

can be procured from the treasurer upon payment of \$5.00.

Aside from the enjoyment of pleasant social features which form a part of the annual reunions of the Association, personal attendance at the meetings is amply repaid by the opportunity of participation in the discussions of the numerous scientific, commercial and legislative matters brought before the different sections.

Every member in good standing is entitled annually to receive gratuitously a bound volume of about 1,000 pages or more, containing a full account of the proceedings of the annual meeting, including the various papers read and discussed and also the Report on the Progress of Pharmacy, which latter is recognized as a most valuable addition, being a thorough digest of every thought and labor in the pharmaceutical world. This volume, which is carefully compiled by the Permanent Secretary of the Association, is alone worth the amount of the annual contribution, and in the course of years becomes a most important part of the pharmacist's library.

Organized in 1852 with 18 members, the Association now has a membership of over 1,600, but even this number represents only a small percentage of those actively engaged in the field of pharmacy. By special resolution, the annual meetings are held alternately in large cities and desirable country resorts, thus affording a most agreeable variety for recreation. During the past 40 years all sections of the country have been visited from Toronto to New Orleans, and from New York to San Francisco. This year the Association will meet during the month of September at that most delightful mountain resort, Asheville, North Carolina, so well and favorably known to all tourists. It is hoped that a large attendance of new members will be present.

Any member of the Committee will be glad to give additional information if desired.

All applications for membership must be accompanied by the amount of one year's dues (\$5.00) in advance, and should be so forwarded to the Secretary of the Committee on Membership, George W. Kennedy, Pottsville, Pa. If more convenient they may be sent through the Special Members of the Committee appointed for the respective States and Provinces.

COUNCIL COMMITTEE ON MEMBERSHIP.

Chas. Caspari, Jr.—Baltimore, Md. Chairman.
Leo Eliel—South Bend, Ind.
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Geo. W. Kennedy—Pottsville, Pa., Secretary.

Amongst those on the Special Auxiliary Committee are:

Ontario—John Lowden, Toronto.
Quebec—S. Lachance, Montreal.
Nova Scotia, New Brunswick and Prince Edward's Island—F. C. Simson, Halifax.

Hydrocyanic acid is formed, according to Buris & Evans, in the manufacture of oxalic acid from sugar and nitric acid.

Granular Effervescent Preparations.

BY AUGUSTUS BRADLEY

This form of medication is a most pleasing one for the exhibition of many nauseous and disagreeable medicines and those remedies where the assistance of the sedative action of carbonic acid is desired.

Not many years ago the effervescent draught was considered indispensable, but at present it has comparatively fallen into an unmerited oblivion.

It is, however, again making its appearance in such localities where it is extensively advertised.

Carbonic acid is very useful in therapeutics; and it promotes absorption, acting promptly as a cardiac or cerebral stimulant.

Dr. Frank Woodbury, of Philadelphia, says: "It is strange that modern works on therapeutics so generally ignore the effects of certain carbon dioxide as a medical agent. The tissues are bathed with it, and the blood constantly contains a large proportion (twenty per cent. by vol.)"

"Experiments show that blood has nearly twice the affinity for carbonic acid that pure water possesses, and will absorb twice its volume. As carbonic acid is always present in the animal body it must play an important part in nutrition, though the point is hardly within the scope of my paper. We may say, however, that since it appears to be the normal stimulant to the pneumo gastric nerve at both of its extremities, it probably has other functions. At all events, the popular view that carbonic acid is purely and simply a waste product in animal organism is clearly erroneous. I believe myself that it exerts very important influence by retarding oxidation and preventing excessive combustion in the tissues of the body."

The efficacy of these preparations, as a class, depends principally upon the amount of available carbonic acid gas contained therein. The worthless (non effervescent) stock upon our shelves, in main, prompted me to devise a scheme whereby they could be supplied by the pharmacist fresh on a short notice.

I propose in this paper to relate a few experiments, with results, also giving methods and formulas, with an apparatus of my own get-up, whereby the retail pharmacist can prepare his own granular effervescent preparations, and not be dependent upon the wholesale manufacturer as heretofore. These preparations are made by causing a mixture of powdered ingredients, consisting of sodium bicarbonate, tartaric or citric acids, sometimes both, and the medicament to become sufficiently moistened as when in such pasty condition, rubbed through a coarse sieve and dried, granules are produced.

Each article should be separately powdered and dried before mixing, the citric acid to be added last and rubbed in quickly.

The drying apparatus should be previously heated for the reception of the moist granules. The proper pasty consistency of the mixture is only ascertained through practice, some mixtures requiring more of the moistening agent than others.

The selection of a cheap moistening agent seems to me to be an item of great importance, especially when large quantities are to be made.

Samples are prepared with ether, amyl alcohol, chloroform, live steam, syrup, carbon disulphide, etc., but with each too great a loss of carbon dioxide resulted during manipulation to encourage the use of any.

Water or moisture being the prime cause of this loss, I concluded that if a liquid containing no water at all be used granules could be made without any loss of gas.

I was aware that absolute alcohol contained practically no water, but also that if it answered from this standpoint, its expensiveness would discourage its use. However, a small quantity of a mixture was tried, but owing to the hygroscopic properties of this alcohol the experiment proved a failure. In a few minutes after the granules had been removed to be dried, decomposition took place, resulting in an abhorrent and pulling up of the granules, showing too great a loss of gas.

Purified benzoin was next tried, but owing to the disagreeable taste, odor, and too easily crushed condition of the dried product, it was abandoned.

Benzin, with different percentages of absolute alcohol, resulted likewise.

After numerous experiments I found 95 per cent. (by vol.) ethylic alcohol, as recommended by the National Formulary, to be the best agent for general use.

I use four copper-wire sieves, Nos. 6, 20, 40 and 60, No. 6 to pass the pasty mass through the glass shelf, No. 20 to separate the dried granules from the dust (some manufacturers, to prevent any loss, do not separate it.) Nos. 40 and 60 are used for thoroughly mixing the different ingredients.

I like the copper-wire sieves the best, owing to their less liability of being attacked by corrosive agents.

The temperature of the drying apparatus, with but a few exceptions, should always be constant, taking care not to allow it to go above 158 degrees F., for fear of converting the sodium of bicarbonate back into the carbonate, through the loss of carbon dioxide, and also the formation of caramel in those preparations containing sugar with tartaric acid.

The loss in weight encountered in drying the following articles, as found in commerce, are:

Citric acid, 8 to 10 per cent.

Sodium bicarbonate, 2 to 3 per cent.

Tartaric acid, 1-500 per cent.

The use of tartaric acid alone, as recommended by the National Formulary, leaves the granules too soft. An addition of citric acid will then firmness, and render their taste more acceptable to the majority of people.