with the hope that early in 1938 it will be in operation. The purpose will be to develop improved standards for official drugs and preparations, and there will be included a study of tests for identity and purity as well as the development and improvement of methods of assay. While the laboratory is planned primarily for the study of the problems of the National Formulary, the association hopes that means will be found whereby the Board of Trustees of the U. S. Pharmacopœia will be able to participate in the research program. For the time being, the management of the laboratory will be under the direction of a committee appointed by the council, and later an advisory committee may be established.

DISCUSSION

LOUIS PASTEUR'S PATENTS

THAT Louis Pasteur actually patented several of his discoveries is a fact little known. Attention is directed to these patents in view of the current interest in the question whether research workers should obtain patents for any industrial and commercial utilization of their discoveries.

The results of Pasteur's researches in the manufacture of beer were patented in at least four different countries—France, England, Italy and the United States. In the United States two patents were obtained, No. 135,245 for "improvements in the process of making beer," granted on January 28, 1873, and No. 141,072 for "improvements in the manufacture and preservation of beer and in the treatment of yeast and wort, together with apparatus for the same," granted on July 22, 1873.[1]

The earlier patent recites:

> Previous to my invention in the process of making beer it has been customary to permit the exposure of the "wort" —that is, the boiled extract of malt or other material seasoned with hop or other qualifying ingredient—to the action of atmospheric air. I have discovered that by contact in the usual way with air during the process not only is the quality of the beer produced much impaired, but also that a less quantity is made from a given amount of wort than can be otherwise produced.
>
> Based upon this discovery and the idea of performing the process of brewing without the presence in the wort of atmospheric air, my invention has for its object to produce a better quality and greater quantity of beer from the same quantity and quality of wort, and to afford a beer which shall also embody the quality of greater degree of unalterableness during time and changes of climate, etc., in transportation and use; and to these ends my invention consists in expelling the air from the boiled wort while confined in a closed vessel or closed vessels, and then cooling it by the application of sprays of water to the exterior of such vessel or vessels, as will be hereinafter more fully explained.

The patent describes in detail an apparatus for removing the air and replacing it with carbon dioxide, and the process of carrying out the brewing in this manner.

The second patent is directed to the production of pure yeast, free from "organic germs of disease." The specification describes the manner in which such yeast may be obtained and tested. For testing, a microscopic examination, as well as trial run with a small quantity of beer, is indicated, and in connection with the former the drawing shows the appearance of pure and contaminated yeasts under the microscope. The preservation of the pure yeast is also mentioned. The patent also describes an apparatus and a method for brewing beer with the pure yeast. Four claims are in the patent, claim 1 being for the method of obtaining pure yeast, claim 3 for a vessel for making the control run and claim 4 for the brewing apparatus. The second claim, which reads, "Yeast, free from organic germs of disease, as an article of manufacture," is unique in patents in respect to its subject-matter. A claim of this type would now probably be refused by the examiner, since it may be doubted that the subject-matter is capable of being patented.[2]

The applications for the two patents are signed and sworn to by Louis Pasteur, as required by law. The record in the Patent Office shows that the patents were granted without any difficulty.

The patents were never assigned, and no record of anything having been done with them has been found. In all likelihood no attempts to commercialize the inventions were ever made, in this country at least.

In France three patents were obtained: No. 91,941, June 28, 1871 (Series III, Vol. 1, c. 14, 3, pages 18–19); No. 92505, Aug. 21, 1871 (Series III, Vol. 1, c. 14, 3, page 20); and No. 98,476, Mar. 13, 1873 (Series III, Vol. 6, c. 14, 6, pages 2 to 4). In Italy two patents were obtained, one on April 8, 1872 (Series II, Vol. 3, No. 124, plate 37) and one on July 10, 1873 (Series II, Vol. 4, No. 339, plate 89). Two British patents are numbered 2225, Aug. 24, 1871, and 1106, Mar. 25, 1873. The subject-matter of each of the three groups of patents corresponds generally to the two United States patents.

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[1] Copies of the United States patents can be obtained from the Commissioner of Patents, Washington, D. C., for ten cents each.

[2] See the decision of the United States Supreme Court in American Fruit Growers *v.* Brogdex, 283 U. S. 1, 1931.