint adopted by the Bureaux.

We should be grateful for the fact that the question has been approached from a standpoint other than our own. The difficulties are so formidable that we can hardly hope to overcome them unless we attack them from every side.

But, having said this, we must now in turn state our opinion that the system proposed by M. de Torres Quevedo and M. Galier seems acceptable only in part. That is to say, we consider it should be adopted only by way of exception in cases in which it is not possible to assign, in any other way, a true remuneration for scientific work accomplished. The rule should be, as far as possible, payment in proportion to the profits earned from the application of the discovery to industry. And this for the following reasons:

First, one historical reference. The idea of allotting a reward in the form of a lump sum — we might almost say, in lieu of all further claims — to the scientist who may have contributed in any way to the formation of an industrial product is not a new one. It was advanced, advocated and even warmly defended at the time of the great controversy on patents to which we have referred chapter 4. Its warmest advocates were those who wished to make a clean sweep of patents. Michel Chevalier, in his letter condemning patents, to which reference has been made in the chapter mentioned, and M. Malapert, a patents expeıt, author of a brochure in which he, too, advocates the abolition of patents, were unable to deny that the inventor is useful to society and renders it services, but took this very fact as a starting-point for their proposal to substitute for existing legislation a system of rewards, either on a *national* or a *European* basis. But the most tenacious advocate of this idea was an Englishman, Mr. Macfie, who carried on for many years an indefatigable campaign, both at meetings of experts and in technical publications, for the replacement of patents by rewards. M. Vigaros pleaded in a brochure for the institution of an *Industrial Order of Merit* for inventors. We have seen, too, that Mazzini dreamed of a well-ordered republic in which the impecunious man of science should receive aid and encouragement from the State.

The origin of the idea, coming as it does from persons who were absolutely opposed to any kind of right over productions of the human intelligence, should suffice, we think, to put us on our guard. It may be said that the idea from its very birth has been sullied by a lack of consideration for men of science; that it seeks to dispose of their pretensions in as speedy and summary a manner as possible by granting them a dole, just as merrymakers hasten to give alms to an importunate beggar in order that they may be well rid of him!

As regards the practical or technical side of the system of prizes — for it is really a system of prizes which is proposed — we may refer the reader to the severe criticism to which it has been subjected by so competent an authority as M. Pilenko (*Das Recht der Erfinders*, p. 15). We ourselves will do no more than point out that the proposed system destroys all bonds between the creator and his creation and breaks the contact between the man and his work at the very time at which it is being sought, by means of "moral law" and the "law of consecution (*droit de suite*)", etc., to strengthen these relations in every other sphere of intellectual property; so much so that in this connection we feel that we are proceeding in a direction contrary to all legal and even social progress. Is not patronage, even though it be of an impersonal and national character, a form of remuneration which has become obsolete even in the domain of art?

In short, present-day opinion has veered away from the system of prizes granted in lieu of all claims towards that of premiums proportionate to the services rendered. This is the more modern and also the more honourable conception.

However, we should not entirely disdain the system of prizes in cases in which it is not possible to establish some direct and sure relationship between the idea and its economic productivity, between the scientific work and its practical utility, between the discovery and its application to industry. Such a situation may occur by reason of the general character of the science involved (higher mathematics, for example), or by reason of the special character of the scientific discovery. In such cases scientific research renders service not to any one particular industry but to society as a whole, by assisting the progress of the various sciences by which industry will only profit indirectly, that is to say, by the stimulus which this progress will give to discoveries of more immediate practical utility.

In the above case it is clearly not for industry to reward the man of science, either under the system of a fiscal character proposed by M. de Torres Quevedo, which would prove rather too

unwieldy in practice, or under the system proposed by M. Galier, concerning which we cannot express an adequate opinion, because we are too imperfectly acquainted with its internal mechanism. It is for society, that is to say, the State, to recompense the scientist. But how ?

Incidentally, it seems to us that two principles must be laid down, namely:

Above all, a *special* fund must be created. The principle of *special character*, that is to say, of the qualitative co-relationship between the source of the revenue and the category of persons among whom this revenue is distributed, is paramount in the financial law of every modern State. We do not think that we can quote any example better calculated to bring out the *special* character of this fund than the way in which it has been formed by means of a system named, and perhaps somewhat inadequately named, in France the *domaine public payant* (*cf.*, for instance, the brilliant contribution to the subject by M. Marcel Plaisant, *La Création artistique et littéraire et le droit*, Paris, 1920, p. 40 et seq.) The system is based on the supposition that the discovery, etc., after becoming public property, remains subject to a very small charge levied on behalf of the State. We do not see why the same principle, with such modifications as may be required, should not be applied to patents as they expire. The State would in this way obtain its funds from that general category of the community among which they would eventually be redistributed.

Secondly, we must eliminate from such distribution any suggestion of almsgiving, if such an expression may be used. The State should earmark this revenue either for public or private institutions for the advancement of science and the encouragement of scientists or for the scientific and technical groups which are best qualified, and so on.

As we have said, we only wish to refer to this matter incidentally, for we consider that all such questions should be left open for each nation to decide in accordance with its own laws. The precedent of the Nobel prizes may be quoted in opposition to this thesis, but the Nobel prizes are a private foundation, and, moreover, everybody knows that they are awarded by an institution of a purely national character. We do not wish to deny that later something of the kind may be accomplished internationally. But we think that it would be wiser for the present to wait and see what experience may have to teach us in the light of private experiments carried out in separate countries.

§ 10. PATENT RIGHTS OR AUTHORS' RIGHTS ?

Let us now retrace our steps. The principles which we have attempted to lay down in the preceding paragraphs lead us straight to the historical Conventions of Paris and Berne. For these two Conventions are of a twofold nature: first, their action is international (see § 8); and secondly, they mention *property* (Paris Convention) or *rights* (Berne Convention), but never *prizes* or anything of a similar nature (see § 9).

But even if we admit that we must take these Conventions as a starting-point, we have only solved one-half of the problem. Which of the two Conventions are we to choose, the Paris Convention of 1883 for the Protection of Intellectual Property or that of Berne (1886) for the Protection of Artistic and Literary Property? In other words, should we take as our starting-point the system of protecting inventions by means of patents, or the system for protecting authors' rights ? The problem is obviously one of paramount importance. We have already stated the aspects of the problem in § 3.

The authors of the French schemes were faced with the same alternative, and since these two schemes constitute, as we have pointed out, the only concrete efforts hitherto made to solve the question, we shall doubtless derive considerable profit from a careful study of the solutions they propose. The alternative presented itself to the authors of the French scheme in the following form: they had either to base their project on the important Law of July 19th, 1793, and on the subsequent laws supplementary thereto, that is to say, on the French fundamental law relative to artistic and literary property, or they had to take the Law of July 5th, 1844, concerning patents as their basis.

The Union of Syndicates of French Engineers, which is affiliated to the Industrial Technical Experts Section of the Confederation of Intellectual Workers, were at first — that is to say, in 1921 — in favour of reconstructing the inadequate Law of 1844, in which they proposed to make certain basic and logical modifications. The Union had requested M. Joseph Barthélemy to submit a draft law to this effect. It was quite natural that a suggestion emanating from an association of industrial technical experts should lead to the drafting of a *patents* law, and this consideration was the principal reason which led the Deputy Barthélemy to give his bill the definite character which is implied in its title, referred to at the end of chapter 7.

Meanwhile, the Liberal Professions Section of the Confederation of Intellectual Workers, submitted a memorandum by Dr. Dalimier to the Governing Committee of the Confederation. The conclusion drawn by the author was that a system of *authors' rights* should be instituted for biological inventions and that the patents law should not in any way be extended to include such inventions. The Governing Committee appointed a special commission of savants, engineers, biologists and jurists to examine the two schemes. The suggestions submitted by the Liberal Professions Section were preferred, and the Governing Committee of the Confederation of Intellectual Workers unanimously adopted the Commission's report embodying this decision. Dr. Dalimier and M. Gallié, advocate, who had been entrusted with drawing up the report, transmitted the text to the Chamber of Deputies and the League of Nations. The very title of the draft, which we have mentioned at the end of chapter 7, shows that it is opposite in character to the preceding scheme.

But at this juncture there occurred almost automatically a kind of transfusion of the peculiar features of the two laws.

Indeed, a careful consideration of the case leads to the conclusions, that the persons who intended to take the Law of 1844 as their starting-point eventually came under the influence of the Law of 1793; while, on the other hand, the Law of 1844 could not fail to modify the standpoint of those who had intended to draw their inspiration solely from the law of 1793.

Let us examine Article 1 of the bill drawn up by the Confederation of Intellectual Workers. It reads as follows: "The authors of scientific discoveries or inventions shall, during their lifetime, enjoy the exclusive right of deriving profit therefrom." Article 2 of the same draft goes on to speak not only of scientific discoveries and inventions but of "all new applications of such discoveries and inventions".

Let us now read Article 1 of the Law of 1793 and Article 1 of the Law of 1844.

1793: "Authors of literary works of every kind, composers of music, painters and designers shall enjoy, during their whole lifetime, an exclusive right of selling, causing to be sold or distributing their works, etc."

1844: "Every new discovery or invention *(in all branches of industry)* shall confer on its author, on the conditions and for the period hereinafter stated, the exclusive right of exploiting such discovery or invention for his own advantage."

There is no need for us to point out at further length that, although the draft of the Confederation of Intellectual Workers is inspired by the text of 1793 as regards the very important and characteristic question of the period for which the rights are to be enjoyed, it presents in other respects far greater analogies with the text of 1844. In other words, if the Confederation of Intellectual Workers had been only authorised to express its views by omitting sentences or articles in already existing laws it could have attained its object more speedily by working on the law of 1884; that is to say, by suppressing in Article 1 of this law the words which we have placed in brackets, and by omitting Article 30, which we have quoted in paragraph 5. If it had taken the Law of 1793 as its basis, it would virtually have had to recast the whole text.

Moreover, although M. Barthélemy closely followed the law of 1844 in his draft, he was obliged to depart from its text, when he came to the most essential point, in order to embody a principle contained in the Law of 1793.

In Article 5 of his draft it is laid down that "scientific property, whether constituted by patent or not, shall endure during the lifetime of the author and 50 years after his decease". It should be noted that the Law of 1844 only gives protection for a maximum period of 15 years, whereas the Law of 1793, in conjunction with the Law of July 14th, 1866, concerning authors' rights, fixed the period for the whole lifetime of the author, plus a period of 50 years after his death. Moreover, not only in French legislation, but in all legislation, the varying length of the period fixed for protection is regarded not as a mere *accidens* but as an *essentiale negotii*, that is to say, a characteristic and distinctive element of the two forms of property rights — artistic and literary on the one hand and industrial on the other — and far the most important and decisive consideration.

This example is of sufficient weight to entitle us to conclude that the opinion which we advanced in paragraph 3, concerning the character of scientific property, which constitutes, so to speak, a sphere midway between the domain of artistic and literary property on the one hand, and industrial property on the other, is the expression of a profound reality, that is to say, an immutable and objective truth. The rights of the man of science will be found to be connected in all their aspects either with authors' rights or with inventors' rights. This conclusion might obviously give rise to much theoretical discussion as to the character of these three classes of rights and the category in which they should be classed, or, if the reader prefers, as to the higher right which comprises them all. But we have deliberately held aloof from the theories and contrasts of legal dogmas, wishing to confine ourselves strictly to the field of our investigation.

However, in taking our stand in every respect on the question of facts, there are clearly two courses open to us — on the one hand, legislative unification, and, on the other, separation.

But until we attain our desire namely, that the laws concerning the production of the human mind should be unified, in accordance with a higher conception, which would include their every aspect, we must revert to existing laws, and utilise principles borrowed from both schools of thought. This means that we cannot simply combine the foregoing provisions in one single text, but that we must avail ourselves, on behalf of scientific property, of the data furnished by experience in protecting industrial, and artistic, and literary property in such respects as these two forms of property most nearly approach to scientific property. The result will be a third text, which will, it is true, possess characteristics in common with the two existing texts, but will notwithstanding be independent of them both.

All the foregoing arguments apply with greater force when we come to consider national, as apart from international, legislation. We say, "with greater force" because, in the international sphere, the difficulty of unifying or even modifying existing texts increases to a formidable extent in a progression which is no longer arithmetical but geometrical.

We do not deny that sooner or later a recasting of all international texts concerning intellectual property might lead to a revision and more rational systematisation of this complex question. Such a step would be of great practical utility. Such eminent experts as M. Picord (in *Revue de Droit International* III, p. 391, et seq.) and M. Pilenko (*Das Recht der Erfinders* p. 19) have emphasised what they call the clumsy and unsatisfactory way in which patents are granted, and the need for remedying this state of affairs.

If we wish to convince ourselves of the effects which such a recasting would produce, we have only to refer to the report which a Spanish expert, who has specially studied the question, has addressed to our Committee. He sums up in this report the ideas which he has developed

in further detail in a very valuable work published by him recently (*Algunas modificaciones necesarias en la vigente ley de propriedad industrial*, Madrid 1920). The most remarkable fact is, that he attempts to draw a clear line between scientific authors' rights and the patenting of inventions, and between the patenting of inventions and the purely industrial patent, that is to say the patent taken out by a person who is not the inventor (for instance, a patent taken out by a person who imports into a country a foreign patent, a procedure recognised as recently as the Spanish Law of 1902). It may be well however to quote, for reference, the ingenious classification which he proposes:

I. Intellectual and scientific property:	Authors' rights.
II. Industrial intellectual property . .	Patents of inventions; Patents of improvements; Industrial models; Industrial designs.
III. Industrial and commercial property	Industrial patents; Factory and trade-marks; Trade names; Trade catalogues.

Unfortunately, the time for this more rational classification has not yet arrived.

Existing international conventions will therefore have to be considered as they stand and serve merely as guides, or as models invested with exceptional value as a result of many years' experience.

§ 11. THE LINES THAT SHOULD BE FOLLOWED.

How are these various models to be brought into line ? We must before all settle the exact boundaries of our field of action.

At the present time, industrial property is as, we have said, internationally protected by the Paris Convention of 1883, and the corresponding Union, to which have adhered 30 States representing roughly 700,000,000 inhabitants.

Artistic and literary property is protected by the Berne Convention of 1886, and the corresponding Union, to which 27 States, representing roughly 900,000,000 inhabitants, have adhered.

Certain States have adhered to both Unions (for instance, Austria, Belgium, France, Germany, Great Britain, Italy, the Netherlands, Spain, Switzerland, etc.); other States have adhered only to the industrial union (for instance, the United States of America); and, finally, a third group of States have adhered only to the literary union (for instance, Greece).

There are two further facts to be noted.

In South America there exist unions of lesser importance for the protection both of industrial property (for instance, the Pan-American Convention of Buenos Ayres of August 20th, 1910) and for the protection of artistic and literary property (for instance, the Pan-American Convention of Buenos Ayres of August 10th, 1910).

Moreover, unionist States, that is States which have adhered to the two European unions or at least to one of them, have concluded, as between themselves, a number of partial conventions. In most cases the sole object of these conventions has been to assure to the signatories reciprocally a more specific and immediate guarantee of both industrial and of artistic and literary property; but they have on each occasion produced unions on a smaller scale having the same objects as the two more important unions. An instance of this is the union founded under the Madrid agreement of 1891 concerning the suppression of false indications of origin, etc.

It will readily be seen that we have here a whole series of circles which are either excentric and separate (the South American Unions) or imperfectly super-imposed (European Unions), and which in every direction present points in common, as well as points which are peculiar to themselves.

Over these circles there has now been placed another, established by the League of Nations. It does not exactly unite the circles of the two European unions (for it includes neither Germany nor the United States of America), but it embraces a certain number of South-American States (Brazil, for example).

What path was the Committee of Intellectual Co-operation then to follow in the midst of this complicated labyrinth of Unions ?

The following are the suggestions it has received from the most authoritative source. With infinite ingenuity, Professor Borel, President of the Confederation of Intellectual Workers, had considered all possible solutions of this difficult problem when he wrote in his article referred to above (page 855):

"It therefore appears essential for the Committee to succeed in stating the principle of scientific property in a form which the Assembly of the League of Nations can accept and can recommend to the various nations. I will not venture to express any opinion as to whether the Committee should merely make a declaration of principle, or whether it should, on the contrary, attempt to grapple with the question more closely and persuade the Assembly to adopt an international Convention comprising articles sufficiently precise to furnish a reply to the objections raised concerning the difficulty of applying these principles. Each of the two methods possesses evident advantages and disadvantages; it is one of the principal duties of the Committee to choose between these two methods or to discover a third."

It may be said that it was not for the Committee on Intellectual Co-operation, but rather or the higher authorities of the League of Nations, to choose the path that should be followed. But unless the Committee was prepared to limit its activity to the mere expression of resolutions, and if it desired, on the contrary, to formulate concrete and practical proposals, it had to endeavour to adopt the methods and means most likely to enable it to attain its object. In other words, when confronted with the alternatives so clearly defined by M. Borel, we have unhesitatingly adhered to the second proposal. That is to say, we have attempted to draw up a draft international convention such as he desired. We will now describe the basic idea of this draft.

It appears, first of all, that one hypothesis must be entirely excluded, namely, that the League of Nations, after launching a Convention for the protection of scientific property and a corresponding union between its members, should propose to constitute at the Secretariat a bureau on the same lines as the two Bureaux, established for industrial property and for the protection of artistic and literary rights respectively, which have been shown to be indispensable for the effective working of the conventions and unions referred to above. There would be many disadvantages attendant upon a measure of this description:

(a) It would give rise to a duplication of expenditure;

(b) It would inevitably involve a conflict of jurisprudence in respect of questions which are closely connected and present points in common;

(c) It would prevent the utilisation of the long technical experience acquired by the Berne Bureaux;

(d) Lastly, it would constitute one more obstacle in the way of the desired unification of all the above-mentioned laws concerning the protection of property. In short, the League of Nations would certainly not be able to take the place of the Berne Bureaux in a work which the latter are already in a better position to carry out.

There is, however, another duty which cannot be undertaken by the Berne Bureaux, but which the League of Nations not only may, but, in view of its ideals, ought to assume, namely, the task of defending in the various countries this work of international solidarity. It will therefore be necessary to establish between these two institutions an intimate understanding and active collaboration which would inevitably be to the advantage of both. The Berne Bureaux have rightly pointed out, in a report addressed to us, how valuable would be the support of the League of Nations in assisting them to extend the scope of the two unions, as desired by the Genoa Conference. It should be noted that this declaration officially establishes a first connecting-link between these pre-war organisations and the various associations for establishing peace and union between nations.

In our opinion, therefore, the course that we should adopt is as follows:

The League of Nations should promote a Convention, and a corresponding union, for the protection of scientific property as between its members, whether the latter are already members of pre-existing unions or not. We have shown that it is not necessary for a State to participate in all the unions. The adherence to one of the Unions would naturally be the most direct path leading to adherence to the others, and would accordingly constitute a step in the direction of universality, which, as the Postal Union has shown, is no Utopian ideal.

When once the new union has been constituted, its practical working would be entrusted, under the supervision of the League of Nations, to the Berne Bureaux, on the basis of an agreement to be concluded with the Swiss Government.

Moreover, the States which have not yet adhered or been admitted to the League of Nations should not be prevented from becoming members of the new union. This provision might perhaps do more than any other to bring about that real universality of the League of Nations which we must all desire and which is, we believe, an essential condition of its future existence.

It is scarcely necessary to add that States participating in the convention for the protection of scientific property and adhering to the corresponding union would be bound in consequence to modify their internal legislation in order to make it conform to the principles laid down in the convention. In order to render this task easier for the various countries and to ensure some fundamental co-ordination, M. Borel has proposed, and the Berne Bureaux are, it seems, engaged in drafting, a standard type of law. The idea appears to us excellent, but we do not think that we need consider it for the present, as our task is already sufficiently onerous.

§ 12. DIFFICULTIES.

An international Convention is a ponderous mechanism which is by no means easy to set in motion. We would be grossly deceiving ourselves were we to imagine that the path which we have indicated was not beset with difficulties of every kind. Perhaps we shall be called dreamers. It may even be said that it was presumption on our part to undertake such an enterprise.

We may venture to recall, however, the still humbler origins of the elder sisters of the enterprise we desire to see accomplished; and particularly the origins of that Berne Convention, whose twenty-fifth anniversary of beneficent and distinguished service was so enthusiastically celebrated on the eve of the outbreak of war (see Röthlisberger, "The Twenty-fifth Anniversary of the Berne Convention of September 9th, 1886", in *Le Droit d'Auteur*, 1911, p. 116 et seq., p. 119 et seq.).

The following reminiscences of the Berne Congress of 1882 of the International Artistic and Literary Association were related to us by its secretary, M. Jules Lermina: "One morning in May 1882, three members of the Association met unpretentiously in a *trattoria* at the foot of the

Capitol. In the course of the conversation, the idea was suggested that it might not be impossible to bring about the conclusion of an international Convention recognising the rights of authors, on the lines of the existing Conventions on Coinage and on Posts. And forthwith it was decided to set to work. Who would have imagined that a diplomatic instrument of such importance could originate in a conversation in a café ... or in a *trattoria* ? But none the less, it did, for I was there when it happened." One might be tempted to think that Rome's eternal genius for jurisprudence and her incomparable talent for organisation were still immanent even in that humble *trattoria* at the foot of the Capitol. At this Rome Congress, M. Carlo del Balzo formulated the following proposal: "The Congress recommends that the Italian Government should take the initiative and enter into negotiations with the other Governments with a view to formulating a scheme for the *unification of legislation* dealing with literary property". M. Frederic Bätzmann, a Norwegian, recommended the Congress to fix Berne, "the international city *par excellence*" as the meeting-place of the Conference which it was proposed to hold for this purpose. And thus this noble task was entrusted to Switzerland. The result surpassed all expectations, and, as M. Edouard Clunet was able to state with justice. "The Convention of September 9th, 1886, constitutes one of the most important international acts of the century. In view of this unhoped-for result, its promoters perceive that the age when dreams come true has not yet passed." Which means that dreamers can sometimes render most effective aid to men of action.

The Convention was defined by M. Ulbach as "the great proclamation of union and concord in the realms of higher thought", and M. Numa Droz, who had presided at the Congress, said of it, in the remarkable speech which he made at Geneva on September 18th, 1886, that it had "created throughout the territory of the international union a right of citizenship which rendered authors the citizens of a great republic of arts and letters", and, speaking of the future, he said in conclusion: "Yes, it is because the union which we have just founded solemnly consecrates a principle of justice, and because it is a manifestation of human solidarity, that it must inevitably live and prosper".

We may venture to ask why "the great proclamation of concord and union" should not resound throughout all the realms of thought, and why the right of citizenship of the republic referred to by M. Droz should still be refused to men of science. To paraphrase his concluding words, we may say that, since the union which we desire also consecrates a principle of justice, and is also a manifestation of human solidarity, it ought to be born before it can live and prosper.

We do not deny, however, that we shall be faced with an obstacle which did not exist when the Berne Convention, and even the Paris Convention, were in process of preparation, and that this obstacle is by far the most difficult to surmount.

At that time, as M. Droz pointed out in the speech already quoted, the task to be accomplished was simply that of "taking the average of existing legislation and bringing the backward countries up to this level, without in any way obliging the others to retrograde or preventing anyone from progressing, in the direction of increased protection for the rights of authorship". In our case, on the other hand, we have to secure the acceptance by every legislation of a principle which they have hitherto excluded, either explicitly, or implicitly, or tacitly, but in every case in a very definite manner. A still greater difficulty will be to secure for the legal innovation which we propose the support of the great and complex world of magistrates and lawyers, who will naturally be inclined to seize the pretext of the smallest fault in its application to oppose us.

This danger was pointed out to us by Mr. John Wigmore, Professor of Law in the North-Western University of Chicago — a man of extensive learning and legal experience — in his memorandum, which, among other merits, has that of not confining itself to criticism but of making extremely valuable suggestions. We attach great importance to them, as will be seen immediately, in view of the necessity of disarming the prejudices and apprehensions referred to.

We will therefore endeavour, with all our strength, to clear these purely technical and practical difficulties from the path of the League of Nations, whose humble and devoted servants we are. As regards the more important difficulties, we consider that, in spite of the inadequacy of our aid, nothing can stand in the way of the great Master on whom we depend if it is His will that this work should be accomplished, a work which, we feel convinced, would mark an a epoch in the history of civilisation.

§ 13. GUIDING PRINCIPLES.

The main lines of the reform of the law as at present formulated with regard to intellectual property have been set forth with rare ability, great insight and an extraordinary wealth of well-chosen examples in the publications mentioned in this report, which were attached to the draft scheme of the Convention on Intellectual Work and to the scheme presented by M. Barthélemy. Although the authors of these publications express different opinions as to the solution of the problem, they are all in agreement when stating the terms of the problem itself. We therefore think that the two documents ought to be considered, especially in this respect, as annexes to the present report and as forming a part of our work.

I. The fundamental principle has been trenchantly expressed by M. Grignard, Member of the Institute, as follows: "It is time to break with the scandalous habit of considering scientific property as a public well from which everybody may draw at his discretion without owing anything to anyone. The genius and the work of the inventor are not natural riches open to all; they are intellectual capital, often acquired very slowly and at great cost; it is logical, it is moral that its possessor should be able to derive legitimate pecuniary advantages therefrom." One might even be surprised that a work of such evident justice has been so long delayed. Now, in the memo-

randum by Mr. Wigmore quoted above, which we are reproducing as an annex to this report, there is an extraordinarily subtle observation which might in his opinion explain the historic and well, founded origin of the legislative limitations which up to the present have prevented the protection of scientific work, but which at the same time — so at least we think — proves the altogether indefensible nature of these limitations at the present time, that is to say, in view of the present conditions and scope of scientific research. For we attach still more importance to Mr. Wigmore's observation than perhaps he himself does.

But let me quote the words of the American scientist:

"If we cast our minds back over the history of scientific discovery, it will be apparent that the greatest part of the discoveries of science up to the last generation or two have consisted in discovering principles which explained obvious facts of human life. For example, Sir Isaac Newton's discovery of the law of gravitation was a revelation of the reason why water runs down hill and why, on the other hand, smoke ascends in the air. So also, the discovery of the scientific principle of combustion was an explanation and revelation of the secret of invisible reasons for that familiar phenomenon, fire, which has been concretely known to humanity ever since Prometheus committed his primeral sacrilege against the secret knowledge of the gods. But during the last generation or two, the rapid progress of science has gone beyond the explanation of the obvious practices of human activity and is now discovering principles of far-reaching importance that, once discovered, enable us to enter upon activities which the human mind had never been able to contemplate. For example, the discovery of radium has led to a hundred practical activities never before attempted in real life. So also the discovery of the so-called Hertzian waves has led to the use of a hundred varieties of wireless apparatus of communication. Thus it will be seen that, in these new conditions of scientific discovery, the principles of science thus discovered may and do constantly lead to novel activities which never before existed, and that this is perhaps one of the most marked features of modern science. This being so, a more enlightened humanity may well succeed in abolishing the restrictions to the patents law and in securing for the discoverer of such scientific principles the right to a share in the profits accruing from the application of such principles."

We shall revert presently to this passage in Mr. Wigmore's memorandum in order to appreciate to the full the deductions which he makes from his subtle observation. On the meantime, we may ask ourselves whether it would not be desirable to try to enlighten mankind upon a question of such great importance; it would then be able to efface much more quickly from its history this crime against justice, the gravity of which is shown in an even clearer light by Mr. Wigmore's observation.

II. A scientist, then, ought to reap the fruits of his intellectual labour.

The question is, in which of two ways: whether by acquiring the right to apply and to "exploit" his discovery himself, or by obtaining a share of the profits which others might derive from his idea.

The second of these two alternatives is the more probable. In fact, a scientist is generally lacking in the qualities necessary to undertake the exploitation of his own discoveries and the opportunity to do so only rarely presents itself. This is perhaps a dispensation of providence. For many subsequent discoveries of scientific truths would be lost to humanity if these conditions were to change. But such noble disinterestedness must not be allowed to the disadvantage of the man of science. It is incumbent upon the law to protect him, almost in spite of himself, as has lately been done in the case of artists. Something like a *droit de suite* to the idea born in the brain of a scientist must be instituted for his benefit; M. Lucien Klotz was the first, it would seem, who made a proposal to this effect and who defended his proposal in several French papers. A scientist must be granted a sort of royalty (*redevance*) on the money value which his discovery is likely to acquire by means of its practical application and its industrial utilisation, within a specified period of time.

III. It is important, therefore, that the unnatural, arbitrary and un-legal distinction referred to above (§ 5) which has been established between invention and discovery should be abandoned.

It should not be possible to read an apposition of names as singular as the one found, for example, in the work of Macomber (*The Fixed Law of Patents*, Boston, 1909, p. 45): on the one hand Bell, Westinghouse, Cowles, Acheson, in regard to whom it is considered perfectly just that they should be granted a financial reward proportionate to their genius; and on the other hand Franklin, Crookes, Koch, Mendeléeff, Kelvin, who are considered to be sufficiently rewarded by the fame accorded to them throughout the world.

But, as Mr. Wigmore has pointed out to us in the observation quoted above, a distinction must nevertheless be drawn between the different categories of discoveries, since discoveries are still being made at present which only furnish a scientific explanation of facts and processes already applied in industry or economic life in general and acquired merely by experience, or by intuition, that is to say, empirically. And to prove his point, he quotes two examples which are entirely convincing.

We had thought, in speaking in Article 5 of our Draft Scheme of a royalty due to the scientist on the application which might be given to his discovery, that we had implicity excluded those discoveries which might be defined as practically sterile. But let us hasten to add that, since the article as drafted has not been sufficient to prevent Mr. Wigmore's observation, a special clause will be necessary.

It will then be understood that the authors of scientific discoveries which are, so to speak, purely retrospective or forestalled by practical experience may aspire only to one of the prizes of which we spoke in chapter 9.

IV. Furthermore, it is indispensable that all restrictions should be abolished in respect of the character of the intellectual product, whether it concerns physics, chemistry, biology or any

other science. In all these fields of science one could find only too many examples of discoveries the practical application of which could be guessed by no one at the time of their publication, and the utility of which has been suddenly revealed in a form most profitable to mankind.

An exception which is absolutely intolerable is that established by certain legislative systems (for example, the French, the Italian, etc.) with regard to medicaments, for the specious reason that in this field the interest of public health ought to prevail at any cost. This idea now appears so archaic, so devoid of foundation, that the Royal Italian Commission for the Reform of Industrial Property has unanimously proposed to abandon it.

M. Dalimier and M. Gallié have refuted this idea in an ingenious and decisive manner in their report, in which they say that: "This law unconditionally excludes therapeutists. No patents are possible for them; medicaments cannot be patented; no direct exploitation is possible; the sale of medicaments is the exclusive privilege of pharmacists. No partnership with a pharmacist is permitted; no matter in what form, such a partnership is forbidden. Nor is secrecy of invention permitted; the law prohibits secret remedies. Public health evidently has rights superior to the rights of individuals in this case. But what happens in practice ? The scientist, sacrificed to the public interest, is robbed. By means of the clever device of the trade-mark or the registered name, the industrialist, at first godfather to the invention at its christening, becomes its father and owner and exploits it for his sole benefit. The only result this law has achieved is an unjust transfer of scientific property and an iniquitous transposition of profits; and public health is neither better nor less well protected in consequence; there is only one victim in the case, and that is not public health, but the scientist."

V. As concerns the protection of the rights of scientists, we consider it essential, first of all, to lay down the postulate which M. Barthélemy has clearly stated in the following words: "The right exists without the need of any formality to call it into being. This rule is merely the application of the common right of intellectual workers. The author of a work of art, of literature, of music, is the proprietor of his work by the sole fact that it is the child of his brain. No formality, no deposit, no declaration is required of him".

Scientists not only take no steps to obtain financial advantage from their discoveries but often refuse to accept any such advantage. It seems impossible to conceive of Pasteur or Kelvin taking steps to secure a patent. It is well known in Italy that Galileo Ferraris would not listen to a suggestion of pecuniary compensation, and quite recently, when Röntgen died, it was said that he had never sought to obtain any pecuniary advantage. Any number of similar examples might be quoted. It would appear, therefore, to be our duty to protect the families of savants against their excessive altruism.

Nevertheless, it is clear that all action in this respect must be based in the main on the provisions of the law concerning author's rights, which is the law most closely connected with and most in conformity with the dignity of the scientist's work.

Two differences, however, will immediately be noticed when the work of the artist and the writer, on the one hand, is compared with that of the scientist, on the other.

The first is that the exploitation of the right of an author over artistic and literary productions cannot be subjected to limitations on the part of the community, that is to say, the author's right of exploitation cannot be claimed by third parties in certain special cases, nor can he be expropriated in favour of the State. But it is obvious that both of the above situations may arise in connection with scientific discoveries, for the community must not be deprived of advantages accruing from the latter through mere negligence or refusal on the part of the author.

The second difference is the following: the essential conditions for granting a right of ownership are, in both cases, whether the artist or the scientist is concerned, *originality* and *priority*. But the relative importance of these two conditions is not the same in both instances; in the case of scientific discoveries, priority is much the more important. Therefore every care must be taken clearly to establish this essential point.

In view of these two differences, we must have regard mainly to the regulations which are already in force in respect of inventions in order to establish the principles which should govern scientists' rights.

VI. Four means are available for establishing the priority of an idea or a discovery:

1. The mere *publication* of the idea or the discovery, provided that the date of publication can be verified beyond all doubt. Thus the purely passive attitude of the scientist would be protected, and he would only be asked to collaborate to this minimum extent in the protection of his discovery. Obviously, no protection can be afforded to a discovery which is kept secret or is only known to a small group of persons.

Every kind of publicity, provided it is genuine, should be taken into account. A characteristic example has been quoted in this connection. Devesnes, who first noted the changes in the blood of animals suffering from anthrax, and whose work rendered it possible for Pasteur to make his wonderful discovery, merely published the details of his experiments in the *Bulletin Vétérinaire d'Eure-et-Loir*. Pasteur read this article, and, with the high sense of professional honour which he always displayed, did not hesitate to state that it was the source of his own discovery. But there are many different kinds of publicity, and its varying nature must necessarily lead to different results, even from a juridical point of view. Let us consider, for instance, the case in which a dispute as to priority arises between two scientists who have made the same discovery at different dates: if the second has at the same time effected, or caused to be effected, some practical and notifiable application of his discovery, the fact that little publicity was given to the earlier discovery must necessarily diminish its author's claims.

On the other hand, the right of the first scientist would be enhanced if his discovery had been published in the most authoritative periodicals, such as technical reviews, memoranda of acade-

mies or minutes of congresses. These organisations display a noteworthy tendency to become more and more international, and this fact renders them increasingly well suited for this particular function. As in biology the function creates the organ, so the importance of the conditions of publication in determining priority rights would certainly lead to the creation of new methods of publicity for this purpose, or would cause the existing reviews, memoranda and minutes to pay special attention to scientific publicity.

2. The *perforated envelope*, such as the Soleau envelope or any other more perfected type which may be discovered. We should put our readers on their guard against an impression which we ourselves shared when this system was first explained to us. We felt that the idea was of a purely mechanical and almost childish nature, scarcely in keeping with the seriousness of the subject. This impression, however, proved incorrect, and the idea deserves careful consideration.

It should be noted that in France, by the Decrees and Regulations of May 14th, 1914, recently modified by the Regulations of June 23rd, 1921, this method, which is more reliable, practical, expeditious and economical than that of deposit, has been adopted for establishing priority in the creation of designs and models in the industries manufacturing the following articles: engravings, prints, trinkets, jewellery, gold and silver goods, bronzes, embroidery, etc. Industrial models and designs constitute, as we have seen (§ 3) — and it is well to recall it — what is claimed to be a *neutral zone* between author's rights and patents.

The difficulties created by the war and post-war conditions have hitherto proved an obstacle to the extension of this ingenious method in breadth — if one may use this expression — (*i.e.*, in international relations) and in depth (*i.e.*, not only to mere industrial designs and models, but also to the domain of science).

In any case, two highly important facts should be noted:

The first is that, since May 7th, 1915, a decree has been in existence authorising all persons concerned to send the Soleau envelope to the International Bureau in Berne; and on June 2nd, 1915, the above-mentioned Bureau in Berne issued regulations for the organisation of this new international system. The special double envelope, containing two identical copies, after being registered and perforated at the "Office National de la Propriété industrielle" in Paris, is transmitted by the latter to the Berne Bureau, which, after registering the objects and charging a very small fee to cover registration, carriage and safe-keeping, separates the two compartments of the envelope and transmits one to the sender while retaining the other in its archives for five years — a period which may be extended, if desired, for another five years. The copy kept at Berne may be forwarded to the tribunal and constitutes an indisputable proof of creation from an international point of view. It is laid down in Article 6 of the Berne International Regulations that, in the event of a dispute, the sender may request the Bureau itself to forward to him the envelope (which he will refer to by its international series number) in order that he may send it to a judicial or administrative body, which will return it, after examination, to the International Bureau in Berne. When the envelopes which are returned in this way have been received by the Berne Bureau, they are to be marked with a notification to the effect that they have been sent abroad, and they are then to be replaced in the archives until the expiration of the period of deposit.

The second fact is that undoubtedly the system of perforated envelopes is meeting with great success. It would appear that the perforated-envelope system, which is capable of progressive improvement, is likely to solve numerous problems of an industrial and commercial nature. It will make it possible to establish not only the exclusive right of the creator of the design to his own work, but also *that of the inventor to his discovery*, of the trader to his trade-mark, of the writer, the composer, the engineer, the author of any sort of creation, whatever may be the degree of achievement — and, in particular, whether it is a case of *a preliminary conception, which is maturing*, or of a *final conception, which has been completely developed and has reached the stage at which it can be applied*. The envelope is communicated sealed, and the Bureau perforates it without knowing what it contains. M. Röthlisberger, Director of the United Bureaux in Berne, even told us that he thought more than one envelope received by the Bureau must contain, not designs and models, but the description of inventions of quite another kind. This would show that inventors had attempted, even before legislation sanctioned their action, to utilise this convenient and unobtrusive method of assuring the priority of their invention.

While it is clear that the adoption of this system presupposes the active and international participation of authors, the participation will be so moderate and confidential that the natural reserve of the most disinterested scientist could never be alarmed thereby.

Finally, the perforated-envelope system, if extended to include scientific discoveries, would be the first step towards that union with the Berne Bureaux which we have declared to be necessary.

Naturally, the priority established by means of the envelope could never compete with the priority obtained by genuine publicity. We have only placed the envelope system on a higher level than that of ordinary publicity because this system calls for a more active participation on the part of the scientist. It is evident, however, that priority established by envelope could only constitute proof when opposed to priority established in the same manner, as is already the case with designs and models. In competition with genuine publicity, the envelope system could not do more than establish a purely scientific priority.

3. The *"material form"* or *"principle"* patent (*brevet de corps ou de principe*), as its proposer, M. Barthélemy, calls it, but which, we agree, with M. Galier, it would be better to call merely the *"principle" patent*, in order to avoid all confusion between the patent thus proposed and the *"material form"* patent, which is already opposed to the "procedure" patent (*brevet de procédé*).

This "principle" patent should be sought and granted in accordance with the procedure at present in force for the issue of ordinary patents.

The arguments adduced against M. Barthélemy's system, to the effect that it would still further complicate and overtax the ordinary patent system, may possibly, in our opinion, be rebutted when we have determined more precisely than M. Barthélemy has done both the relationship of the person to whom this category of patent is granted towards the holder of an ordinary scientific author's right, and the relationship of this "principle" patent, the ordinary patent. We do not think it is for us to undertake this definition, because we should be led to engage in too detailed a controversy. It is true that the first point should not offer any great difficulty, because as this author's right also has to be defined, it may be established so as not to conflict with the "principle" patent. In any case such patent could not, in our opinion, have any force in this connection other than that of a specially conclusive form of publicity. When, however, we come to consider the question of ordinary patents — which are already recognised in all legislations — it is clear that the question becomes far more complicated. We should indeed have to distinguish between the various categories of patents which are already recognised, since one law recognises only one variety, while another law recognises two, three or even four. Again, we should have to consider the question of the period of exploitation, which is not universally countenanced. We should, finally, have to consider whether a preliminary investigation should or should not be required before the granting of the patent, what the scope of this investigation should be, etc. However, we do not think that these difficulties are insuperable. There already exists in several countries a system somewhat resembling that of the "principle" patent, which it is proposed to establish. Instances in point are the *precautionary patent*, established by the Argentine law of 1864 and the Bolivian law of 1916, and again the *provisional patent* or *caveat*, recognised by Canadian legislation, which is granted to a person who intends to apply for a patent but who has not yet perfected his invention and fears that he may lose his right of priority.

4. Finally, the *ordinary patent*. We may note that the scope of a patent of this kind will be extended in two directions, that is to say: (*a*) when biological or pharmaceutical products have been recognised as capable of being patented, without the former limitations; and (*b*) when the protection accorded to pure discovery inevitably leads to a diminution of the severity hitherto exercised in examining the character of a patentable invention.

All these methods cannot be said to cause overlapping, but rather to constitute an ascending scale towards a more explicit and material crystallisation of the idea of priority in discovery, each of them being adapted both to the diversity of the inventions and to the diversity of their authors' characters, the latter being free to make their own choice between ordinary publication, special publication, the perforated envelope system, the "principle" patent, and the patent established by the ordinary law.

VII. The right of the scientist, since it is assimilated to that of the artist or the man of letters, ought to have a duration analogous to that established in the case of authors' rights, that is to say, the life of the author, plus 50 years after his death, in accordance with the general law of the international convention in force.

Nevertheless, since discoveries were involved from which society as a whole might derive an immediate and concrete benefit, it was necessary to invoke a principle different from that governing artistic and literary creations, for which the question does not arise. In other words, the author is not refused the monopoly of the exploitation of his discovery in order to be granted simply a part of the profits derived from such exploitation by others, except, of course, if the author succeeds in obtaining an ordinary patent and is thus able to take advantage of the general law. In this case, he retains the advantages derived from the longer time-limit fixed for authors' rights.

Nothing, indeed, prevents the continuance of the original right, once the patent has ceased to be valid. The proposition set forth below, and formulated by M. Lucien Klotz (*La Propriété Industrielle*, 1923, page 82), seems to us very reasonable; moreover, an assembly of noted scientists has put forward the recommendation "that when a patent has become invalid from any cause whatsoever, the inventor should have a *droit de suite* (continued rights) to his invention for a period of time to be determined". This period can be none other than that fixed in general for the duration of scientific authors' rights.

VIII. Questions arising between nationals of the same State with regard to the priority of a discovery, or with regard to the amount of royalty to be paid to the author of the discovery by the person exploiting it, will, of course, be decided in accordance with the laws of the State to which the two parties belong.

But the situation assumes a particularly delicate aspect when a question of this nature arises between nationals of different States. The rule that the nationals of one of the countries members of the Union shall enjoy, in any of the other countries members of the Union, the same rights as the citizens of the country in question does not completely meet the needs of the cases with which we are concerned, even if it may be considered adequate in cases of a different nature. It has been demonstrated that in no other field is national pride more excitable, more prone to take offence and more unjust. It is fatally unjust and one may even say that it is unjust in perfect good faith. Has not the credit for the greatest discoveries often been claimed by several nations at the same time ?

The much-desired establishment of an international jurisdiction to decide questions of this nature is still too problematical and, in any case, too remote, in spite of the ardent wishes which have recently been expressed in favour of this new means of instituting the reign of justice among the nations (see § 8).

The establishment of obligatory arbitration, presenting sure guarantees of competence and objectivity, seems to be for the moment the most effective solution of the problem. In order to establish such arbitration, it seems reasonable to appeal to the aid of professional representatives, who are themselves assuming to an increasing extent an international character — a

character which would inevitably be developed in consequence of this delicate task having been entrusted to them.

Moreover, the necessity of enlarging more and more the field of arbitration in international relations is felt in regard to other matters, as is proved by the following example, which seems to us extremely significant.

Towards the end of last year, the Economic Committee of the League of Nations appointed a committee, composed of legal and commercial experts, to study the question of international arbitration in matters relating to commercial contracts. This committee produced the same result as ours, that is to say, a draft convention, which it presented to the Economic Committee and which that Committee approved in one of its recent sessions, deciding to submit the draft to the States Members of the League of Nations. The most characteristic provisions of this draft convention, dated May 24th, 1923, are as follows:

> "The validity of an agreement to submit an existing difference to arbitration, or of an agreement in respect of future differences relating to commercial matters or to any other matter capable of settlement by arbitration, by which the parties agree to submit to arbitration all or any differences which may arise in connection with a contract, is recognised as between persons subject to the jurisdiction of different Contracting Parties, even if the arbitration is to take place in a country to whose jurisdiction none of the parties is subject.
>
> "The arbitral procedure will be governed by the provisions of the contract and by the law of the country in whose territory the arbitration takes place. The Contracting Parties agree to facilitate all steps in the procedure which require to be taken in their own territories in accordance with the provisions of their law governing arbitral procedure applicable to existing differences.
>
> "Each Contracting Party undertakes that arbitral awards made in its own territory under the preceding articles shall be enforced by its authorities in accordance with the provisions of its national laws."

It goes without saying that the provisions quoted above only provide for the recognition by the various States of arbitral procedure, and for investing it with international juridical efficacy, in cases where the parties have already contracted to accept it. In our case, on the other hand, the idea would be to impose arbitration upon the parties at the request of one of them alone. We do not consider, however, that this difference, which arises from the very different character of the juridical relations to be regulated, and not from a different conception of the institution of arbitration and of its possible application in the international field, should prevent us from regarding the precedent created by the Economic Committee as a step forward in the same direction in which we are going.

IX. It would not seem that the important and complex problem of factory inventions can, at present, form the subject of an international convention. It is sufficient to read the exhaustive study published in the review entitled *La Propriété Industrielle* (1922, pp. 23-31) in order to realise the importance and difficulty of the question, as well as the great disparity in the legislative systems, legal decisions and doctrinal opinions invoked in connection therewith, and also to understand that an attempt at unification by means of international agreements would be altogether premature; all the more so because such unification could not be effected without, at the same time, modifying the national laws and the international conventions concerning patents — a task which would exceed the scope of the work which we have undertaken.

All that one can say then is that the protection granted to pure discoveries, that is to say, the creation of a copyright for the benefit of the scientist, would necessarily contribute to the recognition of the inventors' rights of the employee or the wage-earner as regards the granting of patents, The personality of the employee, at present absorbed and almost effaced in favour of the institution, cannot fail to be brought again indirectly to the fore as a result of this new and resolute appreciation of the personality of the inventor and of individual thought.

X. The other provisions of the draft convention explain themselves. In drawing them up, the rapporteur has followed as closely as he thought possible the conventions already in force for the protection of authors' rights and of patents.

He has, however, inserted in these conventions such provisions of the two French drafts as were susceptible of insertion, often transcribing them literally. He has done so primarily because these provisions, which are the result of proposals and exhaustive discussions on the part of competent persons and organisations, represent the desiderata of those concerned, whose opinions deserve the greatest consideration, especially in such a matter as this.

Furthermore, the rapporteur has profited largely by the valuable proposals which he has received and the corrections which have been suggested to him, especially by Senator Lafontaine, Professor Wigmore, Professor Hudson, a member of the Legal Section of the Secretariat of the League of Nations, and the directors of the Bureaux at Berne, all of whom he begs to accept his most sincere thanks.

§ 14. — DRAFT CONVENTION.

Article 1. — The Contracting Parties shall constitute a Union for the protection of the rights of authors to their scientific discoveries or inventions.

Article 2. — The authors of scientific discoveries or inventions shall enjoy the exclusive right of deriving profit from their discoveries or inventions.

Article 3. — The purpose of the present Convention is to protect discoveries, that is to say, expositions and demonstrations of the existence, previously unknown, of laws, principles, bodies, agents or properties of living beings or of matter, and inventions, that is to say, creations of the mind (consisting of methods, appliances, products, the composition of products previously unknown, and, in general, all new applications of discoveries and inventions), the specifically scientific character of which deprives them of the protection granted to works of industry, art and literature.

Article 4. — The duration of the protection granted by the present Convention shall consist of the lifetime of the author and 50 years after his death.

Article 5. — The authors of the discoveries and inventions described in Articles 2 and 3 of the present Convention may not put obstacles in the way of the industrial or commercial exploitation of the new applications of their discoveries and inventions, but they shall preserve authors' rights in respect of the economic adavantages of such exploitation.

Consequently, they shall have the right to exact a royalty on a scale to be determined by agreement between the parties or in default thereof by the tribunal.

This right shall only accrue to authors if the industrial or commercial applications in question are the result of their discoveries or inventions, and consequently not if their discoveries or inventions, only give a scientific demonstration of a result or of a process already known, that is to say, already applied beforehand in industry or commerce.

Article 6. — Each of the Contracting States may classify a discovery or an invention as being necessary to the public interest and may determine the conditions according to which the right of the inventor shall be fixed.

This right of each State only extends to the discoveries and inventions of its nationals, except in cases where the States adhering to the Union agree to extend the exercise of this right to all the territories of the Union.

The author of a discovery or an invention shall be required to grant the requisite licenses for ensuring the necessary supply for public use, the different manufacturers or exploiters being bound to reserve to him authors' rights in accordance with Article 5 of the present Convention.

Article 7. — In order to establish his claim to these rights, the author of the discovery or the invention must furnish proof that the discovery or invention in question has received sufficient publicity.

Publication of the discovery or invention in the technical reviews, in acts of congresses or in academic memoranda shall be deemed sufficient publicity.

Article 8. — The author of a discovery or invention may establish the object and the priority of his discovery or of his invention by sending to the International Bureau at Berne a perforated envelope of the "Soleau" type, according to the procedure established in 1915 for industrial models and designs.

Article 9. — The author of a discovery or invention may obtain recognition of his rights by means of a "principle" patent, granted on the conditions laid down by the Conventions in force concerning "application" patents.

The duration of the right derived from the grant of a "principle" patent *(brevet de principe)* shall be the same as that laid down in Article 4 of the present Convention.

Article 10. — The authors of therapeutical discoveries or inventions shall be entitled to the benefits of the present Convention.

Article 11. — On the expiration, from any cause whatsoever, of a patent the object of which is to apply a scientific discovery or invention, the author of this invention and the holder of the patent in question shall continue to possess a continuous right *(droit de suite)* in conformity with the provisions of articles 4, 5 and 6 of the present Convention.

Article 12. — Questions concerning the priority of a discovery or an invention and questions concerning the amount to be paid to the author when his discovery or invention is exploited industrially, shall be settled by the Courts of the State concerned in cases in which such questions arise between nationals of the same State.

These tribunals shall, so far as the internal legislation of each country permits, utilise the services of experts belonging preferably to academic bodies and competent technical associations.

Article 13. — The subjects or citizens of each of the contracting States shall enjoy in all other States of the Union rights similar to those which are granted, or may in the future be granted, to the nationals of these States under their respective laws.

Article 14. — Nevertheless, each of the parties shall have the right to resort to arbitration by experts belonging preferably to academic bodies or competent technical associations.

Each of the parties shall appoint one or two arbitrators; the latter shall in turn appoint a referee.

In cases in which the parties are nationals of different States, they shall appoint two arbitrators, one of whom shall be a national of some State other than their own. The referee must be a national of a State other than the States of which the parties are nationals.

Article 15. — The seat of the Arbitration Tribunal shall, failing any agreement between the parties to the contrary, be the seat of the United International Bureaux for Industrial, Literary and Artistic Property at Berne.

The fees and allowances granted to arbitrators shall be the same as those granted to members of the Committees of the League of Nations.

The Arbitration Tribunal shall decide who is to pay the costs of arbitration proceedings and how such costs are to be allocated.

Article 16. — The arbitration procedure must be regulated in accordance with the law of the country within whose territory arbitration takes place. The contracting countries undertake

to facilitate all acts of procedure to be carried out in their territory, in conformity with the provisions of their own legislation regarding arbitration procedure.

Article 17. — The contracting countries undertake that the arbitration awards given within their own territory or within the territory of one of the high Contracting Parties in virtue of the preceding articles shall be executed by their authorities in conformity with the provisions of their own legislation.

Article 18. — Authors of discoveries and inventions may be represented, in their relations with exploiters, by a technical association which will act for them and on their behalf and will supervise sales and the collection of charges.

Article 19. — Any disputes which may arise concerning the interpretation of application of the present Convention shall be referred, if no direct agreement can be reached between the parties concerned, to the Permanent Court of International Justice, and the High Contracting Parties undertake to accept the jurisdiction of the Court for the settlement of such disputes.

Article 20. — Each contracting State may request the convening of a conference for the revision of the present Convention. The first conference shall take place at ..... and shall decide at which place the next meeting shall be held. The Secretariat of the League of Nations shall, in co-operation with the Berne International Bureaux, prepare the work of the conferences. The managing body of the International Bureaux shall be represented at the meetings of the conferences and its representative or representatives shall take part in the discussions, though they shall not be entitled to vote.

Article 21. — Countries which are not parties to the present Convention, but which within their territory afford legal protection to the rights with which the present Convention deals, shall be permitted to adhere to it if they so request.

Such adherence shall be notified in writing to the League of Nations, registered by the Secretariat of the League and communicated by the Secretary-General to all the other States concerned.

Such adherence shall *ipso facto* entail adherence to all the clauses and participation in all the advantages of the present Convention.

Article 22. — All countries adhering to the present Convention shall undertake to apply its provisions to their colonies, possessions and protectorates.

Article 23. — The United Bureaux at Berne shall collect information of every kind concerning the protection of scientific property. They shall conduct investigations in all matters of general interest to the Union and shall publish the results in one of the periodical bulletins issued by them until such time as a decision is taken to establish a special periodical for scientific property.

Should the duties provided for in the preceding paragraph involve the Berne International Bureaux in additional expenditure, such expenditure shall be allocated between the signatory States, in accordance with the rules laid down in paragraphs 7, 8 and 9 of Article 13 of the International Convention for the Protection of Industrial Property (Paris Convention of March 20th, 1883, revised at Washington on June 2nd, 1911).

Annex.

SCIENTIFIC COPYRIGHT.

Memorandum

dated August 2nd, 1923, by Mr. John H. Wigmore, *for reference to the Sub-Committee,*

1. The object of the proposal of M. Ruffini and his colleagues on the Sub-Committee is one which should enlist the support of all friends of progress. The failure of the scientific man of genius to obtain from the world any material recognition of the share due to him out of the profits which the world has made from his discoveries is a shortcoming in the law which ought, if possible, to be remedied.

The question is how to express the new limits which are to be enlarged in the law of patent and copyright ?

It is respectfully submitted that the Draft Convention proposed in the Sub-Committee's report ought to receive further scrutiny in the following ways, before being offered to the Council for final approval and submission to the respective Governments for acceptance:

(*a*) In respect to the phraseology of the definition in Article 3.

(*b*) In respect to the general policy of ascertaining the support of public opinion.

These two considerations will be briefly explained in sequence.

2. Referring to the definition in Article 3, it will be seen to grant added protection to discoveries of scientific principles or laws, etc.

To appreciate the significance of this, we must call to mind the existing limitations of the law of patents *brevets d'invention* in the United States Patent Act, which has existed for nearly 150 years and under which more than one million inventions have been patented, thus demonstrating this law to have been one of the most favourable to encouragement of industrial invention. The patent right is accorded to anyone "who has invented or discovered any new and useful

art, machine, manufacture or composition of matter". The essential words here are the concluding words composition of matter". It is obvious that the discovery of an abstract principle or law of science will thereby be excluded from the grant of a patent. And such has been the invariable interpretation of the Courts of the United States for a century and a half. For example, when, about 1840, a medical scientist discovered that the substance ether when inspired into the human body affected the nerves so as to produce callousness to pain externally caused, the discoverer sought to patent the discovery, but his claim was rejected on the ground that his discovery concerned an abstract principle of science, and that it was not an application of such a principle embodied in a tangible "composition of matter." Similarly, when the litigation took place over the invention of the telephone and Mr. Bell claimed a patent for any method of reproducing intelligible vocal sounds by placing two metal discs in contact with an electric current, the opponents of this claim argued that the discovery was of the rank of a principle of science and that Mr. Bell was not entitled to a patent; but the Supreme Court of the United States, in a learned opinion, covering 600 pages in length, rejected this objection and decided that Mr. Bell's invention was something more than a principle of science and was indeed a concrete application of a principle in the form of a "composition of matter".

Nevertheless, it will be thought that this rejection by the Anglo-American law of a right of patent for a principle of science is an unworthy limitation. However, a few moments of reflection will explain the historical origin and reasonableness of this limitation.

If we cast our minds back over the history of scientific discovery, it will be apparent that the greatest part of the discoveries of science up to the last generation or two have consisted in discovering principles which explained obvious facts of human life. For example, Sir Isaac Newton's discovery of the law of gravitation was a revelation of the reason why water runs downhill and why, on the other hand, smoke ascends in the air. So also the discovery of the scientific principle of combustion was an explanation and revelation of the secret and invisible reasons for that phenomenon of fire which has been concretely known to humanity ever since Prometheus committed his primitive sacrilege against the secret knowledge of the gods. But during the last generation or two the rapid progress of science has gone beyond the explanation of the obvious practices of human activity, and is now discovering principles of profound import that, when discovered, enable us to enter upon activities which the human mind had never been able to contemplate. For example, the discovery of radium has led to a hundred practical activities never before attempted in concrete life. So also the discovery of the so-called Hertzian waves has led to a hundred varieties of the use of wireless apparatus of communication.

Therefore it can well be seen that, in these new conditions of scientific discovery, the principles of science thus discovered may and do constantly lead to novel activities which never before existed, and that this is perhaps one of the most marked features of modern science. This being so, it may well commend itself to enlightened humanity to decrease the boundaries of the patent right and to sanction for the discoverer of such scientific principles a right to the share in the profits of the applications which arise from his principle.

Let us assume for the moment that this novel explanation of right would be accepted by professional and public opinion. But even so it must be pointed out that the field of discovery for scientific principles is still much larger, and that undoubtedly science will continue to make, more and more, profound discoveries of principle, which, like the old science, will do nothing more than explain the reasons for human activities that have been long practised. Therefore it is positively essential to mark the distinction between these two kinds of discoveries, while granting the new extension of rights.

For example, suppose that the practice of breeders of hogs, as known for the last 50 years, that the best weight in a hog for the market is obtained by the crossing of a Belfort hog with a Dedham hog under certain circumstances (these names are assumed as illustrations only), and then suppose that a biologist discovers and announces as a law of science some new quasi-Mendelian law that whenever two species have been separated by at least three generations of life and are brought together at rigid intervals of three generations over a triple series of generations, the product represents in arithmetical ratio the qualities of the original two species combined, and suppose that this discovery of science reveals completely the reason for the success of crossing the Belfort and Dedham species: is it to be supposed for one moment that all the breeders of hogs of the world must thereafter pay a royalty to the discoverer of this scientific principle which they have ignorantly been employing empirically for 50 years past ? Or suppose again, with reference to the Bessemer steel process of purifying steel of sulphur by the application of a current of air. Suppose that a scientist now discovers that the vibrating electrons of certain gases and minerals have a rhythmic rotation so that when a gas and a mineral are approximated at intervals of not more than one-thousandth of a second and not less than one ten-thousandth of a second, the vibrations of the electrons become synchronated and the atoms of the gas and the mineral associate themselves forcibly and depart from any other connections — suppose that this discovery completely reveals, in a more profound and accurate manner than all previous science had done, the reason for the success of the Bessemer steel process, would it not be intolerable to propose that the steel-mills of the world should pay a royalty to the discoverer of the principle which they had been practically employing in a concrete form of a "composition of matter" for the past 50 years ?

It must be obvious therefore that, even if we are ready to concede to scientists the right to a share of the profits for some of their discoveries, a sure line must be drawn between those discoveries which lead to novel applications based exclusively on the discoveries, and those discoveries which merely explain practices already existing in industry generally.

A reference at this point to the definition of the new right in Article 3 of the proposed Convention will show that no attempt has been made in that article to draw such a line. It is respectfully

submitted, therefore, that the definition in Article 3 ought to be more fully considered by experts in patent law before the Convention is presented to the Council for adoption.

3. The second consideration is that of practical policy, above alluded to, which should consider the natural caution which will be found to obtain in all professional opinion whenever a radical novelty is proposed. In other words, if a proposal is made to the professional men of all countries, and particularly to the judges and practitioners of the patent law, to extend recognition to discoveries of principles of science, it may be assumed as certain that they will at first reject the proposal, particularly because of the radical novelty of it, and particularly because of hesitation at the consequence of a too broad extension beyond the present law as pointed out in the above paragraph. It may also be assumed that, if the admirable report of the Sub-Committee of which M. Ruffini is Chairman could be fully brought to the attention of such professional men, and if they could peruse the powerful reasoning therein contained, their hesitation would be overcome with respect to the moral justice of according the new right to the scientific discoverer. But they would still most certainly be obliged to reject the proposal in its present form because of its failure to draw the important distinction above explained, and because they would foresee, by reason of its present phraseology, an extraordinary interference with the course of industrial activities of the world.

Therefore on this ground also it seems highly desirable to placate in advance these scrupules of the professional men of all countries. It is certain that, without a measure of their support, no Government would be willing to sign this Convention. Whenever it arrives in the hands of a Government it will be submitted to the appropriate law officers, who will naturally share the hesitation above described, and whose advice will be contrary to acceptance of the Convention. This will be unfortunate, in the first place because it will subject the work of the League to an apparent discredit in offering an unacceptable proposal. It would also be needless, because, if the report of the Sub-Committee, with its exposition of motives, could have been submitted to such official experts of all countries before the submission of the final Convention, it would have prepared their minds, and perhaps obviated their objections.

Therefore the present proposal is respectfully submitted to the Sub-Committee in the shape of a motion:

> "Moved that the report of the Sub-Committee be placed on the agenda for the next annual session, 1924, of the Plenary Committee on Intellectual Co-operation, and that in the meantime the Secretariat be requested to submit the report in translation to private bodies, professional and official, in at least ten different nations, and to invite the expression of their expert views as to the definitions of the terms 'discoveries' and 'inventions', contained in Article 3 of the proposed Convention; so as to inform this Committee:
>
> "(1) First, how far these definitions are deemed to enlarge the present rights of scientific authors and inventors;
>
> "(2) Secondly, whether any different definitions would more suitably attain the proposed enlargement of rights; and,
>
> "(3) Thirdly, whether such enlargement would receive approval in principle, by the professional opinion in the respective nations."

It is regretted that the writer is prevented by circumstances from attending in person the meeting of the Sub-Committee, and this memorandum is submitted in lieu of personal attendance.

TABLE OF CONTENTS.

First Part — Critical Survey.

Second Part — Proposals.