it, and not merely acquainted with the system, which involves very little difficulty, but what is of far more importance, acquainted with the values of the integral measures, so as to have some definite ideas of what they represent.

Until this has been done I cannot conceive that it would be practicable, and certainly it would not be compatible with a due regard for the interests of the public, to introduce so great a change as would be involved in the adoption of the metrical weights and measures in preparing, prescribing, and dispensing medicines. The difficulty, and I think almost the only difficulty experienced by those who are unaccustomed to the use of metrical weights in adopting them for any special purpose, is caused by the absence of clear conceptions of the quantities represented by the different integers. What is wanted in the first instance is that we should be able to associate some familiar objects with the several units of metrical weights and measures. I should like to hear the opinions of practical pharmaceutists as to the practicability and desirability of introducing forms of medicine representing the more important metrical units, or some even multiples of them. Thus, for instance, most of the lozenges ordered in the Pharmacopœia weigh about 15 grains. Might they not all be made to weigh exactly a *gram*, and be marked with this weight? In fact the same rule, modified perhaps in some cases so as to make the weight 2 grams, might be applied to medicinal lozenges generally, by which means the public would become familiar with the quantities represented by the weights which would be marked on each lozenge. If in this way we could establish forms of medicine representing different metrical units we should be doing much towards preparing ourselves and the public for the reception of the new system, to which we should all become more reconciled as we became acquainted with the values of the terms used.

Our greatest difficulty would probably be with reference to measures of capacity. In France liquids as well as solids are weighed, and the measure-glass is rarely if ever used; but I believe it would be very difficult to establish that practice among our pharmacists, and there is no measure of capacity in the metrical system that accords well with the fluid drachm or ounce. There is room for the exercise of ingenuity or judgment in devising the most suitable means of meeting the requirements of the physician and pharmacist in adjusting quantities by measure in prescribing and dispensing.

If the metrical system were adopted by us in pharmacy, it would have to be adopted, of course, by the physician as well as the pharmaceutist; and those who advocate its introduction must be prepared to show how, for instance, the physician is to indicate the quantities of the several ingredients in a six or eight ounce mixture containing drachms of some ingredients, such as tinctures, and ounces of others, such as infusions. At present we have no better method of representing the metrical equivalent for the fluid ounce than by 28 cubic centimetres, but the multiples of this number would be inconvenient for use, as they would have to be used in prescribing and dispensing.

To meet this and similar cases, it may perhaps be worth a consideration whether it would not be desirable to do something similar to that which was attempted by the French in 1812, and again in 1827, that is, to approximate the old system to the new by establishing some intermediate links between them, taking care in doing this to maintain the integrity of the new system, but slightly bending the old so as to bring them into juxtaposition. If we were to do something of this sort we might construct a new measure both for capacity and weight, consisting of 4 grams, corresponding to 493·8 grains, and this might be called a *tetram*. In the same way we might construct a new representative for the ounce, consisting of 8 tetrams, or 32 grams, corresponding to 61·7 grains, and this might be called an *octram*. If it were thought advisable to go further we might have a representative of the pound, consisting of 16 octrams, or 128 tetrams, or 512 grams, corresponding to 493·8 grains, and this might be called a *libram*. These three new measures of weight and capacity, for in each case the weight of distilled water would represent a measure of capacity, while they would correspond with metrical measures, would be sufficiently near approximations to the drachm, ounce, and pound of our system to render them convenient integers to replace those measures in making a change from one system to the other. I throw out the suggestion for the purpose of courting discussion.

I would also suggest that, in introducing the metrical system in this country, the names of the different integers should be written according to English rather than French orthography. This would, I think, tend to reconcile some persons to the system who are accustomed to look upon it as a foreign innovation, besides which it would simplify the spelling of the names.

Provision has been made in the Pharmacopœia for the use of metrical weights and measures in volumetric testing, and if chemists and druggists would adopt that method of conducting those and other similar operations, the practice of doing so would soon render them familiar with the system.

It has been proposed that in the Pharmacopœia, in addition to the weights and measures now specified in the processes, the metrical equivalents should also be given, with the view of showing the relationship existing between the values of the terms used in the two systems. I am not prepared to say that this might not with advantage be done in some cases where integral quantities can be expressed, and simple relationship shown; but to do it in all cases would, I think, encumber the descriptions of the processes without producing an adequate amount of good. Indeed, I am not sure that such an array of figures as the carrying out of this suggestion would necessitate would not tend more to involve the subject in confusion than to supply any useful information.

I have brought the subject forward on this occasion for the purpose of raising a discussion upon it; and the suggestions I have thrown out may, I hope, serve to call forth the expression of opinion upon the points I have alluded to, and induce others to contribute in the same direction.

THE ADULTERATION OF OLIVE OIL.—The President of the *Comité du Des Alpes-Maratimes* publishes a letter in which he offers, on behalf of that body, a prize of 15,000 francs to the inventor of a rapid and easy method, not involving strict chemical manipulation, for detecting the admixture of seed oils with olive oil.

On Elixir of Calisaya, Iron and Bismuth.

BY ROBERT W. GARDNER.

As an unofficinal preparation, known as "Elixir Calisaya, Iron and Bismuth," has acquired considerable reputation, and is being commonly used in various parts of the country, and having seen no reliable formula published in any of our leading pharmaceutical journals, I would most respectfully submit my process, which I have for years employed, and which furnishes a permanent and reliable preparation containing just proportions of each active ingredient, free from any disagreeable quality, and the bismuth of which does not conceive such an affection for the bottom of the bottle that it fails to remain in solution.

Take of Pyrophosphate of Iron scales, one troy ounce.
Citrate Bismuth, one troy ounce,
Sulphate Quinine, twenty-four grains,
Citric Acid, eight grains,
Carbonate Magnesia, one drachm,
Sugar, half a troy ounce,
Water of Ammonia, sufficient,
Oil Orange, best, half a fluid drachm,
Oil Lemon, fifteen minims,
Oil Caraway, five minims,
Oil Nutmegs, five minims,
Alcohol, eight fluid ounces,
Syrup, twenty fluid ounces,
Water, sufficient,

Rub the oils with the sugar and magnesia, gradually adding one pint of water, and filter. Put it into a half-gallon bottle and add the syrup.

Dissolve the pyrophosphate iron in two fluid ounces water, and add to the mixture.

Now add seven fluid ounces of alcohol.

Put the quinine, citric acid, one fluid ounce of water, and the balance (one ounce) of the alcohol in a capsule; heat over a spirit lamp until dissolved, and mix with the other ingregients.

Rub the citrate bismuth with one ounce water, and carefully add sufficient water of ammonia to effect the solution. Mix with the other ingredients.

Add water of ammonia until neutral to litmus paper (avoiding excess), and finally as much water as will bring the whole to the measure of sixty fluid ounces, and filter. To be kept and dispensed in dark bottles.

One fluid ounce contains about eight grains ammonia-citrate bismuth, eight grains pyrophosphate iron, and the equivalent in quinine of sixteen grains of calisaya bark.

The following is the process I have employed for making citrate bismuth: First,

Take of pure Sub-nitrate Bismuth, two troy ounces.
Nitric Acid (sp. gr. 1·44), 1450 grains,
Water sufficient.

Put the bismuth in a porcelain dish; add the acid, and heat over a spirit lamp until the bismuth is dissolved; then add one fluid ounce water, and let stand until cold; then gradually add water, constantly stirring with a glass rod, until a further addition produces milkiness, or until the whole measures one and a half pints. Filter and set aside. Next,

Take of Carbonate Soda crystals, sufficient quantity,
Citric Acid, three troy ounces,
Water, one and a half pints.

Dissolve the citric acid in the water and add sufficient carbonate of soda (previously