many unfortunates who were suspected lost their lives; while the house of a barber, named Mora, who was accused of preparing the poison, was pulled down, and a column, known as the "Column of Infamy," was erected on the site, where it remained until 1778.

Drought, both in ancient and modern times, has been too intimately connected with diseases of unusual severity to leave much doubt of their being in some way connected. Pestilence has been caused not unfrequently by the decaying bodies of locusts and animals perishing during an epizootic visitation, as well as by decaying vegetable substances.

Under all the other heads some very curious and interesting facts were collected and stated, and a complete enumeration was given of all the authenticated cases of plagues that have afflicted humanity, and of the legislative means taken for mitigating their effect; the author suggesting, at the conclusion of his paper, that there still remained to be treated, the "Periodicity of Plague Visitations," the "Spontaneous Origin of Disease," and "Pestilential Cyclones."

COATING PILLS WITH GELATINE.*

By CLAY W. HOLMES.

MUCH has been written on the preparation of gelatine-coated pills, and various contrivances have been made and offered to pharmacists, protected by patents, and at an exorbitant price, so that few attempt the extemporaneous preparation of coated pills. Like other manipulations in the laboratory, the coating of pills requires some experience, yet a reasonable amount of practice and patience will enable any pharmacist to devise means by which, at a minimum outlay, he can make a pill equal in appearance to those offered by the large manufacturers. It is the writer's desire to lay out the practical points in such a manner that any one can proceed intelligently, and without difficulty. The first point which presents itself is the pill to be coated. Pills composed entirely of dry powders offer little difficulty. Those containing a large proportion of extracts may occasion trouble. Much depends upon the excipient employed. Simple syrup is the best whenever it will make the mass sufficiently adhesive. In case this fails, confection of rose, or ext. gentian may be employed. Glycerine should never be used. If the mass is too soft, owing to the presence of a large portion of extract, stiffen it with sugar of milk or powdered gum arabic. The mass having been carefully prepared, the pills may be made either oval or spherical. The writer prefers the oval.

In making granules of arsenious acid, strychnia, or other active remedies requiring minute doses, add enough sugar of milk to give the desired size, and make the mass with simple syrup. The pill being properly made, the next point is the apparatus for coating. The writer has made use of a round tin cup, about three (3) inches in diameter, in appearance like an ordinary blacking-box cover. The needles used were "No. 1 sharps," ordinary make. A thin layer of paste or plaster of Paris and water is poured into each cup, and the needles set in the plaster. Each cup will hold twenty-five (25) needles. Place one in the center, and around that run two circles—the first, half the distance between the center and the edge of the cup; this circle to contain eight (8) needles. The outer circle, within one-eighth (1-8) of an inch of the edge; this circle contains sixteen (16) needles. If the distances are properly divided, the needles will be far enough apart to hold the largest pill without fear of contact. After the plaster has set make more paste, thin enough to pour, then fill the cup. Let it stand until the plaster is firm, and then the cup is ready for use. The pills are readily stuck on the needles by hand, transfixing them as lightly as possible. The pill is now ready for coating. The coating solution is prepared as follows:

R: Gelatine, French (gold label)..... 3 iv.
Gum arabic..... 3 j.
Sugar..... 3 j.
Water..... q. s.

Dissolve the gum arabic and sugar in eight (8) ounces of hot water in a capsule by means of a water-bath. Then add the gelatine and stir it until dissolved. Should the water have evaporated to such an extent that the solution is apparently too thick, add water gradually until it has the consistency of hot syrup. Continue the heat until a pellicle forms on the surface, then pour into a cold dish. A sixteen (16) ounce porcelain-covered casserole, with handle and lip, is a convenient dish to use, or a tin vessel may be made use of, a pint cup with a lip being about the size. Let the solution stand until the temperature is somewhat lowered, stir up the solution to break pellicle, and then dip the pills into the solution, lowering carefully until completely immersed. Pull them out slowly, that the surplus gelatine may run off, and then bring the needles to a horizontal position and rotate slowly for half a minute, when the cup may be set down. As soon as the coating is sufficiently set to prevent adhering to the fingers when touched, the pills are ready to come off.

Take an alcohol lamp with a small flame, and let the needle strike the flame about 1/2 inch from the pill. As soon as the needle is heated, the gelatine begins to swell. Twist the pill off carefully, before the needle gets sufficiently hot to soften the pill, and with the finger stop the hole while the gelatine is hot. The pill is then ready to dispense.

If it is intended to keep the pills in stock, they should be exposed to the air for a few hours before bottling. After the process is finished, pour the coating solution into a wide-mouth pint bottle, and when cold pour on sufficient alcohol to make a strata 1/2 inch deep on the surface of the gelatine and cork tightly. In this way the gelatine will keep for any length of time. When necessary to use, again pour off the alcohol into a smaller bottle (kept ready for that purpose), place the gelatine bottle in a 1/2 gallon tin measure, putting a large piece of cork in the bottom to protect the bottle from direct heat, fill the measure nearly to the neck of the bottle with cold water, and put over the gas flame or on the stove. Continue the heat until the gelatine is thoroughly liquefied, and then pour into the coating dish previously used. Place the empty bottle in the measure to keep it hot. As few or as many pills as you wish may be coated, and then the solution at once returned to the bottle. After the pills have been removed from the needles, the next consideration is to restore the needles to their original condition.

A tin pan, or any convenient vessel having a flat bottom, is filled to the depth of an inch with hot water, and the cup is set in, the points being placed downward, the water not being deep enough to reach the cup. As soon as the gelatine is soft take the cup out, and with a small notched stick push the gelatine bulbs off, and then plunge the points into a bag of coarse emery a few times. This polishes the needles, and they are then laid aside until wanted again.

* From the Proceedings of the New York State Pharmaceutical Association, 1882.

The only points of difficulty in the process, to the average pharmacist, will be the making of the pill and the proper consistence of the coating solution. Both must be learned by experience. If the coating is too thin on the pill, or does not cover it perfectly, evaporate the solution somewhat. Should it form too thick a coat, add a little hot water, and stir well. A pellicle forms rapidly, and it is necessary to stir frequently to prevent the pellicle from adhering to the pills as they are drawn out of the solution.

The difficulty in regard to the consistence of the pill shows itself in the bursting of the coating, and the exudation of the mass, when too soft, as is often the case in pills made largely from solid extracts. To remedy this, the mass must be made harder by the addition of gum arabic, or some other inert powder. Like all other labors in the laboratory, this process is open to the prospect of failure unless some degree of patience is exercised. The general working points are simple, the process does not require any elaborate machinery or contrivances, which might open a legal question as to "rights of protection," and any one can, without fear of trouble, prepare for himself the simple apparatus described in this paper, and make any pills for which he may have a demand.

BROAD BEANS.

MESSRS. Vilmorin write, in reference to my remarks on Broad Beans, that the illustration of the improved Windsor given is identical with their Julianne Bean, a useful variety,

IMPROVED WINDSOR BEAN (VILMORIN).

and superior to the Improved Windsor, for the accompanying representation of which I am indebted to that firm.—*J. Muir, in The Garden.*

ASPARAGUS ON THE FRENCH SYSTEM.

HAVING for some years cultivated asparagus on this system, a few practical hints and observations in reference thereto may not be without interest. Some who prefer green asparagus to that which is blanched condemn the French method of culture, forgetting that by it green asparagus can be had quite as well as by the old fashioned bed plan, by simply leaving the ground level instead of raising mounds of soil over the plants. Where fine asparagus is desired, either green or white, the French mode of planting in single rows, four feet asunder, and from two and a half to three feet apart in the rows, must be infinitely superior to crowding three rows into a bed four feet wide. To those who have not already tried this plan and are thinking of doing so, now is a good time to begin. Choose an open sunny piece of ground and well manure it; then bastani trench, working

rows, a fact which shows that the manure and water are applied to the very place from which the plants derive their supplies, and where, but for the mulching, they would suffer most from exposure to bright sunshine; moreover, the hotter the weather the more rapidly will the heads come through, provided the ground is kept moist. It has been recommended to remove the mounds of soil from the crowns in the autumn and to give a top dressing of manure. We formerly adopted this plan, but since the winter of 1879 we have discontinued it, having found that our plants suffered severely from the hard frosts of that winter, owing no doubt to the total absence of snow when the frosts were most intense. We find it now a safer plan to manure between the rows in the autumn, leaving the uncovering and manuring of the crowns until the sharpest of the winter is over.

The best manures are moderate dressings of salt, seaweed if obtainable, bone dust, and burnt vegetable refuse, all excellent fertilizers. We also use Horsfield's garden manure, which is largely composed of dissolved bones. A top dressing of this is given before the mulching, and is evidently a valuable aid in the production of fine asparagus. Formerly

WELL DEVELOPED STOOL OF ASPARAGUS, THE RESULT OF ALLOWING AMPLE SPACE.

part of the manure into the lower spit; after the trenching is finished, no more is needed till planting time; then mark out the ground as for celery, with this difference—the trenches need not be more than three inches deep. The ridge of soil can be cropped with lettuces, French beans, or any small crop until the asparagus is thoroughly established, when there will be no room for other crops. In order to have the right kind of plants for planting, the best way is to grow sufficient to enable one to select the most promising, as a good percentage of fine heads depends upon the right kind of plant being chosen in the first instance, i. e., in the one year old stage. When the young plants have made growths two inches in length, the last week in March or early in April then is the time to take them up for planting, choosing those that have one or two stout shoots in preference to those that have a greater quantity of weaker growths. My impression is that the plants which show greatest vigor in their early stages maintain it throughout their whole existence, and what is of great importance to the cultivator is the fact that such plants bear but few if any seeds. I may mention that in the second plantation which we planted here this selection was rigorously carried out, and the result is that a large proportion of the plants employed are berryless or seedless, and

our asparagus on the old system was of the poorest description, being about the size of stout wheat straws, but under the French plan fifty heads often weigh upward of nine pounds, and some of the stems of this last season measured nine feet in length.

WM. ALLAN.

NOTES ON ASPARAGUS.

THIS, the most delicious of all vegetables, is more generally cultivated now than it was a number of years ago. At one time it was almost exclusively confined to the gardens of the wealthy, but now every one fortunate enough to have a garden has an asparagus bed. Here we have half an acre or more devoted to it, and this extent will probably be doubled in the spring, as none of our vegetables are so useful or acceptable from November until June as asparagus. Low, damp ground or a stiff soil is ruinous to it, and those who attempt its culture under such conditions will never succeed. If the roots should live, it will only be for a short time; they will dwindle away and perish here and there, or wholly before they have yielded a satisfactory return for the outlay connected with their culture. I have planted asparagus on