into the hands of the chemical analyst. Several years before he turned his attention to the subject, scattered grains of a brilliant metal had been found in the sands of certain of the South American rivers. To this, from its resemblance to silver, or in their language plata, the Spaniards gave the name of platina, or little silver. This metal was found to resist the action of nearly every substance except aqua regia; to suffer no change, nor to become rusted by protracted exposure to the atmosphere; and to be perfectly infusible by the most powerful forge or furnace.

Here, then, was a substance for the chemist's crucible, could a method of working it only be discovered. But the very properties which made its value certain, if it were wrought into vessels, forbade its being easily fashioned into them. It occurred in nature only in small grains which could not be melted, so that it was impossible, as with most other metals, to convert it into metals by fusion. Neither was it possible by hammering to consolidate the grains into considerable masses, so that vessels could be beaten out of them, for the crude metal is very impure. Accordingly, it happened, that for years after the value of platina had been discovered, it could not be turned to account. Whole cargoes of the native metal, although it is now six times more costly than silver, are said to have lain unpurchased for years in London, before Wollaston devised his method of working it.

That method was founded upon the property which platina possesses of agglutinating at a high temperature, though not melted, in the way iron does, so that, like that metal, it can be welded, and different pieces forged into one. This property could not, however, be directly applied to the native grains owing to their impurity and irregularity in form.

Wollaston commenced by dissolving the metal in aqua regia; purified it whilst in solution from the greater number of accompanying substances which alloyed it; and then, by the addition of sal ammoniac, precipitated it as an insoluble compound with chlorine and muriate of ammonia. When this compound was heated, these bodies were dissipated in vapor, and left the platina in a state of fine black powder, which was further purified by washing with water.

It was only further necessary to fill a proper mould with this powder well moistened, and to subject it to powerful compression. By this process the powder cohered into a tolerably solid mass, which was gently heated by a charcoal fire, so as to expel the moisture and give it greater tenacity. It was afterwards subjected to the intensest heat of a wind furnace, and hammered while hot, so as completely to agglutinate its particles, and convert it into a solid ingot. This ingot or bar could then be flattened into leaf, drawn into wire, or submitted to any of the processes by which the most ductile metals are wrought.

The costliness of the metal has not forbidden its application to manufacturing operations even on the largest scale. In the oil of vitriol works, stills of platina are made use of for distilling sulphuric acid, each of which, though holding only a few gallons, costs above a thousand pounds. A coinage of platina was introduced into the Russian dominions, which possess valuable supplies of its ores: but though roubles and other coins struck in it, occasionally reach this country as curiosities, we understand that the coinage has been withdrawn by the imperial government, in consequence of the fluctuations that occur in the value of the metal.

In our own country, from the great consumption of platina in chemical processes, its value has rapidly risen even within the last few months; but it is constantly shifting.* Nothing but its rarity and costliness prevent its application to the construction of every kind of culinary vessel, for which its purity, cleanliness, and enduringness especially fit it. A thousand other uses would be found for it, if it were more abundant.

Were it now the custom to honor men after death according to the fashion of the Greeks and Romans, Wollaston's ashes would be consigned to a gigantic platina crucible, as to a befitting and imperishable sepulchral urn.

His other chemical papers are all important. One of them, "on the chemical production and agency of electricity," proved, by singularly ingenious and beautiful experiments, that identity of voltaic and friction electricity, which Faraday has since confirmed by still more decisive trials. The others had reference chiefly to the atomic theory, which Wollaston was a great means of introducing to the favorable notice of chemists. One was, "On superacid and subacid salts," and contained one of the earliest and most convincing proofs which can be given of the existence of such a law of multiple proportion, as Dalton had pronounced. The other on, "A synoptical scale of chemical equivalents," first brought the laws of combination within the reach of the student and manufacturer.

Wollaston published three papers on the shapes of crystals, and on the mode of measuring them. No branch of science is less inviting to the general student than crystallography. Nevertheless, we must be allowed to refer briefly to one of Wollaston's essays on that subject. The most superficial sketch of the philosopher whose works we are considering, would be inexcusably defective if it passed it by.

The paper we refer to is entitled, "Description of a reflective goniometer," and, next to that containing the account of the platina process, is perhaps Wollaston's most important contribution to science. It is much more difficult, however, to convey an idea of its value, than it was in the case of that essay.

A goniometer, as its name implies, is an instrument for measuring angles. The appellation, though susceptible, of course, of much wider application, is restricted to an apparatus for measuring the angles of crystals. Different goniometers were in use before Wollaston invented his, but they were comparatively rude, and could only be applied to large crystals.

When Wollaston published the account of his goniometer, he stated as an evidence of its superiority to those previously in use, that whereas a certain angle of Iceland spar was reputed to be of one hundred and four degrees, twenty-eight minutes, forty seconds, it was in reality of one hundred and five degrees.

But this is the lesser service which the reflective goniometer has rendered to science. Early in this century, a great German chemist, Mitscherlich, comparing the results obtained by Wollaston's instrument, with those procured by analysis, in the case of crystalline bodies, discovered a very curious and unexpected law. It appeared, that when substances resemble each other in chemical characters, their crystalline forms are also similar. When the simplicity in chemical properties is very great, the shapes become absolutely identical. It is a very singular circumstance, which no one appears to have in the least anticipated, that where two closely-allied bodies, such as arsenic and phosphorus, unite with the same third substance, they should produce identical forms when the respective compounds are crystallized. Each face of the one slopes at the same angle as the same face of the other. A mould of a crystal of the one would fit a crystal of the same size of the other. A goniometer set at the angle of the one, would exactly measure the angle of the other. Such crystals are named isomorphous, a Greek word synonymous with the Latin one, similiform, also made use of.

Taught by this law, the chemist, to his astonishment, found himself able to ascertain chemical analogies by measuring angles of crystals, and supplied with a means of controlling and explaining the results of analyses, which otherwise seemed only to lead to contradiction and confusion. Crystalline form is now one of the first things attended to in classifying chemical substances, and is the basis of most of our attempts to arrange them into groups and natural families.

It deserves especial notice, but has never obtained it, in histories of the progress of chemistry, that he who, by his gift of the platina crucible, enabled his brethern to extend the whole science, and especially to subject every mineral to analysis, by his other gift of the reflective goniometer showed them how to marshal their discoveries. The latter instrument has been to the chemist like a compass-needle or theodolite to the settlers in a strange country. By means of it, he has surveyed and mapped out the territory he has won, so that new comers may readily understand the features of the district; and has laid down pathways and roads, along which his successors may securely travel.

One of his papers is on the interesting and poetical subject of "Fairy rings." There is no one, we suppose, who does not sympathize with the poetical rendering of the fairy ring; and no one, probably, who does not at the same time wish to know what the scientific version is also. Wollaston furnished us with the latter. He was led to form the opinion we are about to state, by noticing "that some species of fungi were always to be found at the margin of the dark ring of grass, if examined at the proper season." This led him to make more careful observations, and he came to the conclusion that the formation of the ring was entirely owing to the action of the fungi in the following way. In the centre of each circle, a clump or group of toadstools or mushrooms had once flourished, till the soil, completely exhausted by their continued growth on it, refused to support them any longer. The following year, accordingly, the toadstools which sprang from the spawn of the preceding generation, spread outwards from the original spot of growth towards the unexhausted outer soil. In this way, each circle of mushrooms came to be preceded by a ring of withered grass, and succeeded by one of the deepest verdure, and as the one increased the others did also.

These views of Wollaston have been beautifully confirmed by the recent researches of Professor Schlossberger of Tübingen, into the chemical compositions of the fungi, by which it appears that they contain a larger quantity of nitrogen, of phosphates, and of other salts, than any of our cultivated vegetables.

In another, and one of the most curious of his papers, Wollaston again plays the part of disenchanter of a poetical fancy. It is entitled, "On the apparent direction of the Eyes of a Portrait." Into this essay we cannot enter at length, but it deserves a word of notice. One large part of it is occupied in showing that we are unconsciously guided in our estimate of the direction in which the eyes of another are turned

* Platina costs at present, in the state of ingot or bar, from 30s. to 35s. per ounce, wholesale. Manufactured articles from 32s. to 42s. per ounce, also wholesale. The retail prices are from 5s. to 10s. higher. Virgin silver sells at 5s. 8d. per ounce, wholesale; at 9s. per ounce, retail, when manufactured. Sterling silver is worth 4s. 11d. per ounce.