

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to the Association and Branches shall become the property of the Association with the understanding that they are not to be published in any other publication prior to their publication in those of the Association, except with the consent of the Council."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. *Please advise us of changes in Roster and mail reports promptly.*

CITY OF WASHINGTON.

The regular meeting of the Washington Branch was held at the INSTITUTE OF PHARMACY, April 18th. Minutes of the March meeting were read and approved. Dr. Fuller, chairman of the Program Committee, announced that Dr. C. A. Browne of the Bureau of Chemistry and Soils, would give an illustrated talk entitled "Some Relations of Pharmacy to Alchemy and Early Chemistry in America," at the May meeting.

Dr. W. Paul Briggs, discussing "Pharmaceutical Education in the United States," reviewed the early history from the first pharmacy in Bagdad and the oldest school in Solerno. In early American history, previous to the founding of the first pharmacy in 1770, medicine and pharmacy were combined, the physician usually compounding his own prescriptions.

The first movement to set up a separate school of pharmacy was carried out in 1816 at the University of Pennsylvania; the first degree in pharmacy at this institution was awarded in 1821. The Philadelphia College of Pharmacy and Science was founded in 1821 at Independence Hall in Philadelphia by the apothecaries of the city who were united by the fear of the domination of pharmacy by the medical profession. The curriculum usually consisted of evening courses conducted by the pharmacists themselves to supplant the practical work. There were no science courses. The School of Pharmacy at the University of Michigan was founded in 1876. Now 75% of the schools of pharmacy are either state-supported or endowed institutions.

Entrance requirements were very low between 1821 and the beginning of the 20th century. In 1920, one year of high school was required for admission, in 1931, four years. The course in pharmacy was extended to two years in 1915, to three years in 1922, and to a full four-year course in 1932. The amount of practical experience required of a student varies between states.

The degrees conferred upon graduation are the baccalaureate degree and the degrees of Master of Science and Doctor of Philosophy. Changes are made in the curricula of the schools to keep them abreast of the times. The American Council of Pharmaceutical Education, the Pharmaceutical Syllabus, and the American Association of Colleges of Pharmacy have been formed to guide the expansion and advancement of the profession.

The American Council of Pharmaceutical Education grew out of the practice of individual members evaluating the different schools. The council has adopted standards of education similar to those in the legal and medical professions, and accredits the existing schools according to them. As the standards have been raised, the number of schools has decreased.

The problem of pre-pharmacy training was raised by Dr. Swann and discussed by Dr. Briggs, Dr. Kelly and Dr. Kebler.

"Some Interesting Poison Cases" was the subject of the combined talks of Mr. W. V. Linder and Mr. P. J. Valaer, both of the Internal Revenue Department. Mr. Linder reviewed the

history of the Poison Ginger of Ginger Jake Case from his entrance into the department eight years ago. At this time the Bureau was working on the classification of beverages for governmental taxation. In 1924, fifteen or twenty U. S. P. and N. F. preparations were classed as beverages. Jamaica Ginger had been used for forty or fifty years and its use was increasing rapidly in the South and Southwest before it, too, was classed as a beverage in 1934. The double strength soon followed but the fluidextract, considered unfit for consumption as a beverage, was often adulterated with molasses, glycerine, olive oil or mineral oil.

In February 1930, there appeared on the market fluidextract of ginger which caused paralysis of the wrists and ankles of the consumers. Analysis showed it to contain phenol and phosphates. Dr. Fuller suggested that selindol, a plasticizer containing ortho tricresol phosphate, might have been used as an adulterant; and tests conducted by the Health Department showed that this substance produced the same effect in animals as the ginger preparation.

About 15,000 people, principally boys and girls, were crippled by this "Gig food." The young people quite often recovered from the effects of the paralysis but the older victims did not. There were several firms manufacturing this product, the most important being in Boston. This firm used bootleg alcohol, ginger, ortho tricresol phosphates and diethylene glycol in its product. The ortho tricresol phosphate was used because it took up the ginger and made a nice solution.

Mr. Valaer described the chemical procedure by which pure ortho tricresol phosphate was separated. All of the ginger on the market, about 100 barrels mostly Jake, was seized and to the promptness of this move was credited the saving of roughly 80,000 people from the effects of the poisoning. When the cases were taken to court, victims from every walk of life and many professions came to testify. Dr. Van Itallie corresponded with Mr. Linder and Mr. Valaer with reference to similar cases appearing in Jugoslavia and Austria. It was found that apiol, used in abortions, was being diluted with ortho tricresol phosphate to make it last longer.

The meeting was adjourned at ten o'clock.

KENNETH L. KELLY, *Secretary*.

NORTHERN NEW JERSEY.

The Northern New Jersey Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION met at Rutgers College of Pharmacy April 18th. About 150 attended this meeting, which was the annual Physicians-Pharmacists meeting.

Dr. Reeve L. Ballenger, Member of the Pharmaceutical Problems Committee of the New Jersey Medical Society, spoke on "Professional Relations of the New Jersey Medical Society." Because Dr. Ballenger was a graduate pharmacist before becoming a physician he well understood many of the problems of both professions. Some of the points made by the speaker were: the absence of the professional atmosphere in many of the pharmacies; the failure of the pharmacist to detail, or properly detail, the physician on official drugs and preparations; the failure of the physician to avail himself of the assistance the pharmacist could render.

Mr. William R. Ricart, chairman of the Professional Relations Committee of the New Jersey Pharmaceutical Association, in his topic "The New Jersey Formulary," told of the work that was being done to bring to the physician suitable preparations to meet the needs of the profession. The fact that many of the formulas of the first edition of this booklet were included in the N. F. VI indicates the merit of the booklet.

Dr. Thomas M. Pascall, M.D., a medical practitioner of Newark, in the topic "A Wider Pharmaceutical Knowledge of Official Medication for the Physician," criticized the medical schools for their failure to better equip the students with a knowledge of official medicaments and prescription writing. He also cited many instances of official preparations that were the equivalent of more expensive proprietary preparations.

Professor Adolph F. Marquier, in speaking of "Official Medication and Its Uses," illustrated his talk with many preparations of the U. S. P. and N. F.

Demonstrations of U. S. P., N. F. and New Jersey Formulary preparations were made in the Dispensing Laboratory after the meeting. Students of the senior and junior classes prepared these, and much interest was shown in their work by both the physicians and the pharmacists.

Each year this annual event is attracting more interest from both professions.

C. L. COX, *Secretary*.

NORTHWESTERN.

A joint meeting of the Northwestern Branch of the A. PH. A. and the Scientific and Practical Section of the Minnesota State Pharmaceutical Association was held on Wednesday morning, April 27th, in the ballroom of the Nicollet Hotel, Minneapolis.

Dean Emeritus F. J. Wulling presided over the joint meeting assisted at times by Prof. E. B. Fischer. The following lectures and papers were presented: "The Romance of Spices," by G. Demars; "Seeing Ourselves," by Roy Paulson; "The Professional Pharmacist," by Sister M. Constance; "Chairman's Address," by F. J. Wulling; "Sistosan, a Non-Toxic and Non-Irritant Hæmostatic," by Sister St. George; "THE INSTITUTE OF PHARMACY or the Headquarters Building of the A. PH. A., at Washington, D. C. (illustrated)," by Prof. E. N. Gathercoal, president of the A. PH. A.

A second joint meeting of the two bodies convened Thursday morning, April 28th, in the same place to listen to the following program: "Andrew J. Kline, a Memoir," by F. J. Wulling; "The Pharmacist and Public Health," by N. Vere Sanders; "Factors Influencing the Stability of Liquor Magnesii Citratis U. S. P. XI," by George E. Crossen and Dean Chas. H. Rogers. "The 1938 A. PH. A. Meeting in Minneapolis," by F. J. Wulling; "Dispensing Problems," by Gustav Bachman; "Correlations of Predictive and Achievement Tests Given to Students Entering Pharmacy," by Dean Chas. H. Rogers; "The Chemotherapy of Blood Infections," by Miss Laurine Jack; "Drugs Affecting Blood Pressure," by Prof. Glenn L. Jenkins; "Sodium Perborate as a Tooth-powder," by Chas. V. Netz; "The Pharmaceutical Aspect of Cannabis," by Prof. E. B. Fischer; "N. F. Revision and Research Work," by Prof. E. N. Gathercoal; "Public Health," by Prof. Gustav Bachman; "Nostrums, Old and New," by C. E. Smythe; "The Future of Pharmacy, 1912 versus 1937," by R. Messing.

Chas. V. Netz, secretary-treasurer of the Northwestern Branch of the A. PH. A., presented his official report for the past year. He called attention to the coming 1938 convention of the A. PH. A. to be held in Minneapolis in August, pointed out that all Minnesota Pharmacy would be host to the convention guests and promised a campaign for A. PH. A. membership among the Minnesota pharmacists within the next month.

CHAS. V. NETZ, *Secretary-treasurer*, Northwestern Branch of the A. PH. A.

ABSTRACTS OF CONTRIBUTIONS TO THE MEETING OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCES.

The Subsection on Pharmacy was held on December 27th at ten o'clock in the ballroom of the Antlers Hotel, Indianapolis, Indiana. Below are given the abstracts of the papers that were delivered in that Section.

1. *The Assay of Midriatic Drugs.*—Alice Hayden, C. B. Jordan and H. G. DeKay. The authors determined the quantity of volatile constituents in hyoscyamus, belladonna and stramonium. These constituents were tested pharmacologically and certain assay processes checked and modifications of the official assay processes for midriatic drugs and preparations were recommended to the Revision Committee of the United States Pharmacopœia.

2. *Homologs of Salol. The Salicylates of Isomeric Amyl Phenols and Amyl Cresols.*—H. G. Kolloff, J. O. Page and M. C. Hart. Since the establishment of the salol principle by Nencki, several esters of salicylic acid have been prepared in the hope that they would display a more powerful internal antiseptic action than the phenol salicylates. The discovery that the alkyl substituted phenols and cresols are more germicidal than the unsubstituted ones raises the question of whether or not salicylates of these might be more efficient internal antiseptics than salol. The salicylates of the following phenols were prepared by refluxing the desired phenol and salicylic acid in toluene with phosphorus oxychloride: *o-n*-amyl phenol, *p-n*-amyl phenol, 3-*n*-amyl-*o*-cresol, 5-*n*-amyl-*p*-cresol, 4-*n*-amyl-*m*-cresol, 3-*n*-amyl-*p*-cresol, sec.-amyl-*p*-cresol and 4-chlor-*o*-cyclo-hexylphenol. The rate of hydrolysis of these esters was found to compare favorably with that of salol.

3. *The Chemical Constitution and the Physiological Activity of the Latex of Ficus pumila L.*—Conrado F. Asenjo. *Ficus pumila* L., also known as creeping fig, has not been previously

investigated phytochemically. The author gave an account of the investigation now under way, on the chemical constitution of this latex. A protein fraction obtained from the latex exhibits the property of digesting some human and animal parasitic worms.

4. *A Study of the Toxic Principles of Red Squill*.—Floyd J. LeBlanc and C. O. Lee. Red squill powder is very toxic to rats but not so toxic to other forms of animal life. The active toxic principle has not been definitely isolated, but an alcohol-ether solution was obtained which when evaporated gave no definite melting point but was found to be approximately one hundred times more toxic than the original red squill powder. White female rats are killed by one-half the dose necessary to kill white male rats.

5. *Gelsemicine, Aconitine or Pseudaconitine; Which Is the Most Toxic Alkaloid?*—K. K. Chen, Robert C. Anderson and E. Brown Robbins. The toxicity of gelsemicine, aconitine and pseudaconitine (in form of their halides) was compared, weight for weight, in mice, rats, guinea pigs and rabbits. The alkaloids were injected intravenously in mice, rats and rabbits, but subcutaneously in guinea pigs. The order of toxicity of the three substances varies from one species to another. The results show that in mice, gelsemicine > aconitine > pseudaconitine; in rats, gelsemicine > pseudaconitine > aconitine; in rabbits, pseudaconitine > aconitine > gelsemicine; and in guinea pigs, pseudaconitine > aconitine > gelsemicine.

6. *Daphnia—Indicator and Dosimeter in Microphysiology*.—Arno Viehoveer. Experimental work with daphnia shows that it can be used as an indicator on organs representing the muscular, nervous and glandular tissues in the case of many hypnotic irritant and laxative drugs as well as snake venoms and insecticidal substances.

7. *Mechanism of Action of Alpha Naphthyl Isothiocyanate.—A New Organic Insecticide*. A. Viehoveer and N. Tischler. A 1 per cent solution of alpha naphthyl isothiocyanate in combination with 0.03 per cent of pyrethrins in kerosene gives excellent control of house flies; a 2 per cent solution of the chemical alone in kerosene when used at the rate of 1 pint to 1 quart on 100 square feet of the usual upholstery, woolen fabrics will give good control of clothes moth larvæ and a tripple amount of this mixture will give good control of carpet beetle larvæ. The speed action, where it is essential for practical purposes, can be greatly hastened by the addition of small amounts of pyrethrum extract.

8. *Enteric Coatings*.—J. T. Goorley and C. O. Lee. The studies showed that the commonly used enteric coatings are unreliable. A coating mixture was devised which depended upon the action of the digestive enzymes for disintegration. A new formula was given with the procedure of applying it and the reliability of the coating was shown by numerous X-ray pictures and fluoroscopic experiments.

9. *Field Tests for Marihuana (Cannabis)*.—Arno Viehoveer. Tests were designed for the immediate analysis of cigarettes or leaves in case of seizures which were supposed to contain marihuana. The most rapid extraction of the narcotic principle, cannabinalol, without the excessive interference of plant pigments, can be made by placing the contents of $\frac{1}{4}$ of a marihuana cigarette ($\frac{1}{300}$ ounce) in the reagent benzene (9 parts) and 2 per cent alcoholic potash (1 part) for 5 seconds. This reagent is rapidly poured off into a low-mouthed glass receptacle. From $\frac{1}{3}$ to $1\frac{1}{2}$ minutes the yellowish tint changes to pink and a deeper red, leaving after evaporation a purple residue. The residue redissolved in acetone yields a bluish violet tint, while in strong ammonia an orange-red coloration appears. Using the benzene solution of marihuana (extracted for one minute) when evaporated and then tested on transparent *Daphnia magna*, the biological reagent, supplementary physiological evidence of unmistakable narcosis is obtained within one hour. Frost apparently does not destroy the activity of the agent.

10. *The Effect of Peptone on the Resistance of Staphylococcus aureus*.—George F. Reddish and Ella M. Burlingame. Ten peptones were studied as to their effect on the resistance of *Staphylococcus aureus* to germicides. Then tested on the third, seventh and tenth days after transfer to broth made with each peptone, differences in resistance of these cultures were observed. Since tests on phenol dilutions were made at five, ten and fifteen minutes these variations were not so apparent as when the cultures were tested on an antiseptic solution at time intervals of thirty seconds, one, two and three minutes. When these shorter time intervals were employed in the tests it was shown that nine of the ten peptones gave weaker cultures than did the broth made with Armour's peptone. These results showed that Armour's peptone in our hands was best

suiting for use in media employed for growing *Staphylococcus aureus* for use in testing antiseptics and disinfectants.

11. *Fluorescence Analysis of Some Alkaloids and Crude Drugs*.—Abraham Slesser. The substance or substances causing the characteristic fluorescence of alcoholic extracts of ipecac in ultraviolet light is alkaloidal in nature. The elimination of other alkaloids by using the proper precipitants seems to show that either psychotrine or *o*-methyl psychotrine, or both, are apparently found responsible for the fluorescence found in alcohol extracts of ipecac.

12. *The Determination of Volatile Oil in Vegetable Drugs*.—Elmer H. Wirth. A study was made of the various methods for the determination of the amount of volatile oil in vegetable drugs. The efficiency of the various methods was determined and experimental evidence was obtained illustrating the sources of error in the volatile ether extract method in the United States Pharmacopœia. The study is of value in revising the methods used in pharmacopœial revision.

13. *The Glycosides of Asclepias Cornuti or the Common Milkweed*.—A. H. Rihn and H. G. DeKay. This plant has been studied for its caoutchouc content. Glycosides and saponins have been found in other species of *Asclepias*. The commonly accepted methods of extracting the drug was used and any glycosidal material was isolated from the extracts of the leaves, the stems and the rhizomes. It was found that the sugars, sucrose and glucose, were present in the aqueous and alcoholic extracts of the several portions of the plant. The leaves and stems yielded a bitter principle which was divided into two fractions, one possessing toxic properties and the other non-toxic. There was apparently no glycoside in the leaves and stems. A glycoside was found to be present in the rhizomes which produced toxic principles when injected into sparrows.

Joint Session of the Subsection on Pharmacy with the Section on Medical Science was held on Monday, December 27th, 2 P.M., at the Antlers Hotel. The papers presented are abstracted as follows.

1. *Inhibitions of the Autonomic Nervous System Which May Enter through the Eyes*.—E. L. Jones. The author discussed abnormal mechanisms in the eyes as causative factors in the production of numerous symptoms in other parts of the autonomic nervous system. A large number of clinical cases was cited as evidence.

2. *Influence of an Anterior Pituitary-Like Principle on the Growth and Function of the Genitalia of the Male*.—W. O. Thompson, N. J. Heckel, P. K. Thompson and L. F. N. Dickie. The anterior pituitary-like principle from the urine of pregnant women exerts a profound influence on the growth and function of the male genitalia. It is much more efficacious in the production of genital growth in man than any extract of the pituitary itself which is available at present. In young boys it may produce such marked stimulation of genital growth that premature puberty results. Boys developing premature puberty from the use of this material show a marked increase in the size of the penis, scrotum and prostate and the amount of pubic hair. In contrast to these changes the testes show little or no increase. Susceptibility to this growth stimulus is greater before than after the age of puberty, but is not completely absent after this period, a marked increase in the size of the genitalia having been produced with large doses as late as the age of thirty-seven years. The genitalia stops growing and may decrease in size when the administration of this material is discontinued. Because of its stimulation of genital growth, it is valuable in the treatment of hypogenitalism in the male, particularly in the boys of the Fröhlich type, and facilitates the operative correction of hypospadias.

3. *Leukemia: Its Etiology, Nature and Cure in Animals. Its Possible Relations to Certain Specific Diseases of the Human*.—M. W. Emmel. Leukemia has been induced in the chicken, dog, monkey, hog, sheep, goat and mouse by the repeated intravenous injection of small numbers of bacteria of the paratyphoid and typhoid groups. Such infection if carried to a certain point results in a chronic but progressive process of tissue autolysis without further stimuli by the causal organism. This fundamental process of self-perpetuating autolysis of blood tissue eventually leads to the development of leukemia in from two to nine months. This process of progressive tissue autolysis can be initiated not only by the viable causal organism but also by similar injections of heat-killed causal organisms, chemicals, such as benzene, phenol and xylo, and homologous tissues (dog tissue into the dog, monkey tissue into the monkey, etc.). The nature of the fundamental process of tissue autolysis is similar regardless of the agent initiating the process and the species involved. An homologous tissue antiserum will cure the major portion of cases of all

types of leukemia in the chicken and lymphatic leukemia in animals. The process of progressive tissue autolysis offers a new avenue of approach to the study of cancer and possibly other diseases of man and animals.

4. *Chronic Rheumatic Brain Diseases as a Factor in the Causation of Dementia Præcox.*—Walter L. Bruetsch. Eight per cent of dementia præcox patients who were examined at autopsy showed signs of a chronic rheumatic infection, affecting the brain as well as the heart. In a small number of cases it was known that the infection had damaged the heart. The rheumatic affliction of the brain, however, which caused the mental breakdown was not suspected and was not recognized while living. The suggestion is made to separate the cases of dementia præcox caused by rheumatic brain disease from the large descriptive group of schizophrenia as a subgroup with a distinct etiology.

5. *Investigation on Certain Basic Mechanisms Necessary for Complement Activity.*—E. E. Ecker. The study showed a close parallelism between ascorbic acid content and the activity of fresh guinea pig complements. Serums of scorbutic guinea pigs showed low complementary activities. The parallelism held true up to 1 mg. of ascorbic acid per 100 cc. of serum at which point no further increase of ascorbic acid in the blood serum of guinea pigs and in the case of subacute scurvy a rise of complementary activity was found. The effect of ascorbic acid on various fractions of complement was investigated and finally the effects of oxidizing agents like iodine, quinone, H_2O_2 , O_2 , Cu_2O , C_6H_5HgCl and von Szent Györgi's hexoxidase. Under controlled oxidation studies we were able to reactivate the weakened complement by means of several reducing agents like ascorbic acid, H_2S , $Na_2S_2O_4$ and KCN. Aged complement was markedly reactivated with H_2S water. A study just completed introduces the relation of glutathione content of whole blood and complementary activity of the serum. It is possible to markedly reduce the glutathione content of the whole blood of guinea pigs and rabbits but the fall of complementary activity was not marked as in the case of scorbutic animals. In the animals with reduced blood glutathione contents the ascorbic acid was maintained at a normal or higher than normal level.

6. *Desiccated Thyroid Feeding and Androgenic Function of Ovaries.*—R. T. Hill. Male mice were castrated and at the same time received grafts of mouse ovaries in their ears. Subsequently the animals were subjected to an environmental temperature of $20^\circ C$. for several weeks, after which time their sex accessories had returned to normal as a result of the androgenic function of the grafted gonads. A second period of treatment consisted of continued exposure to $20^\circ C$. temperature plus the daily feeding of a non-toxic amount of desiccated thyroid tissue for 21 days. At the end of this period of thyroid feeding the gross appearance of the sex accessories was that of long castrated males. Normal control males, kept under identical temperature and feeding conditions did not show any loss in the androgenic function of the testes as exhibited by the seminal vesicles and prostates. In a castrated male carrying an androgen secreting ovarian graft it is concluded that in some manner the feeding of thyroid enters into the local or general metabolism (or chemism) to block or inactivate continued androgenic function of the grafted gonad. Since no similar response was obtained in the normal males, it is suggested that the androgen (*s*) secreted by a grafted ovary is of a different chemical nature than that of the testis.

7. *The Problem of Evaluating the Clinical Activity of Ergot Preparations.*—Marvin R. Thompson. The assay methods officially enforced in the United States, Canada, Great Britain and other countries, measure chiefly the ergotoxine group of ergot alkaloids which are responsible for but a small part of the oral clinical activity, while completely neglecting the ergostetrine activity which is responsible for the greater part of the clinical activity of Pharmacopoeial Ergot preparations.

8. *The Local Anesthetic Action of Thiazoles, Oxazoles and Imidazoles.*—Charles L. Rose. Four groups of new synthetic local anesthetics have been investigated in animals and in man. They are chemically derivatives of benzothiazole, dihydrothiazole, dihydro-oxazole and imidazole. A most interesting finding is the fact that a member of the series has a very low toxicity by intravenous injections (approximately 40 per cent lower than that of procaine) but a higher toxicity by subcutaneous injection (approximately 100 per cent more than that of procaine).

9. *The Hemolytic Action of Sodium and Potassium Soaps.*—Leroy D. Edwards. There are no chemical tests that will satisfactorily distinguish true olive oil soap from soap made from other oils. A study of the mechanism of the hemolytic action of sodium and potassium soaps was undertaken as a possible means of determining the nature of the soap. Chemically pure soaps were

prepared from each of the following acids: lauric, myristic, palmitic, stearic, oleic and ricinoleic. The hemolytic power of these soaps was then determined at various H-ion concentrations over a p_H range of 6 to 9. The effects of the addition to a soap solution of alkali, mineral acid and free fatty acid were also investigated. The results obtained in the p_H study indicates that the typical hemolytic curve of a soap shows in the extreme acid range only moderate hemolytic power. As the H-ion concentration is reduced, the lytic value is lowered. The maximum values of the different soaps occur at widely differing p_H ranges. These results also demonstrated that the determination at 37° C. of the complete lytic curve for most soaps is impossible since the rise and fall of the curve do not come within the p_H limits of stability of the human red cell. The rises and succeeding falls in the hemolytic curves of the more soluble soaps appear at a higher H-ion concentration than those of the more insoluble soaps. When the soaps of the saturated fatty acids are compared as to their greatest lytic values at a given temperature, the following order is found: laurates > myristates > palmitates > stearates. This order does not hold at a given p_H . At a given p_H , an increase in the temperature enhances the hemolytic action of soaps. The following factors as possible causes for the observed augmentation and diminution of the hemolytic value of a soap at various p_H ranges are suggested: (1) the lowering of surface tension by soap; (2) the free alkali of soap solutions; (3) undissociated soap; (4) free fatty acid; (5) fatty acid ion; (6) acid soap. The conclusion is made that the ultimate lytic component of common soap solutions is the fatty acid molecule, and that it is enabled to act as such through the mechanism of some intermediate product of hydrolysis such as the acid soap or through a peptizing effect of undissociated soap.

10. *Mechanism of Action of Aphrodisiac and Other Irritant Drugs.*—Arno Viehovever and Isadore Cohen. There is need for the selection and evaluation of an efficient but safe aphrodisiac. Therefore a study of certain aphrodisiac drugs was undertaken. In the initial studies, *Daphnia magna*, the transparent crustacean, was selected as a test animal since it had previously shown its merit as a biological reagent in the specific action and associated effects of drugs, especially narcotics, laxative substances and potent poisons. Both the specific action and the associated physiological effects of the following three substances were recorded: yohimbine (HCl salt), cantharidin and capsaicin. All three substances cause pronounced and continued excitatory movements of the male genital organ. Actual ejaculation of the sperm was observed with the use of cantharidin. In varying concentrations the order of increasing lethal toxicity was found to be yohimbine, capsaicin and cantharidin. These agents in high concentration also produce irregular clumping and stasis of the intestinal contents as a result of the progressive and prominent swellings in the lining of the intestinal canal. In low concentration, 0.0033–0.0025%, yohimbine causes evacuation in young daphnia (7–9 days old); while capsaicin and cantharidin, both 1:30,000, show as a rule no indication of valuable laxative properties, their local irritant action apparently prevailing. Yohimbine and capsaicin in varying concentration depress progressively both the heart, producing dilation, and the respiratory movements. Cantharidin in suspension stops first, all vital activity except that of the heart, which then shortly collapses. Gravid females exposed to 0.1–0.025% yohimbine for five hours can be recovered by returning them to culture media although there remains even after 24 hours a partial depression of the heartbeat. Normal life activity, including the release of several broods of young, was observed subsequently. Yohimbine and capsaicin in varying concentration produce an exaggerated torsion of the muscles controlling the movement of the eye. Paralysis of these movements occurred after one hour in a suspension of capsaicin. The alteration in the normal swimming of animals under the influence of yohimbine (0.2–0.025%) and capsaicin (suspension) is caused by the incoördination of antennal movements, and, possibly in part, by the derangement in the optical system. The derangement of the swimming mechanism and the internal disturbances correlated can obviously be used as criteria in establishing the toxicity of test substances. These results with *Daphnia* furnish additional evidence that there are no sharply demarcated physiological differences between invertebrates and vertebrates. Certain specific and associated effects coincide with previous findings on vertebrates. The value of *Daphnia* as a biological reagent is further demonstrated by the unmistakable and consistent response of the anatomical and physiological systems to these additional test substances.

11. *Light Deficiency Rickets in Monkeys (Macaca rhesus).*—Henry J. Gerstenberger. On the basis of observations made on a total of 48 monkeys, protected against exposure to antirachitic wave-lengths and receiving a diet high in phosphorus as compared with calcium, it is concluded

that the rickets produced is quite like that met with in full-term human infants, inasmuch as 47 developed in the blood a low phosphorous level and only one a low calcium level.

12. *New Pharmacological and Bacteriological Facts about Iodocholeates.*—Paul C. Goedrich. It has been found that the germicidal properties of iodocholeates are superior to those of tincture of iodine when tested under severe and generally unfavorable conditions. Both aqueous and alcoholic solutions of iodine combine rather rapidly with blood serum, the iodine thus combined possessing no germicidal properties. Iodocholeates in solution combine with blood serum to a very much smaller extent, and for this reason its germicidal action is not reduced as appreciably as aqueous or alcoholic solutions of iodine, when used under conditions where blood serum and tissue fluids are present as is so frequently the case in general use. The free iodine in a tincture or Lugol Solution is rapidly converted into iodocholeates when bile acids or their salts are added. This reaction is followed by a marked increase in germicidal action. Iodocholeates are but very slightly volatile at body temperature. A 2 per cent solution of iodocholeates will retain many times as much iodine as a 7 per cent U. S. P. tincture after exposure of 10 to 15 minutes at such temperatures. An alcoholic solution of iodocholeates when boiled shows no separation and almost no volatilization of iodine. Further tests again indicate the exceedingly low toxicity of iodocholeates. The fact that iodocholeates retain their iodine in active form under conditions such as exist in the treatment of wounds is of clinical significance. Its low volatility prevents the loss of iodine such as has been found to occur in the case of the U. S. P. tincture. Because of the fact that it is non-irritating, it can also be used under bandages without causing blistering or other bad effects.

13. *A Study on the Temperature Necessary to Cause Death in Fatigued Neurons as Compared with Resting Neurons.*—George D. Shafer and Royce K. Skow. It has recently been shown that the heat rigor temperature of fatigued muscle is considerably lower than that of resting muscle, the lowered rigor temperature of fatigued muscle cells being associated with their uptake of water through an increased osmotic pressure which they acquire during the fatiguing process. It is now shown that when fatigued and resting neurons and nerve fibers (mates) are heated at once, the heated units lose irritability at a slightly lower average temperature and are killed at a very slightly lower average temperature than their resting mates, the death temperature being a little higher in every case than the temperature at which irritability is lost. When fatigued and resting neurons or nerve fibers have been heated until all irritability has been lost, but not to the killing temperature, they recover on cooling, but sensory resting units recover an action potential averaging 4.3 times greater than that of their fatigued mates; the resting motor fibers 3.0 times higher than their fatigued mates. The average differences in temperature at which irritability is lost and at which death results in fatigued and resting nerve units, though small, are shown to be significant by Fisher's method of analysis of variance. It is suggested, by analogy with results on muscle, that the above temperature differences with respect to fatigued and resting neurons may be associated with uptake of a slight amount of water by the fatigued units.

DRUG PRICE RESEARCH PLANS ARE LAID.

The executive committee of the National Association of Retail Druggists and the board of control of the National Wholesale Druggists' Association have each approved the expenditure of \$5000 to establish a fund to be used by the Druggists Research Bureau in assembling facts concerning trends in consumer prices since the enactment of fair trade laws.

The present delegates are N. A. R. D.—John W. Dargavel, Chicago; Thomas Smith, Wilmington; and George L. Secord, Chicago; N. W. D. A.—A. Kiefer Mayer, Indianapolis; Leo A. Lanigan, Chicago; J. T. Woodside, Chicago; H. S. Noel, Indianapolis; and E. L. Newcomb, New York City; A. A. C. P.—George C. Shicks, Newark; W. Henry Rivard, Providence; and Paul C. Olsen, Philadelphia.
