

intimate union. The union of this substance with silver and gold produced upon it very little alteration; but, what is most remarkable, it could not be separated from these metals by the usual processes of refining. The alloys retain a considerable share of ductility; and the colour of that which is alloyed with gold is not materially different from that of pure gold.

The next experiments relate to the analysis of the black powder, and the properties of the two metals which enter into its composition. The method of dissolving the powder was similar to that employed by M. Vauquelin, viz. by the alternate action of caustic alkali and of an acid. The acid solution was found to contain that particular metal which has been noticed by Descotils. And of this metal, a considerable number of characters are here described, in addition to those already mentioned by the French chemists.

As to the alkaline solution, which Vauquelin considered as containing a portion of oxide of chrome, it is observed, that though some kinds of platina may contain chrome, and of course exhibit a certain quantity of it in its black powder, yet the precipitate which, upon accurate investigation, is yielded by it affords a very volatile metallic oxide, which evidently has not the characteristic qualities of that metal. As it is expedient to assign a specific name to every new substance, our author wishes to distinguish this precipitate by the appellation of Osmium, from the strong smell it emits. After showing in what manner it may be expelled from the alkali by an acid, and obtained by solution with water and distillation, the author mentions many of its relative properties and characteristic qualities. The most striking test of this oxide, we are told, is the mixture of its solution with an infusion of galls, which presently produces a purple colour, and becomes soon after of a deep vivid blue. It parts freely with its oxygen to all metals excepting gold and platina.

*On a new Metal, found in crude Platina.* By William Hyde Wollaston, M.D. F.R.S. Read June 21, 1804. [*Phil. Trans.* 1804, p. 419.]

Dr. Wollaston having conceived an idea that, in addition to the two new metals the preceding paper states to have been discovered in platina, the fluid which remains after the precipitation of that metal by sal-ammoniac, and which is likely to contain the more soluble parts of the mineral, might, on further examination, be found to contain some other substance worthy of our attention; and, in fact, having instituted an accurate analysis, of which the present paper contains a full detail, he thinks he has proved the existence of another unknown metal, to which, for the sake of distinction, he ascribes the name of Rhodium, from the beautiful rose-colour of the salts containing it. In the course of his detail, he likewise states the results of various experiments, which, he says, have convinced him that the metallic substance which was last year announced to the public by the name of Palladium, is contained (though in very small proportion,) in the ore of platina.

The process referred to for separating these several ingredients from each other yielded, in fact, a pure metallic button, not malleable, but uniting readily with all the other metals that have been tried, except mercury, and whose specific gravity appeared not less than 11. This is the rhodium, which is here announced for the first time.

The palladium was precipitated from the alcohol employed for washing the salt of rhodium: it was yielded, indeed, in a very small proportion, but in sufficient quantity, however, to prove that it is actually a simple metal residing in platina, and to induce a suspicion of some error in Mr. Chenevix's investigation, who thought it a compound of platina and mercury; but our author candidly adds, that he has made several attempts to imitate the synthetical experiments of that chemist by solution and amalgamation, but without success.

*The Croonian Lecture on Muscular Motion.* By Anthony Carlisle, Esq. F.R.S. Read November 8, 1804. [*Phil. Trans.* 1805, p. 1.]

Admitting that there are subjects in the economy of nature which will ever elude our most attentive observation, and that many institutions similar to our Croonian Lecture will probably never attain the end for which they were founded, it cannot, however, be denied that several of them, and ours in particular, have at different times brought forward various collateral, and some of them not unimportant facts, which have in some measure contributed to extend our knowledge of nature. This latter is the point of view in which the present communication is to be considered; concerning which the author says, that, waving the investigation of the general theory of muscular motion, he shall limit his present inquiry to certain circumstances which are connected with this motion, considered as causes, or rather as a series of events, all of which contribute more or less as essential requisites to the phenomena. The changes which obtain in muscles during their contractions or relaxations, and their corresponding connexions with the vascular, respiratory, and nervous systems, are, he declares, the chief objects of his present investigation.

The lecture is divided into six sections, of which the following are the heads, together with some of the most prominent facts contained under each of them; the nature of the performance, which consists chiefly of insulated facts, and our limits in point of time, precluding us from being so minute in our analysis as the importance of the subject may be thought to require.

Sect. 1. *Of the physical and sensible properties of muscles, considered as distinct parts of an animal, and as peculiar organs.*—In describing the fasciculated texture of the fibres which compose a muscle, and the elasticity of these fibres during the contracted state of the muscle, the author advances an opinion, that this elasticity appears to belong to the enveloping reticular or cellular membrane, and that it may be safely assumed that the intrinsic matter of muscle is not elastic.