

PROPOSED NATIONAL INSTITUTE OF DRUG RESEARCH.

BY F. E. STEWART.

A National Institute of Drug Research is proposed by the American Chemical Society. This project originated in a conversation between Dr. Charles H. Herty, then chairman of the N. Y. branch of the American Chemical Society, and editor of the *Journal of Industrial and Engineering Chemistry*, and a "well known organic chemist, one who has been particularly successful in working out methods for the manufacture of certain much-needed coal-tar medicinals." This is a statement made in an editorial appearing in that journal, September, 1918, entitled, "War Chemistry in the Alleviation of Suffering." As the editorial in question clearly states, the object of the proposed institute in its conception, I am quoting from it as an important part of the history of the project.

In conversing with his friend, the editor asked the following question: "Suppose, during your researches, you made some new compound which you believed would prove more efficacious against certain diseases than any of the known compounds whose details of manufacture you have solved, where would you turn to have it tested thoroughly?" He replied: "I don't know."

In commenting upon this reply, the editor says:

"The negative answer was not surprising, rather it was confirmatory. It is a peculiar situation that exists in this country to-day. The three great commercial applications of the so-called 'coal-tar chemicals' are, first, explosives, for which means are never lacking for the through testing of new products; second, dye-stuffs, for which, fortunately, the equipment for testing as to standard, fastness, durability and aesthetic suitability is simple, inexpensive and accessible to every worker; third, medicinals, and here the problems of investigation become much more complex and the responsibility even greater. Rarely does the chemist possess the technique for their testing; he must rely upon the pharmacologist and the physiologist to determine the therapeutic value of his product.

"In university circles there is often lacking that spirit of coöperation between the several classes of research workers which would insure a thorough examination of these new products of the organic chemical laboratory, or, if the spirit be willing, the means for conducting the tests are too limited, especially now when university finances are so severely contracted. In a few manufacturing establishments provision is made for animal experimentation, but these facilities are entirely inadequate and not available to all organic chemists. In government laboratories some provision is made for this work, but restrictions are enforced by inadequate appropriations. And still people suffer, though much suffering has been alleviated by discoveries made in other lands.

"Fortunately, through the generous provision of wealthy individuals, certain institutions have been established and endowed where the chemist and the biologist can work in the closest coöperation. The importance of the intimate coöperation of these workers is evidenced by the work on the synthesis of a new anti-syphilitic drug which was recently accomplished in the laboratories of the Rockefeller Institute for Medical Research. This remedy is now tested from the clinical viewpoint in the hospital of the same institution. Similar institutions, however, are few in number and the capacity for work of this kind is necessarily restricted.

"A suggestion has been advanced which seems to cover the situation admirably, namely, that an institution somewhat analogous to the Mellon Institute be founded in which adequate provision for laboratory tests of all kinds would be made and to which, through the establishment of fellowships, manufacturing organizations could send well-trained young men for working out specific problems. Coöperation should be established between this institution and the organic laboratories of our universities, as well as with the hospitals of the country."

Dr. Herty names ten million dollars as the sum required for the establishment of the institute on an adequate basis. In his recent address before the New York Academy of Sciences, he said that the plans for the organization of the proposed institute were steadily progressing. He called attention to the fact that the need is urgent for some institution where "the ablest research workers among our chemists and pharmacologists can study life problems and can gain true insight into the fundamental reasons for the action of medicinals upon the body; an institute where, through the creation of fellowships, manufacturers can submit specific problems for investigation and solution under the most favorable conditions of expert work and abundant equipment."

This project was first broached at a meeting held at the Chemists Club in New York, last fall, which was participated in by a number of speakers selected for the occasion, who presented the subject from various points of view. Among the speakers were the chief chemist of the U. S. Agricultural Department, Washington, D. C. and the director of the Mellon Institute, Pittsburgh. Their discussion was listened to with much interest, especially on account of the questions suggested by what they said.

The question of auspices was under consideration and the chief chemist of the Agricultural Department said that such an institute as that proposed by the representative of the Rockefeller Institute for Medical Research, who first proposed the plan to Dr. Herty, and was the "well known organic chemist" referred to in his editorial, could not be conducted under governmental auspices, for the reason that the government with its experts and laboratories is working for the entire American people and cannot favor in its operation any one class of the community. As already stated, the plan proposed is somewhat of the character of that operated by the Mellon Institute, the director of which stated in his discussion that the results of the researches made by the Institute concerning problems placed in its hands for solution were of a confidential character, and under no circumstances is the manufacturer who has his products tested permitted to exploit the Mellon Institute in advertising.

Now, what the medical profession want and urgently need are therapeutic verdicts from competent authority, in relation to so-called new remedies, and, judging from the editorial in the *Journal of Industrial and Engineering Chemistry*, already quoted, the editor is aware of that, and the plan of the institute includes the pronouncing of such verdicts by competent authority. How are such verdicts to be obtained? Evidently, according to the editorial referred to, they are to be obtained by "coöperation between the proposed institution and the organic laboratories of our universities as well as with the hospitals of the country." The "pharmacologist and the physiologist" cannot "determine the therapeutic value" of new therapeutic agents. Therapeutic verdicts, to be at all conclusive, must be the products of the observation of many competent observers, carried on under conditions of environment which will preclude the errors resulting from the personal equation and those resulting from differences in race, climatic and social conditions. To obtain such verdicts takes time. The history of medical science clearly demonstrates this to be a fact. Many years must elapse before sufficient clinical evidence has accumulated in relation to a new medicinal drug, chemical or preparation of the same, to establish its therapeutic position in relation to other

therapeutic agents used for similar purposes. The work of the chemist, pharmacologist, physiologist and physician are all required in carrying out the plan.

Is the plan of the proposed institute adapted for securing such verdicts? The answer to this question depends largely upon the question of commercial control of the products to be investigated. The ethics of the medical profession from the time of Hippocrates until the present obligate its members to donate the results of their inventions, discoveries and experiences to the profession, so that the same may be freely used throughout the world for the treatment of the sick and the prevention of disease. Every medical man connected with the universities, hospitals, professional societies and professional press, is bound by these obligations. How can coöperation between the manufacturers engaged in the pharmaca and pharmaco-chemical industries, on the one hand, and the medical profession and its educational institutions, on the other, be obtained, unless the *materia medica* products presented to the proposed institute of drug research be open to competition? Monopolized *materia medica* products and medical ethics are not compatible. Is the medical profession to let down the bars which now safeguard the sickroom from commercial exploitation? It is well known that the American Chemical Society favors the patenting of medicinal chemical products. Is the plan one for promoting the commercial interests of the manufacturers of patented chemical products? If so, what is to become of medicinal plants, galenic preparations, biological products, animal extracts, internal secretions, etc.? Do they not merit just as much attention from medical scientists as patented, synthetic chemicals? Is it not true that any plan devised for promoting the commercial interests of the manufacturers of any one class of *materia medica* products to the exclusion of one or all of the other classes would be a menace to the public health? If it were possible to raise ten million dollars for the purpose of paying physicians connected with the universities and hospitals to devote their time and attention to original research for the purpose of pronouncing therapeutic verdicts in behalf of commercially controlled *materia medica* products, would such verdicts be accepted by the medical profession as conclusive? Would they not be looked upon as "paid testimonials and write-ups?" Would the medical journals feel warranted in accepting the reports of such researches in their reading columns? Why should the publishers of medical journals do the advertising for the manufacturers of commercially controlled products without pay? Would not such reports be properly classed as advertisements and properly relegated to the advertising columns where they belong? Would not such a plan, if it could be carried out successfully, result in converting the entire educational machinery of the medical and pharmaceutical professions—medical and pharmaceutical schools and colleges, societies and press—into a great advertising bureau for the exploitation of the sickroom for gain?

Salvarsan has been cited as a type of proper commercial introduction. The choice is unfortunate. Salvarsan is a type, not of proper commercial introduction, but of German propaganda for exploiting the American chemical industries. The product was first tested therapeutically in the hospitals in Germany, a country in which *product* patents on chemicals are not allowed; and then *product* patented in the United States—in fact it was controlled by fifty American patents. The method of control was carefully planned to defeat the object of the United States patent

laws, the object of which is to promote progress in science and useful arts by granting inventors seventeen years' monopoly in the sale of new and useful inventions in exchange for the publication of full knowledge thereof for the benefit of science. The proper application of the patent law stimulates competition, which the Salvarsan plan effectually prevented and would have continued to prevent indefinitely except for the war with Germany, which resulted in throwing its manufacture open to competition in the United States.

The Salvarsan plan of commercial introduction had already excited the strongest indignation and condemnation of leading medical scientists in this country, and the adoption of such a plan by the American manufacturers engaged in the phar-macal and phar-maco-chemical industries is not to be considered as the proper one for obtaining the coöperation of the medical profession and educational institutions in the United States engaged in the teaching of medicine and pharmacy. The commercial introduction of new materia medica products by advertising is not only contrary to medical ethics, but a serious hindrance to progress in science and the useful arts of pharmaceutical chemistry and drug therapeutics.

The patent law requires that the invention shall be new and useful. It is a question worthy of consideration whether a chemical substance is new in the meaning of the patent law merely because hitherto unproduced. Every educated chemist knows in advance what chemical substances are possible and their chemical names. Both are fixed beforehand by recognized chemical laws.

It is the intent of the law that the monopoly shall be limited to seventeen years, after which the public at large shall have the right to manufacture and sell the invention on equal terms with the original patentee, whose right to the exclusive use of the invention then expires. These wise provisions of the patent law have long been defeated by a scheme for perpetuating monopolies indefinitely. Patents are obtained for chemical products under their chemical names, and short names are registered in the Patent Office as trade-marks, which are afterward used not as trade-marks to distinguish between brands of the products, but as synonyms to take the place of the long chemical names.

The German chemical houses were quick to take advantage of this abuse of the patent and trade-mark laws already existing in the United States. Monopolies were created in chemical products by patent and continued indefinitely by patenting alleged improvements, and registering names as trade-marks. The German chemical houses were thus enabled to control the American chemical industries along the line of organic synthetic products, including dyes and medicines.

In spite of protests which were frequently made to Congress during the past forty years, this system of abuse was permitted to grow and was looked upon as legitimate because it was "made in Germany" until the eyes of the American people were awakened by the great world war. The German patents were then investigated and it was discovered that in addition to the scheme for perpetuating monopolies above referred to, many of these patents had been obtained by fraud. This was discovered when attempts were made to reproduce the patented products by means of the processes described in the applications for patent.

Much study has been given to the subject by the former Alien Property Custodian, A. Mitchell Palmer, now Attorney General of the United States. We were informed by the Philadelphia *Ledger* for March 12th that

"A program by which the German strangle-hold is to be loosened from the throat of the American dye industry" was made public by Mr. Palmer on that date in an announcement of the creation of an American corporation to take over all the German dye patents and hold them as a trust for the benefit of the native industry. The plan is thus described: "The corporation, to be known as the Chemical Corporation, is non-commercial in character and already owns 4,500 of the *product patents* through which the Germans at one time practically controlled the manufacture of dyes in this country and wholly controlled the importation of them by European concerns which were not German. The Chemical Foundation will hold the patents for the various terms for which they were originally issued and by the granting of licenses under them within devote them 'to the Americanization of such institutions as may be affected thereby, and to the exclusion or elimination of alien interests hostile or detrimental to the said industries, and to the advancement of chemical and allied science and industry in the United States.'"

It is to be hoped that the Chemical Foundation will reform the abuse of the United States patent and trade-mark laws, especially in relation to new medicinal chemicals. New *materia medica* products should not be introduced by advertising. Their manufacture and sale should not be monopolized. They should be open to competition and introduced to science through the medium of the professional societies and press. Advertising should be confined to brands of products, presented to the medical and pharmaceutical professions through the medium of the advertising columns of the medical and pharmaceutical journals. Protection to brands by the proper use of process patents and by the employment of brand names, registered as trade-marks, may not be objectionable, but "product patents" whereby the sale of the products is monopolized by individuals, firms or corporations, hinders progress in science and commerce, discourages improvements in processes of manufacture, protects a system of therapeutic advertising, misleading in character, and therefore the entire patent and trade-mark system as thus conducted is inimical to the public welfare.

It is not my intent to discourage original research. The plan would be ideal if placed on an altruistic basis.

CHEMISTRY'S OPPORTUNITY IN PHARMACEUTICAL RESEARCH.*

BY GEORGE D. BEAL.

Professor Charles H. Herty, Editor of the *Journal of Industrial and Engineering Chemistry* of the American Chemical Society, has recently presented the question of a needed development of facilities for research on medicinal agents as applied to pharmaceutical chemistry. In the editorial column of that Journal for September last he relates a conversation with a chemist who has been prominent in working out methods for the manufacture of coal-tar medicinals. The question is asked, "Suppose during your researches you made some new compound which you believed would prove more efficacious against certain diseases than any of the known compounds whose details of manufacture you have solved, where would you turn to have it tested thoroughly?" And the reply, also quoted, was "I don't know."

* Read at the One Hundredth meeting of the Chicago Branch, A. Ph. A., February 21, 1919.