powder, which can be washed away. When aluminium rusts, or is fused at a great heat among the crystalline rocks, it gives to us the precious stones called the ruby and sapphire.

As soon as the metal is required in large quantities, some method will be devised for producing it at a cheap rate; and when that time arrives we shall not have to fit out expeditions to go and search for the ore in remote regions, but we can dig for it under our feet, nearly everywhere, and make a mine of every stone quarry.

The beautiful tone of the metal has suggested its use in the manufacture of bells, and a successful application of it for this purpose has been made.

Aluminum has been employed by chemists as a reducing agent in the preparation of some of the rare metals, and we may have to record a more extensive use of it for this purpose.

There have recently been introduced into use in Paris two new allows of aluminum. The first is called aluminum silver, or third silver (tiers argent), and is composed of one-third silver and two-thirds aluminum. It is chiefly employed for forks, spoons, and tea service, and is harder than silver and more easily engraved. The second is called minargent, and is made of one hundred parts copper, seventy parts nickel, five parts antimony, and two parts aluminum. It is a very beautiful, permanent, and brilliant alloy, capable of replacing silver for many purposes.

It must be acknowledged that the applications of aluminum in the arts are not so numerous as was at first predicted, and its manufacture, as compared with other metals, can, at the present time hardly be called a metallurgical one. The metal is so light that a little of it will go a great way. A cubic foot of it weighs one hundred and sixty-eight pounds, whereas a cubic foot of gold weighs twelve hundred pounds, and silver weighs six hundred and fifty-six pounds, iron four hundred fifty pounds, and even granite weighs one hundred and eighty-six pounds to the cubic foot.

If the price of it were the same as that of silver, it would still be much cheaper, as only one-fifth as much would be required to cover the same space.

So abundant is this metal, that it is safe to predict that the day is not far distant when our houses may be built of it instead of bricks, and we shall use it for many purpose now unknown.—*New World.*

Carbolic Acid Plaster.

BY WILLIAM MARTINDALE.

Professor Lister, of the Glasgow Infirmary, having been led by the experiments of M. Pasteur, proving the germ theory of fermentation and putrefaction, and the action that carbolic acid has of destroying the vitality of these germs, has on these founded what is called "the antiseptic system of treatment in surgery," a series of papers on which he has published in the *British Medical Journal*. The principle on which he proceeds is, that after the operation, air shall, as much as possible, be excluded from the wound, and that the dressings applied shall yield a constant supply of carbolic acid in a state of vapor, so that any "germs of organisms" which might obtain access to the part would become inert, their vitality being destroyed. By this means no sloughing takes place, putrefaction is entirely arrested, and the formation of unhealthy *pus*, which in the ordinary treatment causes such a drain upon the patient, is avoided. It is, in fact, "healing by the first intent."

Among the dressings employed, one of the first he used was a carbolic acid putty, made by mixing boiled linseed oil and whiting, with the addition of one part of carbolic acid to four of the oil. But this he found a somewhat clumsy and inconvenient preparation. He next tried a carbolic acid plaster, made by mixing *emplastrum plumbi* with one-fourth of beeswax to give it sufficient consistence, and carbolic acid in the proportion of one-tenth of the whole. This is spread on calico, in a layer of about one-twentieth of an inch. It is, however, inconveniently soft, and cannot be kept spread in stock. He says, "I have since found that by increasing the proportion of litharge, the lead-soap may be made to any degree of firmness that may be desired, provided that water be not used in the manufacture. When the litharge and olive oil are in the proportions directed by the Pharmacopœia, a certain quantity of water must be added to promote the combination of the fatty acids with the oxide of lead, and even then the process is a very tedious one. But it is an interesting fact, chemically, that if a litharge is used in about four times the Pharmacopœial proportion, although no water be employed, the combination proceeds under a brisk heat with great rapidity. It is upon this fact the following method of manufacture is based:

"Take of

Olive oil 12 parts (by measure).
Litharge (finely ground) 12 parts (by weight).
Beeswax 3 parts (by weight).
Crystallized carbolic acid, 2½ parts (by weight).

Heat half the olive oil over a slow fire, then add the litharge gradually, stirring constantly till the mass becomes thick or a little stiff; then add the other half of the oil, stirring as before, till it becomes again thick. Then add the wax gradually, till the liquid again thickens. Remove from the fire, and add the acid, stirring briskly till thoroughly mixed. Cover up close and set aside, to allow all the residual litharge to settle; then pour off the fluid, and spread upon calico to the proper thickness. The plaster made in this way can be spread by machine, and kept in stock; and, if in a well-fitting tin sanister, will retain its virtues for any length of time."

But for almost all purposes the antiseptic lead plaster is superseded by his lac plaster, which is made in this manner:

"Take of

Shellac, 3 parts.
Crystallized carbolic acid, 1 part.

Heat the lac with about one-third of the carbolic acid over a slow fire till the lac is completely melted; then remove from the fire and add the remainder of the acid, and stir briskly till the ingredients are thoroughly mixed. Strain through muslin, and pour into the machine for spreading plaster; and, when the liquid has thickened by cooling to a degree ascertained by experience, spread to the thickness of about one-fiftieth of an inch. Afterwards, brush over the surface of the plaster lightly with a solution of gutta percha in about 30 parts of bisulphide of carbon. When the sulphide has all evaporated, the plaster may be piled in suitable lengths in a tin box, without adhering, or