Although I started to experiment with hydrogenated oils on an extensive scale two years ago, a change in positions has kept me so busy that I have not had time to continue the work since, consequently my experiments have been confined to only Zinc Oxide Ointment.

Acknowledgment is made to Parke, Davis & Company, in whose laboratories this work was conducted.

DETROIT COLLEGE OF PHARMACY,
April 19, 1918.

WHAT THE DRUG TRADE HAS DONE TO WIN THE WAR.*

The first paper of the symposium under above title and presented at the April meeting of the New York Branch, A. Ph. A. was by Mr. R. C. Stofer, who in his preliminary remarks referred to some of the orders that their firm had completed. He also stated that, in his opinion, pharmacy should disregard its characteristic modesty and take due credit for its achievements, many of which are the result of the marked degree of coöperation at present existing, by reason of the fluxing process which is going on between educators in pharmacy, retail pharmacists, and the excellently equipped scientific and research laboratories of progressive pharmaceutical manufacturers. Parts of his paper follow:

Digitalis: Through the intelligent direction of its collection and preparation for the market, American growers have succeeded in supplying digitalis much superior to the European article. We have received American-grown digitalis, which tested nearly two and a half times the U. S. P. standard. Experiments have been conducted in the scientific department with a view of determining the best physiological method for the estimation of the strength of digitalis preparations. Comparative tests are now being made by the one-hour frog method, the twelve-hour frog method, the cat method of Dr. Hatcher, and also the guineapig method. It is hoped from the results of these experiments a definite, scientific conclusion may be drawn as to which is the best method for testing digitalis and its preparations.

Mexican Scammony: Owing to the world war, true scammony became unobtainable in commercial quantities. Experiments, both chemical and physiological, have been made with the resin obtained from true scammony and that from the Mexican scammony. From the results of experimental work, data is now in the hands of the U. S. P. Revision Committee and they have been requested to permit the use of Mexican scammony as a source of resin scammony, as is done at the present time by the British Pharmacopoeia.

Aconite: It has been definitely shown by many investigators, that the present chemical method for the assay of aconite and its preparations is entirely unsatisfactory, as the results obtained do not indicate the therapeutic activity of the drug and its preparations. Experiments are being made, looking to the isolation of aconitine from benz-aconine and aconine, as it is claimed that these two alkaloids are not therapeutically active, to any great extent. Much research work is being performed upon the physiological method, in an endeavor to improve the new semi-official guineapig method of the Pharmacopoeia.

Belladonna Leaves: The leaves of Hungarian and German growth which we formerly received were oftentimes brown, of low assay, probably due to improper collection and preparation for the market. Much attention has been given in various sections of the United States to the cultivation, upon a commercial scale, of belladonna, and the American growers have been quick to grasp the advantage of high assay. By efficient methods, proper selection of seeds

* A symposium of the New York Branch, American Pharmaceutical Association, April meeting, 1918. Abstracts from papers by R. C. Stofer of Norwich Pharmacal Company; Saunders Norvell of McKesson & Robbins; H. C. Lovis of Seabury and Johnson, and S. B. Penick of S. B. Penick & Co.

from high assay plants, etc., there has been produced in this country belladonna assaying as high as 0.8 percent, or nearly three times the assay of the average European leaves. We now, by preference, purchase American-grown leaves as against even the good quality cultivated French leaves which reach the country in goodly quantities.

Hyoscyamus: Before the war, Russia was the principal source of supply, but the drug was notorious for its low assay and its generally poor physical condition, and it was practically impossible to obtain an article complying with the Pharmacopoeial requirements, except for occasional small lots of cultivated drug, which came over from England or Germany. America is making slow progress with the production of hyoscyamus, as successful cultivation is conceded to be difficult, however, Michigan, Maryland and Virginia produced limited quantities of this drug last year, which assayed about three times the U. S. P. standard. Therefore, we are confident that in time the American drug will be available in greater abundance.

The scarcity of belladonna and hyoscyamus led to many experiments with such combinations as pills and tablets, wherein stramonium was used in place of belladonna. As a result of clinical investigation, it was demonstrated that in many cases stramonium was entirely satisfactory to the medical profession and we have therefore been able to continue supplying such combinations as were in urgent demand with the full approval of the medical profession. By the way, stramonium grows abundantly in many sections of the country, but prior to the war, was collected only in a limited way. The cheaper labor abroad made it more profitable to import supplies from Europe, than to purchase here. Now, however, the collection in this country is enormous and we are entirely independent of outside sources. Generally speaking, American stramonium, though not cultivated, is of higher assay than the European article.

Cannabis: The U. S. P. IX recognizes American-grown cannabis, in addition to the Indian variety. This recognition has given a tremendous impetus to the growth and sale of American cannabis. Comparative tests demonstrate that the therapeutic action of the two varieties is similar, although, as a general rule, the Indian cannabis is considerably stronger than the American. This comparative difference in strength, however, can be well regulated by a proper consideration of dosage. The Pharmacopoeia requires that cannabis be standardized by determining the amount of drug sufficient to produce incoördination when administered to dogs, and by this test it is possible to select *Cannabis sativa*, which produced the desired clinical results; although as investigators, we realize that there is usually a difference in strength between the American- and the Indian-grown drug. Under present-day conditions, it is practically impossible to secure sufficient quantities of the Indian variety to meet the demand, though, thanks to American initiative, the proper collection of the native drug again enables us to proclaim our independence. The biological assay of cannabis has, in all probability been more severely criticized than any other test in the Pharmacopoeia. The basic principle of test is fundamentally correct. With some slight modification, it will eventually be made more satisfactory. An investigation of the method has been under way for about six months and as this subject is in the hands of exceptionally capable men, we may expect satisfactory results at an early date.

Styrax: Before the war, all the styrax of the U. S. P. was imported into this country. The closing of this source of supply caused us to endeavor to find a product which would be similar in action. We are now in possession of an American styrax which, experiments indicate, is in every way as satisfactory as the European article, and, in the near future, this information will be compiled and placed in the hands of the U. S. P. Revision Committee. This is another triumph for American resourcefulness.

Pituitary Extract: After several years of almost constant experimental work, we have been able to assemble an apparatus which will physiologically estimate the strength of pituitary preparations within very narrow limits. The method employed is a modification of the isolated uterus method. Preparations so standardized have been exhaustively tested in maternity hospitals, and, we are pleased to say, it is now possible to produce a pituitary extract and standardize it, with the assurance that it will meet all demands.

Pepsin and Pancreatin: Experiments are being conducted to ascertain, if possible, the rate of deterioration that takes place in pepsin and pancreatin combinations. This work must necessarily be conducted over a considerable period of time, and it will probably be four or five years before any definite results will be in evidence.

Tincture of Ginger: The result of many experiments reveals that there is considerable difficulty in meeting the standards, as laid down in the U. S. P. IX. The results of the investigation have now been turned over to the chairman of the Revision Committee, who has charge of this and kindred subjects, and it is hoped that slight changes will be promulgated, which will permit of the manufacture without the difficulties that previously attended.

Mr. Stofer concluded his remarks by referring to various methods of conservation in sugar, glycerin, fats, etc. He also stated that many tablet formulas had been revised, particularly those containing narcotics, by the elimination of the latter in many of them.

Mr. Saunders Norvell modestly carried the credit of the work represented by his firm to the wholesale drug trade in general. He spoke of the many difficulties in securing supplies, labor shortage, and the series of taxation measures with which the wholesale drug trade had to contend. Notwithstanding the many difficulties, supplies have gone forward without serious delays and the drug trade has not been charged with profiteering. The Government has bought its drug and chemical supplies for less money than the trade; contrary to the story of the cartoon, depicting the hotel manager who said to the chef, "you cut down your portions 50 percent and we will raise the prices 50 percent—the war must be won." Mr. Norvell laid stress on the fine coöperative spirit of employees with the members of firms, not only in getting out orders, but in buying bonds and contributing to Red Cross, etc. He interestingly told the story of an order for 20 million 3-grain quinine tablets, which was then in the process of manufacture. Relative to this he said in part:

This is the largest single order for quinine ever placed in the history of this country. To fill this order will require 125,000 ounces of quinine—7,812 pounds, almost four tons. Piled on top of each other the 20,000,000 tablets would be 416,666 feet high—over 78 miles. Laid alongside of each other, they would reach from New York to the outskirts of Philadelphia; from Chicago to Milwaukee, or from Washington, D. C., almost to Richmond, Va.

To obtain the 60,000,000 grains of quinine contained in the tablets, approximately 108,000 pounds, 54 tons of cinchona bark will be used, each ton of bark it is estimated yielding about an average of 7 percent of quinine.

Figuring each cinchona tree as supplying an average of 200 pounds of bark, the 60,000,000 grains of quinine will be the product of 561 cinchona trees. As each tree furnishes suitable bark for producing quinine but once in an average of one and a half years, it has required 561 years of growth to produce the 60,000,000 grains of quinine.

To collect the bark, cure it, and transport it from the tropical forests engaged the work of thousands of natives for several months.

Several other illustrations of the present-day activities were reported. In concluding Mr. Norvell said: "This war is different from all other wars the world has ever known. It is a war of trained men. It is a war of organization. The soldiers in this war can accomplish nothing without the backing of the trained workers in every field at home."

Dr. Henry C. Lovis spoke of the participation in war activities of the surgical supply houses and the preliminary arrangements preparatory to supplying the Government needs. Fortunately the manufacturers in these lines had enlarged their factories in order to meet the orders of foreign countries prior to the entry of the United States into the world conflict. In connection with these immense orders the usual demand must also be considered. The following abstract of the paper is illustrative:

The first list of goods to be supplied included bandages of all sizes; absorbent cotton; first-aid packages; shell wound dressings; bichloride gauze; adhesive plaster; ligatures of all kinds.

The gauze packages consumed 110-million yards of gauze. It was necessary to secure the assistance of spinning and weaving mills, outside of the group of straight surgical dressings manufacturers to supply this immense yardage. Since the beginning of these requisitions up to the present time there has been a total of 386,000,000 yards of gauze contracted for. That has required day and night work of 30 different weaving mills. The yards of gauze equal 219,000 miles in length and one yard width and that means, taking the distance from New York to San Francisco in round figures as about 3000 miles, one continuous stretch of gauze from New York to San Francisco, back and forth, 70 times. To manufacture that quantity of gauze, just the gauze alone, would require 77,000 bales of cotton. Each bale weighing 500 lbs., this would mean 38,500,000 pounds of crude cotton requiring quite a respectable size plantation to produce it. There were 450,000 gross gauze bandages, compressed, ordered, which were $2\frac{1}{2}$", 3" and $3\frac{1}{2}$" wide and 6-yds. long; 6,400,000 first aid packets put up in metal boxes enamelled in khaki color to match the soldiers' uniform; two of these go in a belt which each soldier carries; and in addition, two rubber-sheeting covered first-aid packets also go in his belt. Of those, there were ten million ordered. There were 34,000,000 yards Corrosive Sublimate Gauze, 1-yd. packages. One million and a half spools adhesive plaster, 1" x 5-yd., and one half-million $2\frac{1}{2}$" x 5-yds., 1,400,000 shell wound dressings.

Details of other manufactures were given and Doctor Lovis closed his paper with a reference to the loyalty of those engaged in this line of manufacture.

Mr. S. B. Penick spoke of former sources of crude drugs from which supplies are no longer available. Some of these drugs are now obtained in this country, belladonna, digitalis, cannabis, hyoscyamus, stramonium, etc. The high cost of labor continues to be a problem but under present conditions supply is of first importance. Japan is furnishing valerian, chamomiles, hellebore and insect flowers while Italy, France and England are now supplying a number of botanicals heretofore procured from Central Europe. Nux vomica, rhubarb, senna, aloes and other drugs of the East have been difficult to obtain. The speaker alluded to the improved quality of drugs, due to Government supervision, and concluded with a compliment to those of the trade, who have coöperated in furnishing the Government and manufacturers with crude drugs. (See also paper by S. B. Penick, August issue, 1917, p. 695.)

CENTRAL INFORMATION BUREAU CONCERNING NATION'S HOSPITALS.

Dr. Franklin Martin, member of the advisory commission and chairman of the general medical board of the Council of National Defense, authorizes the following:

Information regarding the hospitals of the United States, in process of compilation since 1916, is now collated and indexed in the medical section of the Council of National Defense. A central bureau of information concerning the hospital facilities of the country, under war conditions, is thus provided. The data will be kept up to date from month to month. This bureau has not only the details of over 1,000 active hospitals but is also gathering full data concerning nearly 8,000 other institutions which include sanatoria, infirmaries, homes, asylums and dispensaries.

What each hospital has contributed in the way of medical men and internes for war service has been entered on the cards. The number of nurses who have volunteered and those remaining, the possibilities of expansion for war service, the results of personal inspection by State boards will constitute valuable active working data.—*Official Bulletin.*