Home-Made Graduated Measures.

Graduations on glass bottles, measures, etc., may be easily engraved with the aid of a few small files, a set of six of which, of various shapes, can be bought at most tool shops for about one shilling. A small bottle of oil of turpentine, in which some camphor has been dissolved, is also very useful as a lubricant, although it is not absolutely necessary.

Suppose it is wished to graduate a bottle which will hold about ten ounces or half a pint of water. First fix a strip of gummed paper, about three-quarters of an inch wide, vertically on the outside of the glass, taking care that it is long enough to come slightly above the place where the ten-ounce mark will be. When the gum is dry and the paper slip firmly secured to the glass, pour exactly ten ounces of water into the bottle, place the latter on a flat table, and when the surface of the water has become level and perfectly steady mark the height in pencil on the paper strip. Now take a dry graduated two-ounce measure, pour two ounces of water from the bottle and mark the level of the eight ounces remaining; in the same way register the position of the six, four, and two ounce marks. Then empty the bottle and proceed to refill it, one ounce at a time, marking the level of the water at each addition: every second ounce to agree with the marks made at first, and in this way the correctness of the measurements will be checked.

When satisfied with the accuracy of the graduations, file with one edge of a fine triangular file through the paper where each mark occurs, until you feel that the tool is cutting into the glass. The marks can be made any length you please; the file cannot slip, as the paper will keep it in the proper place. When all the lines have been well cut in, the paper can be removed and the marks deepened or made wider by using a differently-shaped file; the angle of a square or the edge of a very thin, flat one dipped in turpentine and camphor will make good, broad lines, that can easily be seen. If it is wished to number the graduations, Roman numerals are the easiest to make, but they should all be pencilled on the paper and cut through, as before described. It will generally be found on trial that two or three of the small files will easily cut the surface of the glass when used at the point like pencils; and in this case any sort of numerals or letters can easily be engraved, provided that they are first started through the paper.

The oil of turpentine should not be used until the paper has been removed, as it is important to keep the latter dry, but afterward the files will work much more easily and quickly with the aid of the lubricant. If thick, bold lettering is required, it should be drawn on the paper and the thick lines removed with a sharp-pointed penknife. In most cases it is better to cut through all pencil lines with a sharp knife before filing, as this prevents the files from becoming clogged.

If very broad lines are required, it is as well to commence them by making two thinner lines the proper distance apart; the surface of glass between the lines can then be easily chipped away with the end of a file.

There is not the slightest difficulty with any part of the operation excepting when elaborate writing is attempted, and even this can easily be mastered by anyone who is accustomed to use the pencil. The precautions to be observed are: First mark upon the paper every line that is required to appear upon the glass, and do not remove the paper until every line has been cut, or rather scratched, on the surface of the glass. Special care must be taken to ensure this in the case of lettering, as it is very difficult to remedy omissions in the absence of the paper.

Numbers or lettering will always look neater if placed between two parallel lines, which need only be lightly scratched on the glass. These will, in a great measure, prevent the tool from overshooting the mark.

If these instructions are carefully carried out, with very little practice measures and bottles can easily be graduated in such a manner as to give no evidence of the work of an amateur engraver.—*Photographic News.*

Preparation of Opium in Persia.

By no means a small or unimportant industry in Ispahan is the preparation of opium. Almost every native or European merchant who trades in this drug sees the opium prepared under his own eye. The following is the usual manner of doing this in Ispahan: The people commence to collect the drug early in May. The poppy-head is lanced in the afternoon, and the opium, which exudes and dries during the night, is collected into copper pots early the following morning. The opium gathered is kept in store, until it is required to be prepared, in thick earthenware or copper pots. For the process of preparing into cakes, special men are engaged who understand the manipulation of crude opium. First the opium is taken out of the pots and assorted; it is then put into a very large copper pot (as the quality of various villages give different "touch" and morphine, for this reason they are obliged to mix the bulk together so that all the cakes should be of one quality). Each manipulator has a smooth board about 23 inches long and 11 inches broad; he takes from the bulk about 1 lb. of the crude opium and rubs it on the board; puts in the sun about ten minutes, and afterwards takes it into the shade and rubs it continuously on the same board with an iron implement having a wooden handle something like a small solid spade, and continues in the same manner until it dries up to a certain degree; it is then collected in a mass sufficient for about a day's work, and then heated over a slow charcoal fire, in trays, until it becomes plastic; again each man takes about a ¼ lb. weight and keeps kneeding it on the board and manipulating it with the implement, as already described, until it dries up to the standard degree and assumes a somewhat golden color.

The opium is then collected and made up into cakes of 1 lb. each. The cakes after a couple of days are wrapped up in pink paper and tied round with string, then put into tin boxes, packed in layers with poppy chaff, so that the cakes do not roll about, then again packed into wooden boxes; the boxes are covered with hide and gunny, and the opium is then ready for exportation. If the drug is prepared in cold weather, it has to be dried in the beginning by artificial warmth and by rubbing on the board, and keeping the boards while in manipulation near a charcoal fire. The highest morphine of Persian opium is 12 per cent., and the "touch" 90 per cent. The tests are made by the best known methods as used in London.—*Consular Report* (*Phar. Journal*).

Medcine and Pharmacy in China.

In many Buddhist monasteries in China the science of medicine is taught to those who wish to dedicate themselves to its practice, and some of these establishments are, either directly or indirectly, under imperial patronage. There are some extremely well-endowed monasteries, which, in addition to the fat income they enjoy, are the possessors of libraries of medical literature, consisting of more than 40,000 volumes; but the teaching given is of the poorest and most deficient description one can well imagine. Official protection exists only in name, and the exercise of the medical and pharmaceutical professions is entirely free. Any individual becoming tired of his proper calling, be it laborer or cobbler, can soon become a doctor if he has a wish to do so, and to attain his object must first enter one of these monasteries, where he is allowed to copy out certain volumes of medical books, particularly such as treat of the pulse and of herbal remedies. Afterwards, without any other instruction or information than what he has derived from these books, he is a fully fledged medical man, ready to practise, and when he wishes to do so he locates himself in some central position, at a street corner, in a square or market, or any spot where there is plenty of traffic and people passing to and fro, there to wait consultations. But in order that a consultation should bear fruit, our improvised doctor must give an air of mystery to his acts and words. With this in view, he procures a small bird about the size of a sparrow, which he trains to draw a little folded paper from a tin box. This paper has written upon it, in Chinese characters, the number of a certain paragraph in his dictionary of medicine, which is thereupon turned to, and such remedies as are therein mentioned are applied to the patient, whether they are