PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and Branches shall become the property of the Association with the understanding that they are not to be published in any other publication prior to their publication in those of the Association, except with the consent of the Council —Part of Chapter VI, Article VI of the By-Laws.

ARTICLE III of Chapter VII reads: "The objects and aims of local branches of this Association shall be the same as set forth in ARTICLE I of the Constitution of this body, *and the acts of local branches shall in no way commit or bind this Association, and can only serve as recommendations to it.* And no local branch shall enact any article of Constitution or By-Law to conflict with the Constitution or By-Laws of this Association."

ARTICLE IV of Chapter VII reads: "Each local branch having not less than 50 dues-paid members of the Association, holding not less than six meetings annually with an attendance of not less than 9 members at each meeting, and the proceedings of which shall have been submitted to the JOURNAL for publication, may elect one representative to the House of Delegates."

Reports of the meeting of the Local Branches shall be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten with wide spaces between the lines. Care should be taken to give proper names correctly and manuscript should be signed by the reporter.

BALTIMORE.

The regular monthly meeting of the Baltimore Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held March 15, 1935, at the Emerson Hotel, President Wm. F. Reindollar in the chair. The minutes of the February meeting were read and approved. The meeting was then taken over by the Debating Society of the School of Pharmacy, University of Maryland. The occasion was a debate between the School of Pharmacy of the Medical College of Virginia and the School of Pharmacy of the University of Maryland. The subject of the debate was:

> *Resolved,* That the sale and distribution, at retail, of drugs, medicinal preparations and sick-room supplies be limited by law to the retail pharmacy.

For the Affirmative: School of Pharmacy of the Medical College of Virginia. Speakers: Toney Mehfud, Richmond, Va.; John Raymond Hurt, Drakes Branch, Va.; Woodrow Byrum, Suffolk, Va.; Felix Clyde Jennings, Norfolk, Va. (Alternate).

For the Negative: School of Pharmacy of the University of Maryland. Speakers: Sylvan Silverman, Milton J. Wilder, Harry Peretz, Alex Ogurick (Alternate).

The judges for the debate were Dr. Julien Gunn of the Johns Hopkins University, Hugo P. Wise of City College, and Paul Clarkson of the Legal Department of the Consolidated Gas and Electric Co., Baltimore.

Each speaker had eight minutes for the presentation of his topic with a five-minute rebuttal.

At the conclusion of the speeches the judges cast a unanimous vote in favor of the team representing the School of Pharmacy, University of Maryland, who upheld the negative side of the debate.

President Reindollar extended a hearty vote of thanks to the members of both debating teams for their efforts and congratulated the winning team.

Approximately one hundred were present with many students from the School of Pharmacy.

C. JELLEFF CARR, *Secretary-Treasurer.*

CHICAGO.

The monthly meeting of the Chicago Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held March 19th, at the University of Illinois College of Pharmacy.

The speaker of the evening was Dr. John C. Krantz, Jr., Chief of the Bureau of Chemistry, Department of Health of the State of Maryland and Professor of Pharmacology at the Medical School of the University of that State. His subject was "Pharmacy in the Quest for Health."

Dr. Krantz began his discussion of "Pharmacy in the Quest for Health," by stating that disease is the arch enemy of mankind. It has haunted his every activity from the superstitious dweller in the cliffs to the occupant of the modern sky-scraper as you know him to-day.

"It can be actually said that the progress of man on this planet is the result of his efforts to beat back the ever-present menace of disease. Trace down through the centuries the discoveries that have helped to prolong life—to-day drugs that were looked upon as almost necessary in years past have given way to bacterial serums and other medicaments administered by hypodermic injection.

"Now, let us try to point out what effect these trends might have on pharmacy as we know it and as it is to be practised in the future. In most all serious illnesses we find that before long the patient is hospitalized, where he can be treated more adequately. Deliveries are performed 75% in hospitals to-day. Syphilis and malignant diseases find their way in and out of hospitals. Most of the medication carried on in the home years ago is now carried on in hospitals. There, in modern hospitals, pharmacists who devote all their time to prescriptions are able to compound a larger number than those who are working in a larger diversified field. A few pharmacists in well-equipped hospitals can do the work of many pharmacists in stores where their efforts are divided. Many pharmacists have found out that they have to make a living following more commercial pursuits rather than the profession for which they have qualified themselves.

"The trend to-day is toward simpler prescriptions, which is due to the teaching of modern pharmacology in the medical schools to prescribe simple drugs. The more complicated the prescription, the more chance of failure. Choose drugs the therapeutic value of which has been tested. We formerly believed that it was necessary to have an infusion of digitalis: now all this can be accomplished by using the powdered drug.

"I say that the stress that the Schools of Pharmacy place on incompatibilities is wasted effort. Pharmacy should say we are through with this medical mess, we are interested in the welfare of the patient and the patient's welfare is not served by complicated medicines. Don't we have some obligation to the patient? If those people practising medicine to-day do not discontinue to write incompatibilities we should take some step to stop them, and I believe it would stand as a lasting monument to Pharmacy.

"In say, 1915, the manufacturing houses began to make serious inroads into the preparation of medical products and the pharmacist has gradually drifted away from this preparation.

"We take a pharmacy, so-called, in which the pharmacy part of the store has reached the point of vanishing significance and we send a prescription to it that calls for sodium bromide, potassium bromide and strontium bromide. A copy is asked for and when wrapped with the prescription automatically becomes a part of the prescription. If the strontium bromide is left out of the prescription or substituted with one of the other bromides the pharmacist may be pros ecuted under the Pure Food and Drugs Act. The man does not realize that he is a definite part of the public health program and is not taking his work seriously.

"We sent out into the state prescriptions for one-half ounce of a saturated solution of potassium iodide. As a result we found prescriptions varying from 103% to a minimum of 55%. This means that if you were to take such a prescription to be filled your chances are even of getting an 88% solution. It should be 100%.

"Not many months ago a doctor came into the laboratory for a 1–5000 solution of silver nitrate. He said that there was only one store in the city to which he would trust the filling of the prescription. Let us say that this was uncalled for, but nevertheless it represents the attitude of the doctors toward pharmacists who are surrounded with commercial pursuits to a point where his doctor has lost faith in him.

"You might say we pharmacists only need to have the doctor on our side. A chemist wanted methylene blue for intravenous injection for a member of his family and wanted it prepared exactly right. The doctor said there is a certain druggist who can make this solution for you. The fellow threw up his hands, saying, 'I don't intend to inject it into my mother if any retail druggist has had his hands on it.' He does not picture a druggist as one interested in methylene blue. He has so diversified his efforts and energies that he cannot be interested in intravenous injection of methylene blue.

"Pharmacists have broken faith with their public health responsibility. Now, I am

interested in the public health and I am very interested in the pharmacist retaining his responsibility in the community as a public health service. Let me tell you why I think this is true and my statement is justified. Recently a preparation, a patented herb concoction, came into our community. Blazed in the headlines of the newspapers, this new preparation—for reducing—will take bile out of the liver, will relieve stomach troubles, is excellent for diseases of the bladder and has proved its worth like no other drug in kidney troubles. I take it they mean Bright's disease and arthritis. Anyone can see it is advertised for sale in all leading drug stores. Those pharmacists do not say I know this is wrong. No, they do not say this; they stock it because the profit is long, the advertising will bring sales and they become a part and parcel of that vicious system which robs a man when he is down, and I am sure that even in his most vicious moments Jesse James would not do that.

"I don't think you need a Moses. You are struggling with certain laws and with your profession, the need for which in large numbers is rapidly diminishing, and I don't think it is going to get any better. Here are my solutions: Pharmacists must be motivated by service and not by profit. We must, if we are to survive as a profession, include the science of the action of drugs in health and disease. One of our great difficulties in pharmacy has been that we have not stressed professional service to the point where we can charge for it. How much profit are we going to make on the compounding of a prescription? We should think of the drugs as insignificant and the charge should be for service. Until we get the public to realize we have a right to charge for service we cannot be looked upon as a profession, for one of the marks of a profession is that it has a legitimate right to charge for service.

"Our schools must realize, if they do not want to ruin the profession, this is no time to produce an ever-increasing number of pharmacists to practice in this none too fertile field when there is a diminishing need for them. I congratulate you that you have required one year of college work prior to entrance to your Pharmacy College.

"Do our colleges realize that they have within their power the potential means to alleviate human suffering? Do they have time for service, or are they pounded all day long by teaching, until there is not an ounce of energy left? You can see it everywhere. Research is the promised land which lies before you, my bidding is to enter into it."

LAWRENCE TEMPLETON, *Secretary.*

NEW YORK.

The March 1935 meeting of the New York Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held on Monday evening, March 11th, in the College of Pharmacy, Columbia University. About forty-five members and their guests attended.

President C. W. Ballard presided; the report of the secretary was read and approved

Chairman Robert S. Lehman, of the Committee on Education and Legislation, reported the following:

Pure Food and Drug Legislation.—Hearing on S. 5, Senator Copeland on March 2nd. A large number of persons appeared before the Sub-Committee of the Senate Commerce Committee, speaking pro and con. It is surmised that the bill will again have to be re-written: it is said that Senator Copeland will accept changes advocated by Mr. Charles Wesley Dunn.

Toilet Soaps are now under the Retail Drug Code.

H. R. 6246, Representative White, prohibits manufacturer's special rebates or discounts to chain or branch store organization.

H. R. 5062, Mapes. This bill will prevent unfair discrimination in price between different purchasers of commodities, and give the same prices to the small as the large buyer.

S. 1923, King. This bill states that it will not be unlawful for trade-code members or others to coöperate to defend themselves against unfair or deceptive practices or acts. This should enable price standardization by agreement.

S. 944, Wheeler, Federal Trade Commission Bill: Reported upon favorably by the Committee: Forbids price discrimination, and directs the Federal Trade Commission to enforce the law.

Chain Store Laws.—The West Virginia Chain Store Tax Law has been declared valid by the Supreme Court of the United States: there are now 37 chain store tax laws before the legislatures of 28 states. It is believed that most of these laws will be enacted in some form or other.

According to amendment to the Alcohol Regulations, pharmacists may purchase industrial alcohol in containers of one gallon, until April 15, 1935; after that date purchases must be in containers in excess of one gallon.

State Legislation.—Bills, Assembly No. 432, 772, Introductory No. 422: Senate No. 415, Introductory No. 398, the Fair Trade Bill (Junior Capper-Kelly Bill). This bill has a good chance of passing this session: write or telegraph your senator and assemblyman in favor of the measure.

This law has been in effect in California for over a year and has been of immense benefit to the retail trades. All manufacturers of trade-marked drug merchandise are coöperating with the retail distributor in that state.

Bills, Assembly No. 499, Introductory No. 489, Senate No. 418, Introductory No. 401: This is the Prophylactic Bill, hearing on the same on March 5th. Prospects of passing are good, but you should also write or wire the senators and assemblymen in favor. This law would limit the sale of all gynecological medicines, remedies and appliances to stores registered by the New York State Board of Pharmacy.

A bill providing for a chain store tax is before the Legislature: possibility of some legislation this session.

A bill for the enforcement of the Code of Ethics of the State Pharmaceutical Association has a good chance of being enacted. This bill provides that the Board of Pharmacy may revoke a license for unethical or unprofessional conduct, the latter to be determined in part by the Code of Ethics of the N. Y. State Pharmaceutical Association.

Chairman Steiger, of the Committee on Progress of Pharmacy, was then called upon for his report which follows:

Both the scientific sections and the advertising columns of the journals indicate an increasing interest in vitamins. Glandular products and new hypnotics are also conspicuous in the literature.

Joseph Roe in *Science* (Vol. 80, page 561) describes a color test for Vitamin C. When ascorbic acid is boiled with HCl, CO_2 is given off and furfural is formed. This can be detected by the use of aniline, phloroglucinol tests.

According to the *Oil, Paint & Drug Reporter* (March 4, page 49) Charles L. Huisking, upon returning from a trip through Europe, reports that Norway and other countries, by extensive scientific study, hope to demonstrate the superiority of pure natural Cod Liver Oil over the so-called high-vitamin oils and similar products. (*Oil, Paint & Drug Reporter*, February 25, page 46.)

Experiments conducted by the Division of Radiation and Organisms of the Smithsonian Institute, indicate that certain wave-lengths of light are specifically "poisonous" to bacteria, algæ and various parasites. These rays are found in the invisible ultraviolet between wave-lengths of 3900 and 1850 "Ångstrom units." There is extreme specificity within this range: a difference of a few Ångstroms apparently marks the difference between innocuousness and virulence for some of the lower organisms upon which the experiments have been tried.

Guiteros and Schmelkes, in the *J. of Biological Chemistry* (Vol. 107, pages 235–239) report on the compound action of sodium hypochlorite, chloramine T and azochloramide on organic substrates. The authors compare the rate of disappearance of available chlorine with various organic substrates and germicidal activity. Their conclusion is that the chloramine T is a better germicide than sodium hypochlorite, and that azochloramide is more useful than either, in the presence of organic matter.

An appeal to pharmacists to throw off the spirit of apathy appeared in the *Chemist and Druggist*, London, February 2, 1935. It formed the theme of the presidential address to the Liverpool Chemists Association on January 24th. Conditions in England are evidently similar to those here:

President Clubb, said in part: "If there is one question which has been discussed 'ad nauseam' in the pharmaceutical press it is the perennial one, 'What is wrong with pharmacy?' Every writer on the subject has fulminated against the encroachment of outside traders on our livelihood. The menace of the multiple stores (chain stores) the competition of charitable and municipal clinics, etc., are old stories." He concludes that these examples are the symptoms of a disease—"Apathy."

A communication was read announcing the date, place and tentative program for the annual convention of the AMERICAN PHARMACEUTICAL ASSOCIATION. Attention was called to the fact that a communication was received from Mrs. Jacob Diner in which she stated that Dr. Diner would be unable to attend future branch meetings and that we might remove his name from the mailing list. Action was taken upon this as follows: Dr. H. V. Arny moved that Dr. Jacob Diner be made an honorary member of the New York Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION. This motion was seconded by Mr. Lehman, voted upon and passed. The secretary was directed to write to Mrs. Diner and inform her of this action by the Branch.

Dr. Ballard then called attention to a letter which he had received from the Executive Committee of the New York Pharmaceutical Conference asking that two representatives be sent from the New York Branch to act for the Branch at an organization meeting of the New York Pharmaceutical Council, which will replace the New York Pharmaceutical Conference. In connection with this Dr. Schaefer presented the following resolution and moved for adoption. This was seconded by Dr. H. V. Arny, was voted upon and passed.

> "WHEREAS, The N. Y. State Pharmaceutical Association is inviting local pharmaceutical organizations to become affiliated with it, and
>
> "WHEREAS, The present N. Y. Pharmaceutical Conference is about to be disbanded and the N. Y. Pharmaceutical Council is now being organized under the auspices of the State Association, and
>
> "WHEREAS, All local organizations which approve of affiliation with the State Association are eligible to send delegates to the organization meeting of the new Council, be it
>
> "*Resolved*, That the N. Y. Branch of the A. PH. A. approve of the idea of affiliation with the State Association and with the new Council provided, however, that the rules of affiliation and the Constitution and by-laws of the Council as eventually drawn up will contain and include nothing contrary to the principles of our parent organization nor obligate us to any financial outlay and further be it
>
> "*Resolved*, That the president of our Branch be directed to appoint two representatives and two alternates from our membership to act for the Branch on the present Council Organization Committee."

Dr. Ballard commented on this reorganization move, saying that he favored the move since he believes that it was in the right direction in coördinating legislation activities among pharmaceutical organizations and that it ran parallel with the thoughts expressed by President Fischelis at the testimonial dinner recently held in his honor.

Fred Schaefer and Robert S. Lehman were appointed to act for the New York Branch with Hugo H. Schaefer and William C. Anderson as alternates.

This completed the business part of the meeting. Dr. Ballard then called upon the speaker for the evening, Dr. Erich Meyer of the Industrial Research Division of L. Sonneborn Sons, Inc. The complete text of Dr. Meyer's address follows:

WHITE MINERAL OIL AND PETROLATUM IN PHARMACEUTICAL AND COSMETIC PRACTICE.

BY ERICH MEYER.*

It is surprising that very little information is found in to-day's chemistry textbooks or even in handbooks on chemistry, medicine and pharmacy regarding the chemical and physical characteristics of white mineral oils and petrolatum. Rarely does one find more than just a few lines, simply indicating that such products do exist; and often such short references are rather confusing and misleading since, unfortunately, these products are known under many different and frequently misleading names. This lack of information in reference literature is the more surprising since white mineral oils and petrolatum are very important ingredients of to-day's pharmaceutical and cosmetic preparations.

Both white oil and petrolatum are crude oil derivatives. Crude oil itself is a complex mixture of a large number of different hydrocarbons. Only recently has the petroleum chemist been

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able to separate and identify a few of them. The generally accepted theory of the origin of crude oil is that which assumes the putrefaction of animal and vegetable matter under water æons ago. With the shrinkage of the earth's crust and its attendant pressure, the crude oil has been filtered through various strata as it was forced from one place to another by these phenomena.

Occurrence of Crude Oil.—To-day we find crude oil trapped in sandstone, limestone and other so-called oil-bearing formations beneath the earth's surface on almost every continent. In Asia, the best fields are found in Burma, in the Dutch East Indies, in Persia and in Mesopotamia. In Europe, crude oil is found mainly in Russia, Roumania and Poland. But the largest producer of crude oil is the North American continent. There are tremendous fields in Mexico and even larger ones in California, Texas and Oklahoma. The only field in the eastern part of the United States is the so-called Pennsylvania field.

Crude Oil of Various Types.—Crude oil can be classified as to its chemical structure into three different types, namely, naphthene base crude, paraffin base crude and mixed base crude. Naphthene base crudes are found on the Gulf Coast, in California, and in many parts of Russia. They are composed mainly of naphthene hydrocarbons of cyclo-paraffin and cyclo-olefin character. Paraffin base crudes are principally found in the Pennsylvania field. The name "paraffin base" refers to the atomic arrangement and should not be confused with paraffin wax. A paraffin base crude is mainly composed of straight chain hydrocarbons of the paraffin series. Mixed base crudes are found in the Mid-Continent field, such as parts of Texas and Oklahoma. As the name indicates, these oils contain both types of hydrocarbons.

Origin of White Oil Refining in Russia.—White Mineral Oils are refined from all three types of crude oils. According to reliable information, the present process of making white mineral oil was invented by J. Markovnikov, a Russian chemist, about 1887. In 1895 another Russian, Grigori Petroff, perfected the process to a point where it was commercially useful. Petroff undoubtedly used Russian crude because at that time the only known crude oil in Europe available for the purpose was Russian crude. A small refinery was established in Riga, then in Russian territory, and thus white mineral oils became first known as "Russian Oils." Ever since, all white oils intended for internal consumption have been commonly termed "Russian Oils" without regard to the origin of the crude or the geographical location of the refinery. Thus the term "Russian Oil" is rather the description of the refining process and not the name of a definite type of oil.

Principle of White Oil Refining.—In the refining of white mineral oils, at first the light fractions such as gasoline, naphtha, kerosene and fuel oil are distilled off. The remaining residue is further fractionated and one of these fractions represents the raw material for white mineral oil. The main object in the refining process of white mineral oils is the removal of the unsaturated hydrocarbons. These unsaturated compounds are chemically unstable and, among other undesirable features, give the unrefined oil its typical odor and taste. The refining consists principally of treating the oil with sulphuric acid, subsequent washing with alkalies followed by various filtration processes. The result is an oil which is perfectly colorless, tasteless and odorless and free from unsaturated hydrocarbons. The mere fact that an oil is colorless or waterwhite, of course, does not in itself signify that it is a completely refined mineral oil in the medical sense of the word, as it is possible to obtain a waterwhite appearance by simple filtration.

Removal of Unsaturates—an Essential.—From a theoretical standpoint it is obvious that all unsaturated compounds and other impurities must be completely removed to render the oil fit for internal use. Similarly, oil for cosmetic purposes must be free from unsaturates in order to guard against skin irritations traceable to the oil. Furthermore, it is highly desirable that a white mineral oil for cosmetic use not only should be colorless and odorless, but should remain so. It stands to reason that only a mineral oil which has been completely refined, and is thus free from unsaturates, possesses sufficient stability.

The U. S. P. Acid Test.—In order to determine to what extent the unsaturated hydrocarbons have been removed from a mineral oil, the so-called acid test is generally employed. This test established by the U. S. Pharmacopœia, is designed to show the true degree of refinement of an oil. Five cc. of the oil are heated with 5 cc. of 93% to 95% sulphuric acid in a water-bath for ten minutes and the mixture shaken at intervals of 30 seconds. Applied to partially refined oils, the acid will turn a dark yellow, brown or even black, but with a true white mineral oil the color will change only slightly.

The present U. S. Pharmacopœia specifies that a U. S. P. white mineral oil, when subjected to this test, should not become darker than pale amber. This rather vague specification was a source of many disputes in the past because no two people could agree as to what is pale amber and what is darker than pale amber. Therefore, most refiners of U. S. P. white mineral oils have developed a color scale of their own in order to enable them to express numerically the color of the acid layer.

However, upon the suggestion of H. V. Arny, the U. S. Pharmacopœia in its 11th edition (now in preparation) has finally adopted a definite color standard for the acid test by which white mineral oils refined to U. S. P. purity can be easily distinguished from those of lesser degree of refinement. This color standard, which is a combination of solutions of cobalt chloride, ferric chloride and copper sulphate of definite concentrations, seems to fulfil all the requirements to be expected from a U. S. P. standard. The various reagents are readily obtainable and are permanent.

White Mineral for Intestinal Lubrication.—One of the first physicians to recommend white mineral oil for intestinal lubrication was Sir Arbuthnot Lane. However, it was not before 1894 that first mention of white mineral oils appeared in the U. S. Pharmacopœia. To-day, the U. S. Pharmacopœia distinguishes between two grades of White Mineral Oil or Liquid Petrolatum, as it is officially designated in the Pharmacopœia: One which has a kinematic viscosity below 0.370 at 100° F. is called "light" and the other which has a kinematic viscosity above 0.381 is called "heavy." Usually, the viscosity of a white mineral oil is determined with a Saybolt Universal Viscosimeter at 100° F., and expressed in Saybolt seconds. Thus a kinematic viscosity of 0.381 at 100° F. is equal to a Saybolt viscosity at 100° F. of 175. White Mineral Oils are refined to-day having viscosities as high as 345 Saybolt seconds at 100° F.

(*a*) *Significance of Viscosity:* If white oil is used straight as such for intestinal lubricating purposes, it is advisable to specify an oil of a viscosity as high as possible because it is generally believed that the higher the viscosity the lower the tendency toward leakage.

(*b*) *Significance of Cloud Point:* A further important requirement of a white mineral oil for intestinal lubrication is a low cloud point which serves as an indication of the absence of solid paraffins which would tend to cloud and solidify the oil at low temperatures. The oil should not become more than opalescent when cooled to 0° C.

However, a cloud point caused by the presence of solid paraffins should not be confused with a cloud point caused by traces of moisture in the oil, since a trace of moisture which might be absorbed by the oil will also cause cloudiness when cooled to 0° C. Even with the greatest care it is very difficult to altogether exclude absorption of moisture, particularly in humid atmosphere, since a white mineral oil of high purity is quite hygroscopic. The absorption of minute quantities of moisture often occurs while filling the liquid into containers, though this operation may be performed with the utmost speed. Absorption of moisture also may occur when bottles of white mineral oil are left open for any length of time. A poor cloud test, due to the presence of a slight amount of moisture, is, of course, not a serious matter and therefore should be well distinguished from clouding caused by the presence of solid paraffins. For this reason, the British Pharmacopœia specifies that the oil shall be *dried* prior to determination of the cloud point. The proper procedure to dry white mineral oil is to heat the oil to 110° C. and then allow it to cool in a closed desiccator. The use of a desiccator is very important because the hot oil has a strong tendency to absorb moisture, and if left to cool in a humid atmosphere, it may absorb so much moisture that it would become cloudy even at ordinary temperature.

(*c*) *Significance of Specific Gravity:* Specific gravity also has a definite significance in judging the suitability of an oil for intestinal lubrication. Recent investigations indicate that the action of white oil in the intestinal tract is not only one of simple lubrication but it seems that white oil at the same time emulsifies with the intestinal contents, thus exerting a softening influence. Therefore, a white mineral oil of high specific gravity—a specific gravity which is as close as possible to that of water, namely, 1—will more readily emulsify than one of low specific gravity. Furthermore, information as to the specific gravity of a white mineral oil is often found helpful in determining the source from which the oil comes or the type of base of which it is composed.

(*d*) *Significance of PbO Test:* The lead oxide test, as described in the U. S. Pharmacopœia, is designated to show up sulphur or injurious sulphur compounds. It is safe to say that all white mineral oils offered for medicinal purposes show absolutely negative lead oxide tests.

Source of Crudes for White Mineral Oils.—Heavy white mineral oils are mostly obtained from

Gulf Coast and California crudes and also from Russian, Roumanian, Venezuelan and Peruvian crudes. They are composed of saturated naphthene hydrocarbons which are cyclo-paraffins of the hexamethylene type with single bonds only. So-called Russian Oil is refined mainly from Russian, Roumanian, Venezuelan and Peruvian distillates. The refining, however, is not done in Russia. Instead, the oil stock is sent to Germany and other countries for refining. Thus the term "Russian oil" is apparently a misnomer. In chemical composition white oils made from Russian and American crude are practically identical. There is no chemical test for determining the source of the oil. From the standpoint of purity, imported oils are usually equal to American oils. Usually so-called Russian White mineral oils have a lower specific gravity than American white mineral oils of the same viscosity, which is a fairly accurate method of identification.

White Oil Emulsions.—Aside from their use for intestinal lubrication, straight U. S. P. heavy white mineral oils are also employed in emulsified form. Usually, such emulsions contain about 50% to 70% of white mineral oil emulsified with water by means of acacia, agar-agar, tragacanth or similar gums. Since the use of these emulsifying agents tends to make the finished product rather heavy, a lower viscosity oil is sometimes selected. Absolute freedom from any and all impurities—even those which are not detectable by means of the acid test—is particularly essential for white oil emulsions since even traces of such foreign substances tend to partially invert the phase of the emulsion.

Nasal Sprays.—Another pharmaceutical application of white mineral oils is in the manufacture of nasal sprays and nose drops. Most of these preparations are made up with a white mineral oil of about 60 to 90 viscosity as a carrier, because it has been found that an oil of this viscosity is distributed readily through the nasal mucosa, bringing the active principles to all affected parts. Furthermore, oils of this viscosity range are tolerated even by infants. The oil should have a cloud point sufficiently low so that the finished product will not cloud at ordinary temperature. The active principles usually employed in nasal sprays include camphor, menthol, eucalyptol and thymol, as well as ephedrine salts or anhydrous chlorobutanol. These latter compounds have the property of contracting the mucous membranes, thus making breathing easier.

Baby Oils.—White mineral oils used in the preparation of so-called "baby oils" range in viscosity from 75 to 100 Saybolt seconds at 100° F. White mineral oils are preferred to vegetable oils since the latter, particularly upon exposure in a thin film, form fatty acids which tend to develop a varnish-like film and thus often have a tendency to clog the pores with consequent irritation to sensitive skins. Particular care should be exercised in selecting a white mineral oil which is as completely refined as the U. S. P. standard prescribes. Incompletely refined oils contain a varying amount of unsaturated hydrocarbons as impurities. These unsaturated hydrocarbons seem to have a definite irritating effect on the skin.

Ointments and Creams.—It is for this reason that white mineral oils of the U. S. P. purity were introduced for the manufacture of ointments, salves and creams of all kinds as, for instance, cold creams, cleansing creams and many other types. White mineral oils of U. S. P. purity are extensively used to-day for these purposes and their absolute purity, as indicated by their U. S. P. acid test, and their complete lack of odor and color have made them one of the most dependable raw materials of the cosmetic industry.

Some Essential Requirements for Cosmetic White Oils.—In determining the proper viscosity of a white mineral oil for cosmetic creams, it was found that a viscosity of about 65 to 75 Saybolt seconds at 100° F. is most satisfactory. An oil of higher viscosity lacks quick penetration and tends to make the finished cream excessively greasy. On the other hand, an oil of a lower viscosity may result in a product of thin body. One of the most important requirements of white oil in such preparations is to accomplish the liquefying of the cream not only as quickly as possible but it is equally as important that, with the help of the oil, the cream spreads evenly over the skin in a thin film.

A further interesting fact is that white mineral oils of paraffin base type are usually preferable to white mineral oils of naphthene base type in the manufacture of pharmaceutical and cosmetic creams. One of the typical differences between a paraffin base oil and a naphthene base oil is their pour points. While most of the naphthene base oils solidify at temperatures of about 15° F. to 0° F. or below 0, paraffin base oils have a much higher pour point, namely, about 25° to 50° F. The high pour point of paraffin base oils is caused by the presence of solid hydrocarbons in the oil. It appears that these solid hydrocarbons have a better affinity for those materials

which the cosmetic manufacturer adds to the oil in the course of his manufacturing process. Thus it has been found, for instance, that paraffin wax and similar materials used in cosmetic preparations blend better with a paraffin base oil than with a naphthene base oil. Therefore, as a rule, paraffin base oils give a smoother cream and the tendency toward separation of the liquid from the solid ingredients is reduced to a minimum.

As mentioned before, paraffin base oils usually can be identified by their higher pour point, and by the fact that at the same viscosity paraffin base oils have lower specific gravity than naphthene base oils.

Liquid Brilliantine.—White mineral oils are used as a base for liquid brilliantines. A low viscosity oil—about 50 to 75—is generally employed for this purpose and perfume and coloring material are added. For some time past it had been conceived that an ideal oil base for brilliantines should consist of white mineral oil of non-volatile characteristics, combined with a mineral oil of volatile characteristics. When using such a combination on the hair, the volatile portion of the mixture would evaporate in a short time, leaving an exceedingly thin and continuous film on the surface, thus eliminating stickiness and greasiness. The volatile characteristics of a hydrocarbon distillate of the type of kerosene would be satisfactory as a volatile ingredient of such oil combination. However, the use of ordinary kerosene was strictly limited because of its strong characteristic odor which cannot be easily concealed. Furthermore, the unsaturated hydrocarbons contained in unrefined kerosene are likely to cause a burning sensation and in many cases more or less acute dermatitis.

With the development of a completely refined kerosene, it is now possible to prepare an oil base along the lines just mentioned. These fully refined hydrocarbon distillates possess all the useful properties of ordinary kerosene, but, apparently, none of its drawbacks. Measuring these oils, which in fact are the lowest viscosity white mineral oils, by U. S. P. standards, the acid test conforms to the U. S. P. specifications although, of course, they cannot be classified as U. S. P. white mineral oils. The absence of kerosene odor in these completely refined, light hydrocarbon distillates extends their range of usefulness in connection with the manufacture of a large variety of cosmetic products.

Suntan Oils.—Another application of white mineral oils is as a carrier in the preparation of so-called suntan oils. These preparations are used for protecting the skin against the excessive action of the sun's rays. Such preparations contain an active ingredient which absorbs the actinic rays and so prevents too severe action on the skin. Sometimes, a small percentage of almond oil, castor oil or similar vegetable oil is added to the white oil in order to increase its adhesion.

Non-Drying Characteristics.—A small percentage of white mineral oil (up to 4%) has been found helpful in the manufacture of vanishing creams because it tends to prevent the stearic acid from drying out. Incidentally, this same principle is often applied in the manufacture of tooth paste. A small percentage of white oil seems to satisfactorily overcome hardening of the tooth paste in the tubes, particularly those shipped to hot countries.

Allied Cosmetic Uses.—White oils are used as softening agents in the manufacture of brushless shaving creams, soaps, nail polish removers and in various other softening preparations. They are used in numerous hair tonics and skin tonic lotions. In all these cosmetic applications and in many others not mentioned here, the inactivity of fully refined white mineral oils to chemical reaction, their freedom from odor and color and their relative stability toward light, heat and aging are among the most important reasons for their usefulness in this industry.

PETROLATUM—ITS COMPOSITION:

Petrolatum is closely related to white mineral oil. However, in contrast to white mineral oil, which consists mainly of hydrocarbons, liquid at ordinary temperature, petrolatum is composed of solid and liquid hydrocarbons, solid at ordinary temperature. There is also a close relationship between petrolatum and paraffin wax, but in contrast to paraffin wax which forms crystalline aggregates, petrolatum is amorphous. We can imagine that petrolatum is a colloidal system in which the solid wax is the external phase, and the oil the internal phase. In other words, the wax absorbs the oil just as gelatin does water, causing the formation of a swollen jelly-like mass. This explains the fact that petrolatum in its concentrated form will not leave an oily spot on paper, showing that the wax is the external phase. For a system to form in this manner, and not have

the liquid separate from the solid hydrocarbons in time, a third component is necessary. This substance acts as a gel-former and is called proto-substance.

This proto-substance can be separated from the petrolatum by extraction with acetone. The proto-substance is insoluble in acetone and is then separated from the residue by dissolving it in pure Benzol.

Importance of Proto-Substance.—Proto-substance is present in satisfactory quantities in natural petrolatum. However, it is very often removed in the refining process and is not present in synthetic petrolatums. An insufficient amount or a complete lack of proto-substance upsets the balance of the solid and liquid components of the petrolatum and, as a result, such petrolatum has a tendency to separate and cause the objectionable "sweating." Therefore, the presence of an ample amount of proto-substance in a petrolatum is absolutely essential. In addition, proto-substance appears to contribute to the emollient or soothing properties of petrolatum. In order to preserve the proto-substance, no drastic methods, such as intense heating or strong chemicals, should be employed in the refining of the petrolatum.

Refining Methods.—Petrolatum is obtained only from paraffin base (Pennsylvania) and Midwestern (mixed base) crudes. The reason for this is that the still residue obtained from naphthene base crudes gives an asphalt-like material when further refined, from which it is practically impossible to extract any crude petrolatum.

In the refining of the U. S. P. petrolatum, the crude petrolatum is purified by a process technically known as adsorption. This, in principle, consists of bringing the crude petrolatum in contact with very porous materials, such as fuller's earth, bone-black, etc. The fine pores of the filtering material remove from the crude petrolatum all the impurities which give it color, odor and taste. The more often the purification process is repeated, the lighter will be the color of the petrolatum. Hence, the color range of petrolatum from amber to snow white.

The adsorption process is lengthy and tedious. Sometimes more rapid methods, such as treatment with strong chemicals, are used for refining petrolatum. By such methods, very light colors can be obtained, but it is often done at the sacrifice of the quality of the petrolatum because such chemicals destroy the proto-substance present in the natural petrolatum. Such petrolatums in reality are thin liquids held together by an excess of wax.

Variation in Fibre Characteristics.—It is often the belief of the pharmaceutical and cosmetic chemist that petrolatum is just petrolatum and that almost any petrolatum will do for a given purpose, as long as the color is about right. However, petrolatum is not such a simply defined product, but one which exists in a variety of different types. There are certain types of petrolatum of excessively long fibre characteristics which tend to make the finished product too sticky or stringy. The type of petrolatum used for most pharmaceutical and cosmetic preparations should be of ***medium*** but not short fibre. A very short fibre petrolatum is undesirable for most pharmaceutical and cosmetic uses since it is apt to result in a product of thin body, and it also lacks the smooth salve-like consistency of petrolatum of medium fibre characteristics. Shortness of fibre is usually found in synthetic petrolatums and in petrolatum refined by chemical treatment.

In selecting the proper type of petrolatum for a given purpose, two further important properties should be considered, namely, melting point and consistency. These two properties of petrolatum are entirely independent of each other. In other words, a petrolatum can have a high melting point coupled with soft consistency, medium consistency or hard consistency.

Melting Point.—While melting point is admittedly a consideration, its importance is often overestimated. The melting point of the finished product should be high enough to preclude its liquefying at summer temperatures. However, there is no additional advantage derived from the use of a petrolatum having a melting point higher than that.

Consistency Tests.—Correct and uniform consistency is one of the most important factors in determining the suitability of a petrolatum for a given purpose. The consistency of petrolatum can be determined with an instrument similar to the asphalt penetrometer. The principle of this method, which has been adopted by the American Society for Testing Materials, is to determine the distance a steel cone penetrates under its own weight into the petrolatum. The softer the petrolatum, the deeper will the cone penetrate into it during a given time.

There is a still more sensitive method, the principle of which is to determine the time in seconds it takes for a plunger of lighter weight than that used in the A. S. T. M. method, to sink 1 inch into the petrolatum. This method is very accurate, because a very slight variation in con-

sistency of the petrolatum already causes a big difference in the time it takes for the plunger to penetrate 1 inch. Correct and uniform consistency of petrolatum is considered to-day one of the most important characteristics of petrolatum.

Petrolatum Classifications.—U. S. P. petrolatum can be divided into three distinct types, according to melting point and consistency. Each type can then be subdivided according to color into individual grades.

Type No. 1 includes those petrolatums which have medium melting point and medium consistency. Type No. 2 are petrolatums of low melting point and soft consistency and, finally, Type No. 3 are petrolatums of high melting point and medium consistency.

The petrolatums of medium melting point and medium consistency—type No. 1—are the standard petrolatums of commerce and are used in largest volume. They are best suited for use in pharmaceutical salves, cosmetic creams, hair dressings, etc. Petrolatum of this type has a melting point of about 115–120° F. and is produced in different colors ranging from amber to an almost pure white.

Petrolatum of low melting point and soft consistency—type No. 2—is particularly recommended for repackaging in jars or tubes for resale as petroleum jelly for household use where a soft easy spreading consistency is desirable. It should be employed as the petrolatum base when a large amount of solid ingredients are to be added. This type of petrolatum, however, is not recommended when a large amount of liquid ingredients, such as white mineral oils, are part of the formula. The soft consistency and rapid liquefying properties of this petrolatum (which has a melting point of about 105–110° F.) makes it particularly suitable for salves of all kinds. It is often referred to as collapsible tube grade or ointment grade.

Type No. 3 (which has high melting point and medium consistency) is required only in those cases where the addition of liquids would otherwise reduce the melting point of the finished product to an undesirable degree. The melting point of these petrolatums is in the range of 125–130° F.

There is a fourth type of petrolatum characterized by high melting point and hard consistency. The usefulness of such petrolatum which has a melting point of about 130–135° F. is limited, though there are certain applications for it in the cosmetic industry, as for instance, in the preparation of lip and paste rouges, etc., which should not be overlooked.

Selection of Correct Petrolatum Type.—In making up any preparation in which the use of petrolatum is desirable or essential, it is necessary to investigate which type of petrolatum is best suited for a given purpose. Only in this way can the fullest benefit be derived from the use of petrolatum.

For example, in the formula for zinc oxide ointment, the Pharmacopœia simply specifies White Petrolatum, which means any U. S. P. petrolatum of a color of lily white or lighter. However, the 20% zinc oxide which is to be added to the petrolatum tends to stiffen up the finished ointment. Therefore, a petrolatum of soft consistency should be used for this purpose, because it will compensate for the stiffening action of the zinc oxide. As another example, in a phenol ointment, which should not be too soft, a petrolatum of medium consistency and medium melting point is the proper type to use. In the Pharmacopœia X, the hardening of an ointment was accomplished by specifying the use of paraffin wax or beeswax, whereas for softening purposes, the addition of white oil was prescribed. This procedure is not ideal. By adding a relatively large amount of paraffin wax or beeswax, the structure and appearance of the ointment is unfavorably affected and it will not spread smoothly and evenly whereas the addition of oil may result in separation and "sweating."

It is gratifying to note that the U. S. Pharmacopœia is recognizing the progress made in petrolatum refining by their proposed change of the official ointment formulas in the new Pharmacopœia. When these changes go into effect, petrolatum will not only take the place of benzoinated lard in all those formulas, which still prescribe its use, but the pharmacist will be able to modify a given formula in such a way as to employ the type of petrolatum which requires the least amount of wax for hardening and the least amount of oil for softening. This also will enable the pharmacist to prepare ointments which will not be too soft in warm climates or too hard in cold climates. The empiric system of formulating many pharmaceutical and cosmetic preparations is always wasteful. Trial and error can be avoided, once the function of a white mineral oil and petrolatum in a specific formula is understood.

At the close of the speaker's address members in the audience asked several questions regarding the use of kerosene oil in cosmetics and the use of petrolatums. At the close of the discussion a rising vote of thanks was accorded the speaker for his very interesting and instructive talk and the meeting adjourned.

RUDOLPH O. HAUCK, *Secretary.*

PHILADELPHIA.

The March meeting of the Philadelphia Branch, AMERICAN PHARMACEUTICAL ASSOCIATION, was held at the Philadelphia College of Pharmacy and Science March 12, 1935, with Vice-President Miller presiding.

The occasion of the evening, previous to the meeting, was that of the annual dinner tendered by the members of the branch to its past-presidents in honor of their loyalty to the organization.

Before seating the party, Vice-President Miller requested a period of silence in memory of the former presidents who, during the past year, answered their last call.

The following past-presidents were in attendance, and each was called upon, by the chair, for a word of greeting and a few appropriate remarks: W. A. Pearson, E. Fullerton Cook, Ambrose Hunsberger, J. W. E. Harrisson, Adley B. Nichols, Marin S. Dunn, James C. Munch, Wm. J. Stoneback and Frank H. Eby. The remarks for the most part dealt with brief historical sketches of the association. After the dinner the members of the branch and guests assembled in the college auditorium for a business session.

The minutes of the last meeting were read and approved.

The treasurer's report was submitted with certificates of audit as rendered by Wm. J. Stoneback. The report showed a balance of $155.79 plus a 10% payment from the closed Mutual Saving Company, which is placed in a separate saving fund. On motion duly seconded and carried the report was accepted.

The resolution upon the death of William L. Cliffe was read, adopted and spread upon the minutes.

Vice-President L. L. Miller than introduced Dr. J. W. E. Harrisson as the speaker of the evening. He gave a very interesting and informative lecture on the proposed legislative measures before the Federal government, namely, the Meade and the Copeland bills. Dr. Harrisson very thoroughly and clearly gave a tabulated summation of the chief similarities and dissimilarities between the two bills and enumerated the complexities of certain phases of each bill. A short discussion followed the address, after which Ambrose Hunsberger presented the following resolution:

TO THE CONGRESS OF THE UNITED STATES.

WHEREAS, it has become apparent that in order to afford adequate protection to the consuming public against fraud and deception the Food and Drugs Act now in effect needs to be expanded and strengthened, and

WHEREAS, several bills have been introduced into the Congress which are designed to achieve the above purpose, therefore

Be it resolved by Philadelphia Branch, AMERICAN PHARMACEUTICAL ASSOCIATION, in regular meeting assembled that we endorse any legislation which provides adequate protection against the distribution of substandard or adulterated Foods and Drugs, and

Be it further resolved, that such legislation should provide methods for preventing and exploitation of Foods, Drugs and Cosmetics by false misleading, and deceptive advertising in whatever form, and

Be it further resolved, that such legislation should require statements on the labels of containers setting forth the identity and percentage of the potent ingredients contained therein, and

Be it further resolved, that enforcement of the foregoing and all other provisions of Food and Drug Control enactments should be placed under the jurisdiction of the Food and Drug Administration in the Department of Agriculture.

Respectfully submitted,

Philadelphia Branch, AMERICAN PHARMACEUTICAL ASSOCIATION.

E. H. MacLaughlin, *President.* G. E. Byers, *Secretary.*

Said resolution to be placed on our records and a copy mailed to the proper authorities for delivery to the Federal Committee on said bills. Motion was seconded, accepted and so ordered.

A rising vote of thanks was then given to Dr. Harrisson for his timely lecture.

Chairman James C. Munch, of the Nominating Committee, reported a list of officers for the coming year. The nominees were duly elected; they are: *President*, Edmund H. MacLaughlin; *First Vice-President*, L. L. Miller; *Second Vice-President*, John N. Woodside; *Secretary-Treasurer*, George E. Byers; *Delegate to the House of Delegates*, Ambrose Hunsberger.

GEORGE E. BYERS, *Secretary*.

STUDENT BRANCH OF ST. JOHN'S UNIVERSITY COLLEGE OF PHARMACY.

The regular meeting of the Student Branch of St. John's University College of Pharmacy, A. PH. A., was held January 28th, President Arancio presiding. The minutes of the previous meeting were read and approved. The several committees presented their reports. Chairman Matz, of the Committee on Program, presented Mr. Bellafiore, the first speaker for the evening, who discussed "The Pharmaceutical Possibilities of Dental Supplies," taking as a source for his material an article published in the last issue of the JOURNAL A. PH. A. He recalled the coöperation between doctor and pharmacist of some years ago when pharmacists detailed doctors with suitable official preparations which the doctors subsequently prescribed.

This was to their mutual benefit, he said, "the doctor being assured of therapeutically active medicines and the pharmacist in being able to dispense standard non-proprietary preparations. The dentist who to-day buys proprietaries through dental supply houses is often lured into using harmful products or products which masquerade under meaningless descriptive terms and whose true worth cannot be determined. The pharmacist can not only protect him from these impositions but can replace these items with official products at lower prices." Mr. Bellafiore concluded by mentioning several official substances that can be offered to the dentist; among them were Mercury, Tincture of Iodine, Eugenol, Liquefied Phenol and Compound Dental Liniment of Aconite.

The next speaker was introduced by Professor Corcoran as Charles Harland Simpson, Jr., official representative of the United States Public Health Service. His subject was "Pharmacy in Public Health Service." Mr. Simpson outlined to an interested audience the growth of the service from 1798 when it was first established as a hospital for the care of seamen to its present indispensable activities in safeguarding the health of the nation.

"To-day the Service consists of seven divisions headed by the Surgeon-General of the Public Health Service who is in turn under the jurisdiction of the Secretary of the Treasury. The names themselves indicate the functions of the various divisions: Division of Research, Marine Hospitals, Mental Hygiene, Venereal Disease, Domestic Quarantine, Reports and Vital Statistics, Foreign and Insular Quarantine."

"Modern means of transportation," Mr. Simpson pointed out, "both inter-state and international, can spread disease so rapidly that rigid inspection and quarantine are absolutely essential. For example, some one who had contracted a disease in some South American port would develop the symptoms of the disease in the two weeks on ship-board whereas to-day he is deposited in our country by plane in a few days before the disease has had time to make its appearance. Then again trains carrying milk, water, passengers, etc., within our borders have to be watched. To control these modern conditions the Division of Reports and Vital Statistics has available the condition of health of cities, states and nations so that inspectors know whence to expect disease.

"The service is quick to investigate health problems. For example, its Research Division discovered the poisonous properties of knockless gasoline and prevented its use as a dry cleaner. It traced to oysters grown in unsanitary beds an outbreak of typhoid in Chicago and caused legislation to be passed that oysters may be grown only in inspected beds. Its work eradicated amœbic dysentery and encephalitis almost completely.

"In 1929 Narcotic Farms were established where drug addicts are sent for a cure which consists largely of gradual withdrawal of the drug and instruction in personal hygiene. This led to the formation of the Division of Mental Hygiene which in addition cares for morons and Federal prisoners.

"Lepers are sometimes discovered in this country. Without publicity these are withdrawn to hospitals where they are treated. The Service provides standards for biologicals and vaccines. It inspects immigrants. It controls the proper neutralization of arsphenamine.

"Pharmacists perform an important part of this work. After a preliminary training, they are named administrative heads of Marine Hospitals, direct crews in fumigating ships from diseased ports to kill rats or act in their professional capacity. They are admitted to the service only with a B.S. in Pharmacy degree after passing written and oral examinations in academic, business and professional subjects.

"The Service is the first part of our Government to recognize the pharmacist with a Commission. Pharmacists will act as administrative coördinators throughout the country in the proposed social security program."

At the conclusion of his talk Mr. Simpson was given a vote of thanks.

ADA J. BIZZARRI, *Secretary.*

PROGRAM.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.*

PROGRAM—SECTION N (MEDICAL SCIENCES). SECTION N3 (PHARMACY).

Thursday, June 27, 1935, 10:00 A.M. to 12:30 P.M.[1]

John C. Krantz, Jr., Councilor—to the American Association for the Advancement of Science from the AMERICAN PHARMACEUTICAL ASSOCIATION—Presiding.

Gustav Bachman, Councilor—to the American Association for the Advancement of Science from the AMERICAN PHARMACEUTICAL ASSOCIATION—Local Secretary.

The assignments are 15 minutes for each presentation.

1. "Studies on the Penetration of Antiseptics in Living Tissues." By Arthur D. Hirschfelder and Milan Novak, Department of Pharmacology, School of Medicine, University of Minnesota.

2. "A Study of *Cracca Virginiana L.*" By Lawrence F. Madland and Arthur H. Uhl, Department of Pharmaceutical Chemistry, University of Wisconsin.

3. "Colloidal Properties of the Arsphenamines in Relation to Toxicity and Therapeutic Efficiency." By Harold N. Wright, Department of Pharmacology, School of Medicine, University of Minnesota.

4. "The Fate of the Sugar Alcohols and Their Anhydrides in the Animal Body." By John C. Krantz, Jr., C. Jelleff Carr and Ruth C. Musser, Department of Pharmacology, School of Medicine, University of Maryland.

5. "The Application of the Shaffer-Smogyi Method in the Study of the Deterioration Rate of Tincture of Digitalis and a Physical and Pharmacological Investigation of the Absorption of Glucosidal Complexes Present in Tincture of Digitalis." By Earl B. Fischer, R. A. Gortner and Charles E. Rogers, Department of Pharmacy and Biochemistry, University of Minnesota.

6. "The Microscopy of Powdered Desiccated Endocrine Glands." By Heber W. Youngken, Department of Pharmacognosy, Massachusetts College of Pharmacy.

7. "A Physicochemical and Pharmaceutical Contribution to the Solubility of Boric Acid in Water." By George Grossen and Gustav Bachman, Department of Dispensing, College of Pharmacy, University of Minnesota.

8. "The Effect of Certain Sugar Alcohols and Their Anhydrides in the Disassociation Constant of Boric Acid." By Margarethe Oakley, C. Jelleff Carr and John C. Krantz, Jr., Bureau of Chemistry, State of Maryland Department of Health, and Department of Pharmacology, School of Medicine, University of Maryland.

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* Minneapolis, Minnesota.

[1] Meeting Room to be announced later.