THE SOPHISTICATED FRENCH WINES.

LOVERS of the glass that is alleged to exhilarate with moderation, and more especially those whose glances melt at the sight of French labels, will be interested in a report recently made to the French Academy of Science by three celebrated chemists. Our California vintners, too, whose machine-made wines by a chemical miracle become five years old within ten days from the press, will also find something to interest them. The report was made *apropos* of a question submitted by the Paris Chamber of Commerce whether it was permissible to use the salts of strontium to precipitate the excess of plaster added to wine by vintners. The question was referred by the Academy to a committee composed of MM. Berthelot, Duclaux, and Gautier. These eminent *savants* made the following report: —

"For above thirty years the employment of plaster in the manipulation of wines has been general throughout the south of France. A recent law has decreed that the maximum quantity of sulphate of potassium per litre in merchantable wine shall be two grams, and therefore the wine trade demands a method for reducing the quantity of sulphate in wines on hand to the legal limit. Some of these have already begun to use for this purpose a mixture of tartrate of strontium and tartaric acid. These substances added in the right proportion cause the precipitation of sulphate of strontium and the solution in the wine of bitartrate of potassium. This operation replaces in the wine the tartrate of potassium removed by the plaster, but unfortunately the wine also retains in solution more or less of tartrate of strontium. This salt is not a normal constituent of wine. It is not found in any foodstuff, though it exists in some mineral springs, as, for instance, those of Vichy. When pure, these salts are not believed to be poisonous in ordinary doses.

"The question submitted by the Chamber of Commerce includes in effect a question of principle and one of fact. In principle one might say that, wine being a natural product, the addition of any chemical substance whatever should be looked upon as a falsification, more especially is this the case when the purpose of the substance added is to mask the real character of the wine and deceive the purchaser as to the real nature of the merchandise he purchases.

"Moreover, it appears to the committee that to furnish the Chamber of Commerce with a method for deplastering wines will in effect throw the authority of the Academy in favor of plastering, and will, furthermore, seem to promise a further scheme for destrontianizing the wine, to use a neologism, and so on, *ad infinitum*.

"It is necessary to define clearly the point where wine ceases to be a natural product and becomes a chemical fabrication. It is to the interest of no one, either among the vintners or among the merchants, to furnish grounds for proclaiming to the world that French wines are artificial products made, not by vintners, but by chemists. The authority of the Academy cannot be used for any such purpose. So much for the question of principle; now as to the facts: Though strontium may not be a poison in ordinary doses, and even though it may serve as a useful medicine in certain cases, it is by no means certain that when used in sensible doses, as it must be if it becomes a constituent of an alimentary substance in such common use as wine, it will be without effect upon the bodily functions. It is necessary to be not merely prudent but even timid in deciding whether or not to introduce into the bodily circulation mineral elements which normally do not exist there. Such substances, even when apparently innoxious at first, may by their accumulation in the body produce at length very grave consequences. What may be innoxious to some persons may be ruinous to others, according to temperament or pre-existing maladies. The experiments of M. Soborde have shown that tartrate of strontium may produce congestion of the kidney in animals. Still, further, it must be remembered that therapeutic experiments with strontium have been conducted with a chemically pure salt. The strontium of commerce is always more or less mixed with salts of baryta, which are not easily separated, and which are very poisonous. The danger would be very great were these salts to become articles of ordinary commerce, to be used without discrimination or control by vintners and wine merchants. These would buy their supplies in the cheapest markets without regard to purity. We know, too, how difficult it is to use such substances in such exact proportions as to get just the desired reaction among the elements employed.

"For these reasons the committee recommends that the Academy reply to the Chamber of Commerce that it declines to approve of the employment of salts of strontium for deplastering wines, and reprobates such practices."

At a subsequent sitting of the Academy M. Quontin contributed the result of a study of deplastered wines. The process of deplastering is used only for the purpose of reducing the contents of the wine in potassium sulphate to the legal limit. M. Quontin found in the course of his researches that not only are the chloride, nitrate, and carbonate of baryta commonly used, but also that the tartrate, acetate, and phosphate are employed for this purpose.

M. Berthelot, in discussing M. Quontin's paper, said that the facts brought to light by M. Quontin's researches bore a character of very grave interest. The deplastering of wines by means of the salts of baryta was not merely a method of falsification of a common alimentary substance, but a real, wholesale manufacture of poisons.

GERALD MCCARTHY.

North Carolina Experiment Station.

A BOTANICAL LABORATORY.

FORMERLY the botanical laboratories were given up almost entirely to systematic and structural work, this being as much a matter of necessity as of choice, for the physiological and bacteriological work are comparatively new branches of the science of botany, requiring specially designed apparatus, which is often very costly. Of late years, however, the great scientific and economic value of the latter subjects is being realized, and laboratories are being equipped in which these lines can be pursued.

One of the finely furnished physiological and bacteriological laboratories of this country is that at Purdue University Experiment Station, La Fayette, Ind., equipped by Dr. J. C. Arthur. The laboratory consists of five rooms beside the greenhouse, these being a general laboratory in the centre, a library and herbarium to the west, a bacteriological room to the east, and a store-room and dark room to the north. The general laboratory has a large window, occupying nearly the whole width of the south side of the room, furnished with light lower curtains and a dark heavy upper one. These can be adjusted so as to tone the light on a bright sunny day, and allow the entrance of all the light possible on a gloomy day. In front of the window is a long table fastened to the wall to prevent vibration as much as possible; this is used for microscopic work. The walls are lined with wall cases and cases of drawers for reagents.

glass-ware, and apparatus in immediate use. There are tables with gas and water supply; a sink with hot water apparatus and cleated shelves for drying purposes; and drying and constant-temperature ovens. Accompanying the reagent case is a card catalogue, which indicates very nearly the arrrngement of reagents, so that the time taken to find one is reduced to the minimum.

Among the pieces of apparatus in the room are auxanometers, clinostats, electric and mercuric thermo-regulators, hot stages, dialyzers, pressure regulators, chemical, torsion, and ordinary balances, dynamometers, an electric motor, transpiration tubes, etc.

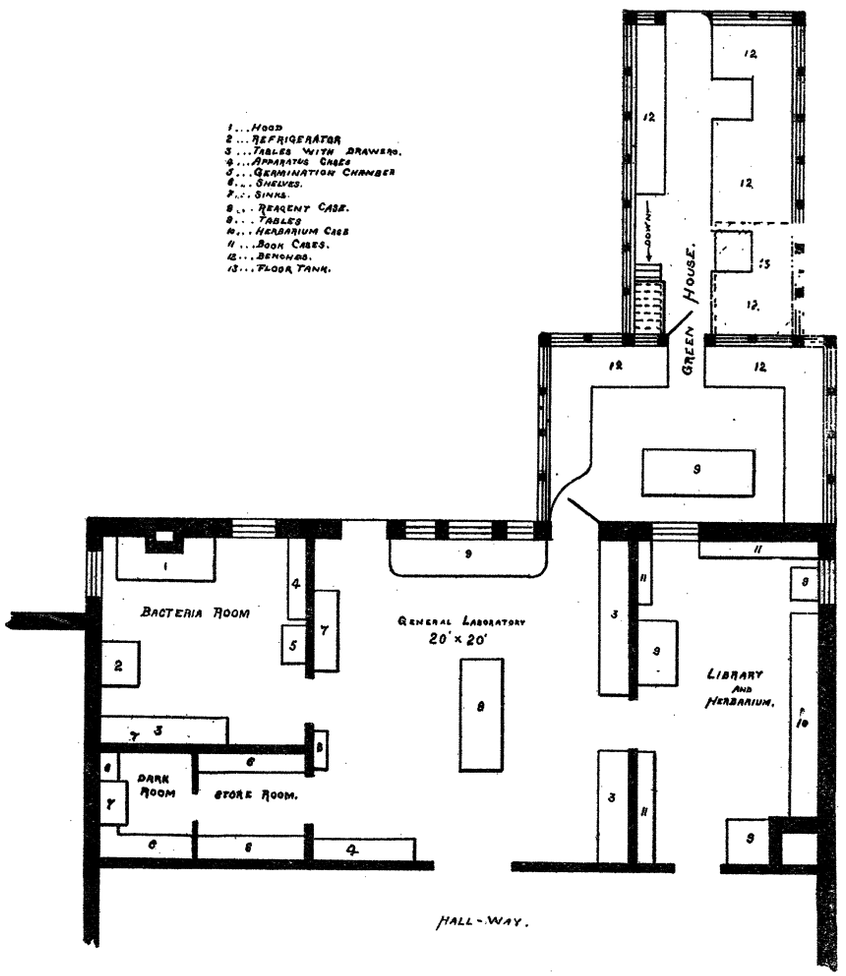
The bacteriological room has a south and east light, and is fitted up with the latest appliances; such as steam and dry-air sterilizers, germination ovens, bulb and ordinary culture tubes, and all the various paraphernalia used in bacteriological work. There is a large table with sink, having a water supply, and cases of drawers for supplies of cotton, agar, gelatine, cages, etc., a case of stains, and a large hood with water supply in which the steam sterilizers are placed.

The library and herbarium on the opposite side of the general laboratory to the bacteriological room contains the standard works, and as Dr. Arthur's private library is kept here besides, there are many valuable and rare works to which one does not usually have the good fortune to have access. There is also a good supply of botanical journals both in English and foreign languages. The library is specially well supplied with works on plant diseases, parasitic fungi, and physiological subjects. The library is carefully catalogued.

The herbarium contains both phanerogams and cryptogams, parasitic fungi being specially well represented.

In the store room are kept the supplies not in immediate use. Leading from the store-room is the dark room for photographic work; this room being supplied with gas, water, a specially arranged sink, and the chemicals and appliances needed in the work.

A small greenhouse extends south from the station, its main room opening directly from the laboratory and on the same level. This room is fitted up with tables and benches upon which apparatus can be placed when the student is working with the living plants. The smaller room is on a lower level, and is kept at a lower temperature than the main room. Experiments can thus be carried on with plants at different temperatures. There are also in this room a floor tank for aquatic plants, and steam-heated cutting beds. Both rooms are heated by steam. The greenhouse forms a very useful adjunct to the laboratory.



The laboratory in the Station is entirely separate from the University laboratory, the latter being under the direction of Dr. Stanley Coulter; the work there is in systematic and structural botany. The students in Dr. Arthur's laboratory who do the physiological and bacteriological work are juniors and seniors who have elected botany and have done the systematic and structural work previously. There are also post-graduate students who are doing original work.

KATHERINE E. GOLDEN.