

## NORTHWESTERN.

A meeting of the Northwestern Branch, AMERICAN PHARMACEUTICAL ASSOCIATION, was held on Monday, February 15th, in the auditorium of the College of Pharmacy at the University of Minnesota. B. R. Mull, the guest speaker, addressed the gathering upon the subject, "Professional Pharmacy." The talk was followed by a short business meeting presided over by Secretary Netz. The resignation of Mr. R. Almin as Chairman of the Section was presented and accepted. Nominations for Chairman of the Section were called for. Professor E. B. Fischer was nominated. A motion that nominations be closed and that a unanimous vote be cast for Mr. Fischer as Chairman was then made, duly seconded and carried. Professor Fischer was declared elected to the chairmanship by Secretary Netz.

## REQUEST FROM SYLLABUS COMMITTEE.

It was decided at the Dallas meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION to revise the Pharmaceutical Syllabus, because of recent changes occurring in pharmaceutical lines. The Committee would appreciate from interested individuals comments on the revision work along any of the following lines: (1) Changes in the required and optional subjects both Professional and Basic and time allotted to same (see Syllabus, pp. 16-17); (2) Changes in title and content of the outlines offered in the Syllabus; (3) Deletion of any outlines; (4) New outlines which should be included; (5) Enlargements of the Section on State Board Examinations.

It is only through discussion and exchanges of ideas from those interested in pharmaceutical education can this work be of the greatest benefit to all concerned and devoid of much criticism. Any suggestions will be much appreciated and will receive due consideration.

HENRY M. BURLAGE, *Acting Chairman.*

## CALCULATION OF ISOTONIC SOLUTIONS.

BY H. BÖHME.\*

The osmotic pressure of dissolved salts cannot be calculated accurately from the molecular weight, even on the assumption that they are completely ionized, and the following table is given to assist calculation. This shows the concentration of dissolved salt required to produce a definite lowering of the freezing point of the solution.

Dissolved Salt.	Depression of Freezing Point.							
	0-16	0-34	0-51	0-68	0-85	1-03	1-21	1-38
NaCl	0-16	0-34	0-51	0-68	0-85	1-03	1-21	1-38
KCl	0-21	0-43	0-65	0-87	1-09	1-32	1-54	1-77
NaNO <sub>3</sub>	0-24	0-49	0-75	1-00	1-25	1-51	1-78	2-05
KNO <sub>3</sub>	0-28	0-59	0-91	1-24	1-56	1-90	2-34	2-60
Na <sub>2</sub> SO <sub>4</sub> , 10H <sub>2</sub> O	0-61	1-38	2-13	2-90	3-72	4-51	5-35	6-30
NaI	0-45	0-90	1-34	1-79	2-23	2-68	3-12	3-58
KI	0-46	0-94	1-45	1-96	2-45	2-94	3-44	3-96
AgNO <sub>3</sub>	0-48	0-98	1-51	2-05	2-60	3-17	3-74	4-31
ZnSO <sub>4</sub> , 7H <sub>2</sub> O	1-17	2-50	3-85	5-29	6-88	8-48	..	..
Na <sub>2</sub> B <sub>2</sub> O <sub>7</sub> , 10H <sub>2</sub> O	0-36	0-74	1-27	1-84	2-47	..	..	..
NaHCO <sub>3</sub>	0-21	0-46	0-71	0-96	1-20	1-45	1-69	1-94
Na <sub>2</sub> HPO <sub>4</sub> , 12H <sub>2</sub> O	0-76	1-51	2-34	3-18	4-01	..	..	..

The depression of a solution isotonic with blood is 0-56° C.; of one isotonic with tears 0-80° C. For alkaloidal salts and similar compounds in solutions not stronger than 0-1 M, complete dissociation may be assumed without making any error greater than 5 per cent. The depression due to the dissolved compound is then calculated from the formula  $1.86 \times \frac{g}{M} \times \frac{1000}{L}$  where g. is the weight of dissolved substance, M its molecular weight, and L the weight of solution. The amount of sodium chloride or other substance to be added to make the solution isotonic is then the amount which in solution will give a lowering of the freezing point equal to the difference between the freezing point desired and that produced by the addition of the first compound.—G. M. From *Quarterly Journal of Pharmacy*, July-Sept., 1936.

\* *Arch. Pharm. Berl.*, 274, 255 (1936).

## NEW CHEMICALS PROMISE AID IN INSECT CONTROL.

A *Press Bulletin* has been issued by the U. S. Department of Agriculture, of valuable information to pharmacists.

"Out of the thousand or so potential insecticides that have come from the chemists' test-tubes in the last few years, three or four now show definite promise as valuable aids to the farmer in his never-ending war on insect pests of crops, particularly fruit. None of them, however, can yet be recommended for general use. Further work must be done to iron out certain difficulties in the economical manufacture or practical application of each, according to Lee A. Strong, Chief of the Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture.

"The most promising of the department's newest insecticide discoveries," Mr. Strong says, "is phenothiazine, a compound of carbon, hydrogen, nitrogen and sulfur that is easily prepared by combining diphenylamine—a common aniline derivative—and sulfur. . . The results of tests, though in the main highly encouraging in the Northwest, show the need for more study. Chief advantages of phenothiazine are that it keeps down the number of stings made on fruit by the worms, and that the residue it leaves is less likely than lead or arsenic to injure human consumers of the treated food products. The main obstacle to the wide-spread use of phenothiazine in northwestern orchards is its effect on the skin of those who handle it.

"In the Midwest and East, field tests with the new sulfur compound against the codling moth have given variable and rather disappointing results," Mr. Strong says. However, enough cases of satisfactory control have been reported to justify a continuation of the work.

"Another possible substitute for lead arsenate suggested by the chemists is nicotine in a form that will stick on fruit and foliage long enough to accomplish its purpose. . ."

Bentonite—a natural clay of volcanic origin,

found in Wyoming, California and other nearby states—can be made to unite with nicotine by mixing it with a salt of nicotine, such as the sulfate, dissolved in water. Sprayed on foliage, this suspension of nicotine-containing clay eventually dries to a fine dust that kills the larvæ of the codling moth feeding there. "Nicotine-bentonite combinations," Mr. Strong says, "would seem to be particularly useful in spraying early apples, which do not call for a very large number of applications of an insecticide and do not stand washing for spray residue removal as well as the firmer winter varieties. . ."

Results with mixtures of nicotine sulfate in oil emulsions have been highly encouraging in the apple-growing regions of the Pacific Northwest and fairly encouraging in the Middle West and East. In the regular spray schedule, however, these mixtures are open to objection on several points. Sulfur fungicides—necessary to combat fungous diseases in many northeastern orchards—cannot be used with them; too many applications may injure foliage; lead arsenate residues cannot be as readily removed if nicotine and oil have been used in part of the season; and last, but perhaps not least, nicotine treatments are expensive.

"Still under investigation by the department are pyrethrum, and the rotenone-bearing plants that came into general use several years ago after chemists had proposed them and entomologists had confirmed their value. The chemists are now trying—so far without success—to work out a way to synthesize the insecticidal principles of pyrethrum, a plant grown in the Far East and imported into the United States by the millions of pounds for use in the manufacture of insecticides. The recent discovery that the formulas for these principles heretofore accepted are incorrect has given a new turn to the research, which now may produce the results desired. Better ways for recovering all of the rotenone from derris and cube—the foreign-grown plants that contain this insecticidal substance—were devised last year."

## INTERNATIONAL HOSPITAL ASSOCIATION.

The fifth International Hospital Congress will be held in Paris from July 5th to 11th. Prof. Roussy (Paris) will give a lecture at the first session on the care of the cancer patient in the hospital. At the second session various aspects of hospitals and nursing in France will be dealt with, while at the third session there will be a discussion on how the hospital can increase its income and reduce its expenditure without detriment to its work. At the fourth session the methodical organization of hospital services will be considered, and the last two sessions will be devoted to short papers and discussions. The secretariat of the congress may be addressed at the offices of the Direction Generale de l'Administration de l'Assistance Publique, 3, Avenue Victoria, Paris IV, or through General Secretary Sydney Lamb, 87, Lord-street, Liverpool, 2.