fraternity, including both the Bench and the Bar, in the sciences of medicine, pharmacy and chemistry and the arts or technical applications of the same.

Take the Adrenalin Case for example. The Court frankly confessed itself incompetent to pass a correct judgment, but as the law provided no way whereby the Court could call on expert advice, it was forced to do the best it could.

Unquestionably, when the issues of a patent case bear upon technical or scientific knowledge and judgment, as do many patent cases, the law should provide a method, both for legal and administrative work, whereby a technical expert or referee or board of referees, could be called upon to examine the evidence and report findings of facts, at the expense of the Federal Government. The Government employs lawyers to pass upon technical questions of law; why should it not employ technical referees to assist the court to pass judgment upon questions beyond the ability of court and jury to properly understand?

If this were done, the technical and scientific defects of patent legislation would be disclosed and remedial measures could be readily adopted.

A DISCUSSION OF THE PAIGE BILL, RELATING TO A PROPOSED REVISION OF THE PATENT LAW.*

BY F. E. STEWART.

In the House of Representatives, February 21, 1916, Mr. Paige of Massachusetts introduced a bill for the revision of the patent law, which was referred to the Committee on Patents and ordered to be printed. This bill is known as H. R. 11967. It is a bill to amend Sections 4886 and 4887 of the Revised Statutes relating to patents. It provides:

(1) That no patent shall be granted on any application filed subsequent to the passage of this act upon any drug, medicine, medicinal chemical, coal-tar dyes or colors, or the dyes obtained from alizarin, anthracene, carbazol, and indigo, except insofar as the same relates to a definite process for the preparation of said drug, medicine, medicinal chemical, coal-tar dyes or colors, or dyes obtained from alizarin, anthracene, carbazol, and indigo.

(2) That in case any drug, medicine, medicinal chemical, coal-tar dyes or colors or dyes obtained from alizarin, anthracene, carbazol, and indigo, on which a patent for a definite process for the preparation thereof has been granted on any application filed subsequent to the passage of this Act is not manufactured in the United States by or under authority of the patentee within two years of the granting of said patent, and after the commencement of said manufacture the same is not continuously carried on in the United States in such a manner that any persons desiring to use the article may obtain it from a manufacturing establishment in the United States as against any citizen of the United States who may import such drug, medicine, medicinal chemical, coal-tar dyes or colors, or dyes obtained from alizarin, anthracene, carbazol, and indigo into the United States, or who may produce or manufacture the same in the United States or who may handle for sale or use such article so imported or manufactured.

Now what do these provisions mean in common language?

Briefly, they mean that if the bill is passed, no patents can be granted in the future for the kinds of chemical products mentioned in the bill, but patents for processes for producing the same may be granted, and that the patentee of a new process for manufacturing any one of the said kinds of chemicals, shall manufacture

* Read before the Philadelphia Branch, A. Ph. A., January 17, 1917.

and produce the same in the United States within two years after the patent has been granted or forfeit the right to prevent others from importing or manufacturing for sale in this country, said products when made by the patented process.

Do we want to endorse this bill?

To answer this question it is necessary to consider the question of copyright or the right to copy writings and inventions, first as to the right itself and secondly as to the present laws relating to the patenting of inventions.

The question of copyright, which includes that of patent, is one of the most important subjects relating to man in the control of a civil government. The arguments for and against copyright were fought out in the so-called "Copyright War," which occurred in England about a century ago. The position taken by Lord Camden in opposition to copyright so well expresses the position of scientists generally in relation to patents that it is worthy of consideration at this time. In his speech Lord Camden said:

> Glory is the reward of science, and those who deserve it scorn all meaner views. I speak not of the scribblers for bread, who tease the press with their wretched productions. Fourteen years are too long a period for their perishable trash. It was not for gain that Bacon, Newton, Milton, and Locke instructed and delighted the world. When the bookseller offered Milton five pounds for his Paradise Lost, he did not reject it and commit his poem to the flames, nor did he accept the miserable pittance as the reward of his labor; he knew that the real price of his work was immortality and that posterity would pay it.

The position of his opponents is well illustrated by the following quotation from Terril in his treatise on patent laws:

> The theory upon which these laws rest is that it is to the interest of the community that persons should be induced to devote their time, energies, and resources to original investigation for the furtherance of science, the arts, and manufactures. This was recognized from the earliest periods which can pretend to be described as civilized. It is to the advantage of the whole community that authors and inventors should be rewarded, and no measure of reward can be conceived more just and equitable and bearing a closer relation to the benefit conferred by the particular individual than to grant him the sole right to his writing or discovery for a limited period of time.

In spite of Lord Camden and his brilliant speech, copyright legislation was successfully introduced in England, and I doubt whether the glory of Bacon, Newton, Milton and Locke would have been dimmed in the least if they had copyrighted their books and made arrangements with publishers for a share of the profits from their sales. And, in spite of the opposition of the medical profession, the patenting of materia medica inventions will probably continue, and it is possible that the time will come when physicians will consider the patenting of inventions just as ethical as the copyrighting of books.

What I have to say, therefore, is not intended as a protest against the application of copyright and patent laws to medicinal drugs and chemicals. I believe that if the copyright and patent laws were properly interpreted and applied to medical science and practice and to the arts of chemistry, pharmacy and drug therapeutics, they are capable of promoting progress in the sciences of medicine and chemistry and in the arts referred to. In fact, I go so far as to say that the laws, as they now exist, if properly applied would be adequate to secure this object.

Section forty-eight hundred and eighty-six of the present patent law provides that "Any person who has invented or discovered any new and useful art, machine, manufacture or composition of matter, or any new or useful improvement thereof, not known or used by others in this country before his invention or discovery there-

of, and not patented or described in any printed publication in this or any foreign country before his invention or discovery thereof, or more than two years prior to his application, and not in public use or sale in this country for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law and other due proceedings had, obtain a patent therefor."

The patent law also provides that the application for patent shall be so worded as to be perfectly intelligible to those who are engaged in the practice of the art or arts to which the patent belongs or most nearly appertains, so as to permit all such persons to freely manufacture and deal in the article after the patent expires and to readily do so in accordance with the directions for so doing contained in the application for patent.

I have said that the object of the patent law is to promote progress in science and useful arts. You will find by referring to the United States Constitution, Article I, Section VIII, Paragraph 8, that Congress is given the power to promote progress in science and useful arts by granting to authors and inventors for limited times, the exclusive right to their respective writings and discoveries.

A patent is a *grant* on the part of the Government representing the public at large, bestowed upon the inventor of a new and useful invention in exchange for the publication of his invention in such clear and precise language as to permit any person skilled in the art to use this knowledge in a legitimate manner, namely, for his own enlightenment as to the nature of the grant at the time the grant is given, and to permit him to manufacture and sell the same article on equal terms with the inventor when the patent expires.

A patent is a *contract* by and between the inventor and the Government, by the terms of which the Government provides the inventor with the machinery of the courts, by means of which he is permitted to protect his right to the exclusive use of the invention and in exchange for the same the inventor divulges the knowledge of his invention for the benefit of science at the time the grant is given, and relinquishes all claims to proprietary rights in the invention when the patent expires.

As already stated, the Paige Bill is intended to limit the patenting of certain chemicals mentioned in the bill to processes for their manufacture, leaving the products themselves open to competition so that others may be stimulated to invent new processes whereby said chemicals may be produced of a better quality or at a lower price during the lifetime of the patent. In other words, no monopoly of the products themselves is permitted, the only monopoly being processes governed by patents.

Is it wise to limit the patenting of this class of chemicals to processes only?

Let us consider what course other countries have pursued in relation to product patents in this connection.

Medicines are excluded from patent protection in Germany, France, Austria-Hungary, Italy, Japan, Denmark, Norway, Sweden, Portugal, Russia, and a number of other countries.

Other classes of inventions excluded from patent protection in many countries as well as in Germany are foods, chemical products, and inventions relating to war material.

In all of these countries exclusion from protection of inventions relating to medicines or foods does not generally extend to those relating to processes or apparatus for their manufacture. In all foreign countries which exclude chemical products from protection, except Switzerland, inventions relating to chemical processes may be patented, and in nearly all such countries it is expressly provided by law that a patent for a chemical process by which a new chemical product is made shall in effect cover such product, unless it be shown that such product was made in fact by some other process. In other words, when a new product is discovered, and a process of manufacture is patented, no person is permitted to compete with the original patentee unless he is able to show that the process he is to employ for that purpose is not an infringement upon the patented process.

The German patent law excepts from patent protection: (1) inventions the application of which is contrary to the laws or public morals; (2) inventions relating to articles of foods, whether for nourishment or for enjoyment, and medicines, as also substances prepared by chemical processes insofar as the inventions do not relate to a definite process for the preparation thereof.

Patents are granted, however, for processes and apparatus for manufacture, and Section 35 provides a method for protecting inventors of processes for the production of new substances in the following manner: "If the invention relates to a process for the production of a new substance, all substances of like nature are considered as having been made by the patented process until proof to the contrary is given."

It will be noted that if the Paige Bill passes in its present form, the protection afforded to inventors of processes for the production of new substances will be denied to the inventor of the process. Let us briefly consider the subject from this point of view.

Take Ehrlich's invention for a process for manufacturing dioxydiamidoarsenobenzol, also known as "606" and salvarsan.

We are told that Ehrlich made an arrangement with the German chemical house of Meister, Lucius & Brüning whereby said house furnished him with the money necessary to carry on the "606" experiments which resulted in his discovery of dioxydiamidoarsenobenzol, with the understanding that if a product were obtained of sufficient value to warrant its commercial introduction it was to be patented and the patent controlled by the commercial house mentioned.

It is evident that this arrangement was made in the light of the German patent law, which excepted from patent protection the new substance dioxydiamidoarsenobenzol and all substances of like nature and that the patent was limited to a process for preparing said product, leaving the product open to competition so that any other person was at liberty and is now at liberty in Germany, to manufacture the product by any other except the patented process, provided the same is not an infringement upon the patented process.

When it is considered that "606" experiments were required before Ehrlich was able to discover a process by which dioxydiamidoarsenobenzol could be produced in a satisfactory manner, the reward given to him by his government in exchange for publishing his process, was certainly not excessive. An industry was established in Germany for the production of this product by the patented process which has yielded the inventor and the house acting as his agents, several

millions of dollars and has afforded employment for a large number of persons. Furthermore, the substance itself, known as salvarsan, has proved to be a new and useful invention. Thus it is evident that the granting of the patent to Ehrlich by the German government for a process by which this valuable substance has been produced in the manner aforesaid, has resulted in promoting progress in the science of medical chemistry and in the useful arts of medicine and pharmacy.

Now let us consider what has been done with this same chemical product in the United States.

Under the United States patent law no class of useful invention is excluded from protection. Any person who has discovered a new product to be used either as food or as a medicine may patent the same, and thereby acquire a monopoly of its production for a period of seventeen years. Foreign manufacturers take advantage of the United States patent law and patent their products in the United States. The monopoly thus acquired enables them to obtain a high price for their patented products during the life of the monopoly. The profit thus secured is not used for the benefit of American industries, but is applied to building up the industries of foreign countries at the expense of the American people.

This is well illustrated in the case under consideration. Salvarsan was patented in the United States before its commercial introduction into this country and I understand from good authority that fifty patents have been granted to the original patentee or his assigns, for the purpose of continuing the monopoly after the original patent expires, so that at the end of the seventeen years the original manufacturers will still be able to continue their monopoly. Furthermore, the name "salvarsan" has been registered as a trademark so that when the original patent expires the manufacturers will be able to continue their monopoly by means of product patent, process patent and trademark registration, indefinitely. By this means a German house is permitted to build up a great industry at the expense of the United States.

When this instance is multiplied by many instances of a similar kind in which product patents have been granted by the United States to foreign manufacturers without insisting that the manufacture of such products shall be carried on in this country, it becomes evident that our patent law as thus interpreted and applied does not promote progress in the arts of chemistry, pharmacy and drug therapeutics as carried on in the United States In fact, it is a very serious hindrance both to science and to the arts referred to. It hinders science because it does not stimulate original research on the part of would-be inventors in this country. Neither does it build up United States industries.

The Paige Bill seeks to remedy this serious objection to our patent law by making it necessary for foreign patentees to manufacture their products in this country within two years after the patents have been granted.

A commission was appointed under act of Congress, approved June 4, 1898, to "revise the statutes relating to patents, trade and other marks, and trade and commercial names." It was urged before this commission, both at its hearings and in written communications read before it, that the United States patent law should be amended to exclude from patent protection both medicines and chemical products generally, at least insofar as such inventions are the inventions of subjects or citizens of the foreign countries which exclude this class of inventions from

patent protection, and it was contended then, and has been the contention ever since, that subjects or citizens of foreign countries should not be allowed to receive in this country patents for inventions which are not patentable in their own country.

Thus far the German manufacturing houses have been able to defeat this very desirable legislation. It has been argued that certain treaties between the United States and Germany which give us certain advantages will have to be abrogated to permit such a change in the law. It would seem to me that this question of treaty should be carefully looked into by Congress for the purpose of ascertaining the truth in regard to the matter and for the purpose of publishing the truth, so that the American people may have an opportunity to decide whether or not we are gaining more than we are losing by such a treaty as the one urged as an excuse for not so revising the patent law as to protect American inventors from what appears to be such unfair competition.

If the United States Government should conclude to limit patents to processes only, surely something should be done to throw the burden of proof upon those claiming to have invented new processes for producing the same products as those produced by the patented processes.

As suggested in the report of the Committee on National Legislation of the American Pharmaceutical Association, at its annual meeting in 1889 (see Proceedings of the A. Ph. A., Vol. 47, 1899, p. 63), "This might be done by compelling the inventors of alleged new processes to divulge them by applying for patents, so that the novelty in each case may be determined by the Patent Office. It is argued with force that it is the original inventor who conducts the expensive research which points out the way. It is he who sows the seed, and unless the new process should show decided novelty, and its inventor should pay a royalty to the original inventor, great hardship would often result, for the harvest would in many instances be reaped by those who have not sown, and the original inventor would have only his trouble for his pains."

"The existing rewards to those engaged in original research should be increased rather than diminished, and such investigations should be thus rendered sufficiently profitable to attract the very best talent of the land, and also to attract capital in aiding and developing research and progress in the field of medical chemical industry."

Finally, before closing what I have to say, permit me to call your attention to a closely related subject concerning which something ought to be done by our legislators. I am bringing it up in this connection because upon the clear understanding of the law relating to the question of trademarks depends the opinion of a good many manufacturers, as to the proper course for them to pursue in their attitude toward patent law revision.

It is believed by many that names may be patented or copyrighted. This is a very serious error which demands correction. As stated in circular No. 19, issued by the Librarian of Congress, "the copyright laws contain no provision under which protection can be obtained upon a *mere name* or *title*. Entry can not, therefore, be made in the copyright office for coined names, names of articles of manufacture; names of games or puzzles; names of substances; names of products, or names of medicines."

The manufacturers of many German synthetics patented their products under

the chemical names, and registered the coined names as trademarks. Now as the right to use a trademark is a natural right, and is protected by the common law—a manufacturer having just as much right to use his commercial signature for the purpose of indicating the source of his product as he has to sign his name to a check—that right does not expire like a patent. Consequently, the manufacturers hoped by this scheme to defeat the object of the patent law, which is to promote progress in science and useful arts by granting inventors the exclusive right to their inventions for limited times, in exchange for the publication of full knowledge thereof by the proper application for patent. However, "Uncle Sam" has something to say about this. He said it in the decision of the Supreme Court of the United States in 1895, in the Singer Sewing Machine Case. The decision reads as follows:

> The result, then, of the American, the English, and the French doctrine universally upheld is this, that where during the life of a monopoly created by a patent a name, whether it be arbitrary or be that of the inventor, has become, by his consent, either express or tacit, the identifying and generic name of the thing patented this name passes to the public with the cessation of the monopoly which the patent created. Where another avails himself of this public dedication to make the machine and use the generic designation, he can do so in all forms, with the fullest liberty, by affixing such name to the machine, by referring to it in advertisements, and by other means, subject, however, to the condition that the name must be so used as not to deprive others of their rights or to deceive the public, and therefore that the name must be accompanied with such indications that the thing manufactured is the work of the one making it as will unmistakably inform the public of the fact.

This question of ownership of names was considered by the Commission appointed by William McKinley, President of the United States, for the purpose of revising the patent and trademark laws above referred to. The Commission held sittings in New York City and at the Patent Office in Washington, at which the Committee on National Legislation of the American Pharmaceutical Association was represented. In the opinion of the Commission, the control of the currently used names of patented products was settled once for all by the above decision of the United States Supreme Court. As one of the Commission, Mr. Arthur Greeley said: "The arrangement between the inventor and the Government is that the former shall surrender to the public his right to restrain the free use of the invention at the expiration of the patent, and it is not likely that the Government will permit the inventor to tie a string to his invention wherewith to pull it back after the patent expires."

As already stated, the contract between the patentee and the Government requires that the inventor shall relinquish all proprietary claims to the invention after his patent expires, so that all others shall have the opportunity to compete with him on equal terms. The ownership of the currently used name of an invention gives to the one who controls it a very unfair advantage over competitors because until another name is advertised and gains equal prominence with the currently used name, the public is not able to compete on equal terms.

Much of the difficulty now in the way of securing proper patent law revision might be obviated by drawing a clear line of demarcation between products and names of products on the one hand, and brands and names of brands on the other. For example, diphtheria antitoxin is a product. The currently used name of the product is diphtheria antitoxin. Both the product and the name of the product are free to all manufacturers. There are on the market a number of brands of

diphtheria antitoxin, each distinguished by the name of the manufacturer appended to the name of the product, as, diphtheria antitoxin Mulford, diphtheria antitoxin Squibb, diphtheria antitoxin Lederle, etc., etc. The product and the name of the product being free to science and also free to all manufacturers, is in a position for impartial discussion in the medical societies and by the medical press, without fear of reprisal if articles are published unfavorable to the use of diphtheria antitoxin, or charges of collusion between the manufacturers and the authors of the articles relating to diphtheria antitoxin, or the publishers of the same, if the articles are laudatory in character.

On the other hand, when the products themselves and the names of the products are commercially controlled they can not be properly introduced to science, and research concerning them promoted in a proper manner because the proper introduction of a new materia medica product requires the use of the educational machinery of the medical and pharmaceutical professions, *i. e.*, the professional press, societies, colleges, text-books, pharmacopoeia and dispensatories.

It is essential that the control of this educational machinery shall be protected from commercial exploitation and the teaching of error. This protection can not be afforded under a system of materia medica monopoly in which the products themselves and the names of the products are controlled by commercial houses engaged in their manufacture and sale. It is impractical for the medical press, for example, to carry on a professional propaganda in the reading pages of the journals in regard to commercially controlled products and at the same time to carry on a commercial propaganda in the advertising pages concerning the same products.

Or to take another illustration: Condensed milk is the name of a product —a product open to competition and free to anyone to manufacture under the name of condensed milk. "Eagle" brand, "Anglo-Swiss" brand and "White Cross" brand are names of brands. Condensed milk may be impartially discussed in the professional societies and by the professional press without fear or favor and at the same time these several brands may be advertised in the advertising columns. There is very little danger of a combination on the part of the manufacturers of condensed milk for the prevention of the publication of full information concerning the food value of condensed milk.

Trichlormethane is a product. The name is long and unwieldy, so a short, euphonious name was coined for it, *viz.*, "chloroform." But the name "chloroform" is just as much the name of a product as trichlormethane; and when the product is ordered by one name, the dispenser is justified in dispensing the product under either name.

I have thus attempted in this brief paper—brief because a full treatise on this very important subject would require a book of many pages—to place before you the principles underlying the copyright, patent and trademark laws, for the purpose of making the Paige Bill as clear to you as is possible under the circumstances. Some of those who have read the bill insist that it is very difficult for them to understand. They insist that its language is not clear on account of the legal verbiage. I believe this point to be well taken. It would seem to me that the one way we can have a clear conception of it is to discuss the question of copyright, patent and trademark along the lines I have indicated in this paper and after we have decided

just what we want, place our conclusions in the form of resolutions in the hands of a committee representing the medical, chemical, pharmaceutical and legal professions, with the request that they present their report to a joint meeting of the several professions named and the business men engaged in the pharmacal and pharmaco-chemical industries for further consideration. Said report should be in the form of condensed statements supported by arguments explaining the reason why it is recommended for our adoption.

By unanimous vote, the Philadelphia Branch, A. Ph. A., indorsed the provision of the Paige bill limiting patents to processes only, to extend the provisions of the Paige bill to include all technical chemicals and food compounds, to ask that the manufacture of articles patented in this country be limited to this country save so far as reciprocity agreements with other nations may supersede such arrangement, and to ask that the plain statement be written into the patent, trademark and copyright laws that genetic titles of medicines are not subject to patent or copyright.—EDITOR.

VALUE OF ACADEMIC BASIS FOR TECHNOLOGY.

"Technical schools, unlike universities, have the definite object of training students to make their living in industry, and they make their course as practical and as little academic as possible. A technical school is sometimes connected with a university, and we can not in any case consider university training for industry without taking technical colleges into account. It must be admitted that if the best type of science training, even for industrial use, is the academic, the technical colleges are on wrong lines, and as technical colleges are doing splendid work, the idea put forward appears to be wrong.

"But it is not urged that the academic training is the best in every way, but that, on the whole, it is best because, first, the professors are able to effect it best; second, because a student has so little time to spare that it can best be laid out in acquiring a good sound foundation; third, a well-trained mind with the academic can easily acquire the technical outlook, too; fourth, because academic science trains the mind to reason rather than to memorize, and deals with the facts of nature instead of the ideas or doings of other men just as foolish and illogical as ourselves.

"More than this, if the universities converted themselves into technical colleges, academic science and with it technology would get moribund. Whether technical colleges are on the best lines is another question. They may be badly designed for training the best class of technologist, while well suited for doing the best for men who have little time, and must be content with an inferior general foundation and a superstructure which is to a great extent imitation technology.

Recently we have heard a great deal about universities helping in scientific research. Research in academic science has little to do with national industry. All such research is published, and technologists all over the world utilize the results wherever the research is carried on. Research in academic science has no direct effect on national industry, but it has a great influence in rousing scientific enthusiasm, which is most important. But the outcry for scientific research for the benefit of industry is made chiefly by people who have no clear idea of the difference between academic and technical research, or of their circumstances. It is largely due to science teachers backed up by newspaper writers."—Dr. J. Swinburne.