An Automatic Process for Aqua Chloroformi.

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The B.P. process for preparing aqua chloroformi is to put the chloroform and water into a two-pint stoppered bottle and shake them together until the chloroform is entirely dissolved in the water.

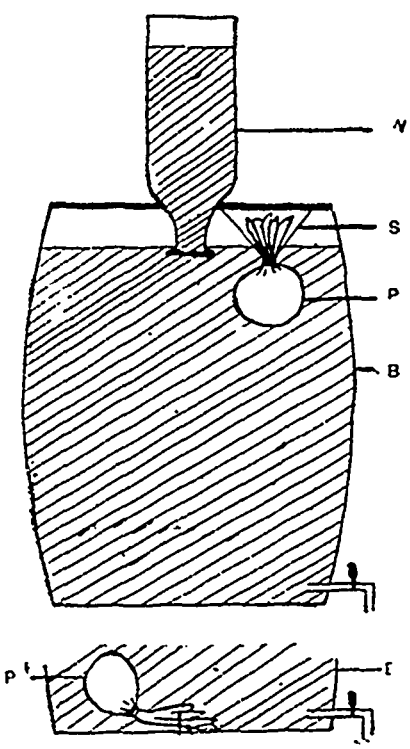
The U.S.P. process is to "add enough chloroform to a convenient quantity of distilled water, contained in a dark amber-colored bottle, to maintain a slight excess of the former, after the contents have been repeatedly and thoroughly agitated. When chloroform water is required for use, pour off the needed quantity of the solution, refill the bottle with distilled water and saturate it by thorough agitation, taking care that there be always an excess of chloroform present."

Now, the B.P. process for aqua camphoræ is one of automatic diffusion of a solid volatile substance into distilled water: "Enclose the camphor in a muslin bag, and attach this to a piece of glass, by means of which it may be kept at the bottom of the bottle containing the distilled water. Close the mouth of the bottle, macerate for at least two days, and then pour off the solution when it is required." In practice it is customary to keep a large excess of camphor in the bag, pouring off and replenishing with water until the whole of the camphor has disappeared — the operation extending possibly over months; this process, substituting stout parchment paper for the muslin bag, may be regarded as having suggested the following process:

In the sense of filtration, parchment paper is impervious to water, alcohol, chloroform, ether, and essential oils, but if such be enclosed in the parchment paper, and the latter suspended in a vessel of water, the enclosed liquids will, by osmosis, diffuse through the membrane into the water until, in the case of liquids freely miscible with each other, equilibrium within and without the membrane is established, or, if they be only sparingly soluble in water, until the latter becomes saturated: thus, if a fluid drachm of chloroform be enclosed in parchment paper and suspended in 25 ozs. of distilled water, in a closed vessel secluded from light, it is found to have quitted the membrane and saturated the water in eight days, and if a large excess of chloroform be used (say, two fluid ounces), retaining the same volume of water, saturation is effected in twenty-four hours.

The process, having been in use for some months, has given every satisfaction. In the accompanying diagrammatic representation of the method adopted, B is an earthenware 4 gallon barrel containing distilled water; P, a pint of chloroform tied up in a bag of stout parchment paper; S, the string passing round through the bung and spile-holes and supporting the bag; W, a dark amber-colored Winchester quart filled with water, inverted and standing in the bung-hole, acting as a replenisher and gauge. The whole being placed in position is allowed to remain intact for seven days, after which period it may be drawn from the tap as required for use. The Winchester, when empty, is to be refilled with distilled water and again placed in position, and the chloroform bag replenished at much longer intervals. A saturated aqueous solution of chloroform is stronger than the B.P. aqua chloroformi, three parts of the former being equivalent to four parts of the latter.

For other medicated waters in considerable requisition, such as aq. menth. pip., the process might prove of general application; but where the specific gravity of the essential oil is less than unity it would be requisite to load the flaps of the parchment with spare glass stoppers, in such a manner as to keep the bag at the bottom



of the vessel, as represented in the lower part of the diagram.

With oil of peppermint thus arranged, the superincumbent water certainly becomes highly impregnated after a week's immersion, but whether it be preferable to enclose the oil pure and simple, or previously rubbed down with calcium phosphate and water, remains a subject for future enquiry; the automatic replenisher in this instance would probably have to be abandoned on account of a possibly unequal rate of diffusion of the several constituents of the oil.

Substituting 1 lb. of slaked lime for the chloroform, and following the same directions, most satisfactory lime water is obtained—the slaked lime to be previously washed with water, after subsidence the supernatant liquid to be thrown away, and the sediment transferred to the bag. It may be worthy of notice that, in the absence of distilled water, clear blocks of natural ice yield a product, after melting, filtering, and boiling, that will stand all the Pharmacopœia tests for impurity; indeed, water, in the act of freezing, becomes completely separated from everything which is previously held in solution, a familiar physical fact of mere theoretical interest to the pharmacist.—*The Pharmaceutical Journal.*

Acetylene as an Illuminant.

We are all interested in new illuminants, and any proposal which has for its object the cheapening and simplifying of existing means of lighting is always deserving of attention. That there is great need for a new illuminating agent is evidenced by the increasing demand in many places, for numerous purposes, of a self-contained source of gas of high illuminating power. It would seem that we are within measurable distance of obtaining this advantage. Professor Vivian B. Lewes has been discussing the synthetic production of acetylene by means of the electric arc. In an exceedingly interesting paper on the subject, he points out that from that simple hydro-carbon can be produced all those bodies which are amongst the most important in our coal gas, and which so far have only been obtained by destructive distillation of coal, hydro-carbon oils, or other organic substances. Recent research, however, has shown that by fusing a mixture of powdered chalk and carbon in an electric furnace a compound called calcic carbide is formed, which is decomposed by water into lime and acetylene. Professor Lewes is of opinion that this process is commercially practicable. Data received by him from America shows that the calcic carbide can be produced at a little under £4 a ton, while the beautifully pure lime obtained by the decomposition would be worth to the gas manager about 10s. a ton. The illuminating power of acetylene is about fifteen times as great as that of London gas, so that the light of 1,000 feet of the latter should be obtained for less than 6d. by the use of acetylene. Professor Lewes points out that acetylene obtained in this way may be used either to give a very high illuminating effect by itself, or to enrich low-grade coal gas. It may be compressed and distributed in steel cylinders, or the calcic carbide may be fused into sticks, which can be decomposed by water, in suitable apparatus, at the place where the gas is required for consumption. Professor Lewes has certainly made out a very clear case for the future success of the new illuminating agent, and should it prove as practicable as he suggests there would seem to be a special field for it abroad, seeing that it can be fused into sticks, and afterwards decomposed by water.—*Foreign and Colonial Importer.*

A sluggish merchant and a wide-awake trade don't go well together.

Don't try to run a hundred-thousand-dollar-business in a fifty-thousand-dollar town.