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to the Association and Branches shall become the property of the Association with the understanding that they are not to be published in any other publication prior to their publication in those of the Association, except with the consent of the Council."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 meetings 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.

CHICAGO.

The 190th meeting of the Chicago Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held at the University of Illinois School of Pharmacy, April 18th, President Hynes in the chair. Preceding the meeting there was an informal dinner held at the LaSalle Hotel, attended by twenty-five members.

After calling the meeting to order, President Hynes introduced the speaker of the evening, Dr. John C. Krantz, Jr., who addressed the Branch on "Hydrogen-Ion Concentration, Its Relation to Pharmacy."

"In 1887 the University of Stockholm introduced the theory of ionization to the scientific world. A molecule is composed of electrolytes which when dissolved have independently charged ions, and it is on these, their nature and number, that the physical and chemical properties of a substance are based. HCl is based on the amount of (OH) consuming power it has in the form of (H). The Dutch devised a scheme of stating this power and expressed it in normality. H_2O is a solvent and ionizes but slightly into (H) and (OH) ions. It takes 10,000,000 liters of water to contain 1 Gm. of (H) ion. This seems negligible, but it is of great importance. According to Sorensen the system of designating hydrogen-ion concentration is this: $p_H = -\log. (H)$. If the normality of a solution and its degree of ionization are known, the hydrogen-ion concentration can be calculated easily. Use HCl for example, which we know hydrolyzes 84 per cent. Calculations for it are:

$N/10$ sol $\times$ 0.84 = 0.084
8.4×10^{-2}
$0.92 - 2 = -1.08$
$p_H = -(-1.08) = 1.08.$

"Water has a p_H of 7. This fact is very important to the bacteriologist and the physician for it must be considered in making solutions. By knowing the p_H of soils botanists are able to obtain better results from their gardens.

"A solution of eserine sulphate or salicylate will turn pink or red on exposure to light. This solution has a p_H of 6. The red color is undesirable and the possibility of preventing it presents itself. Can this be done by changing to p_H of the solution? Experiments have been carried on along this line and results show that a greater degree of stability may be obtained in this manner. While ordinarily solutions turn pink in six or seven days, when the p_H has been raised the solutions may be kept from 50 to 60 days without any change of color taking place. It so happens that when the solutions turn pink or red CO_2 is given off. The logical thing to do then to prevent this is to force CO_2 into the solution, and that is just what is done; the red color does not form and the solution does not decompose.

"In preparing emulsions for testing, cottonseed oil, mineral oil, HCl and NaOH were added in various quantities, the p_H ranging from 0.3 to 13.4, the latter in the cases where strong alkalies had been used. To the solutions of various quantities of acids and alkalies it was found that whenever a solution of

acacia was made the p_H of the solution was not the same as that of the solvent. From this developed the theory and knowledge that acacia has a capacity to absorb or buffer. Tragacanth forms a hydrate with water and makes a most permanent emulsion or gel. This has a p_H of 1.8. To find the buffer capacity of acacia, moles of HCl were added to the solutions of acacia. The greater the quantity of acid used, the lower the p_H of the solution. Following is the calculation of the amount added per L mole of HCl:

$$B = \frac{-dB}{-dp_H} = \frac{-0.04}{-1.18} = 0.034.$$

It has been found that the buffer capacity of tragacanth is not as great as that of acacia, the latter not only having a great capacity, but also a very definite one.

"Digitalis has been studied more than any other galenical in the U. S. P. Since Dr. Withering wrote the first paper on it in 1785 thousands of papers have been prepared on its various preparations. It has been found that if the tincture is made acid by the addition of tartaric acid the stability is greatly increased. Sorensen has suggested the use of secondary sodium citrate. To this solution of the active principles of the drug is added HCl (having a p_H of from 1–8), yet the finished product has a p_H of 5.6–5.7 and the control or blank tincture has a p_H of 5.7. This shows that there is something in the tincture provided by nature capable of buffering. Tincture of Digitalis also has the power of absorbing alkalies as well as acids, but when an alkali is added the tincture deteriorates more rapidly. It was found that it has a buffer capacity of 0.009. In other words, it requires 90 cc. of $N/10$ HCl to change the p_H of 1 L of Digitalis from 5.75 to 4.75. The buffer capacity against alkali is stronger than that against acid, for it requires 120 cc. of $N/10$ NaOH to change the p_H from 5.75 to 4.75.

"The German Pharmacopœia has a Tincture of Digitalis made from absolute alcohol. This product when evaporated yields no ash, while that of the U. S. P. yields 17 mg. per 10 cc. This ash has been found to be composed chiefly of potassium salts. A tincture of low p_H is of low heart tonic value.

"Lastly p_H plays an important part in alkaloidal assay work. Pure alkaloids of cinchona were dissolved, the solutions being about 7% strength. These were just neutralized with acid. As the alkaloid is reduced, the solutions become more acidic, but not in proportion to the different alkaloids present. A sample was taken and 12 assays made to determine the amount of alkaloid in the crude drug. Twice the amount of etheral solvent was used. A half quantity was taken, dissolved in 0.1 cc. of acid and diluted. The p_H was found to be 4. According to the chart prepared should be a solution of 5.2% alkaloids, which is a fact. It is well within the P. E. of the U. S. P. Other percentage strengths show a gradual even change in p_H by which then can be determined the alkaloidal strengths of the solutions."

Following the lecture Dr. Fantus gave a few words regarding the subject. His opinion of the heart action of potassium salts as referred to by Dr. Krantz is this. This action may be obtained from potassium salts only when they are injected, not when taken by mouth, so the potassium ash yield does not affect the heart action of the tincture when it is given. While the experiments carried on were not hypodermic, yet they were similar, so that the effect was practically the same.

Dr. Geo. Beal, of the Mellon Institute, spoke of the universal use of hydrogen-ion concentration. Although the tanners do not know its meaning, they do know that it plays an important part in the plumping of leather; the laundryman knows that his blue rinse water must have a certain p_H or the clothes will not be white; the paper manufacturer knows that his sizing must have a certain p_H or the paper will not be evenly sized. Perhaps none of these groups know what p_H is, but they do know its importance.

Following the discussion a rising vote of thanks was given Dr. Krantz.

"The formation of the state associations was but the beginning of the work which this organization (the A. PH. A.) has done to touch the life and the problems of the individual pharmacist. The present set-up of the ASSOCIATION'S activities is simply a translation into practice of its original purpose and desire. Comparative recent trends of thought, culminating first in the creation of the House of Delegates and later in the establishment of the Conference of State Pharmaceutical Association Secretaries and of the Conference of Pharmaceutical Law Enforcement Officials, are emphatic of the resourcefuness and responsiveness of this ASSOCIATION. The significance of these developments is made profoundly important when their relationship to the individual pharmacist is seen."—From Chairman's Address, House of Delegates, A. PH. A.