bases his claims to the existence of the new element. The characteristic properties thus far noted are the following :—When fused with phosphor salt, its compounds yield in the oxidising flame a reddish or brownish yellow bead, and in the reducing flame a green bead. The alkaline vesbiates are soluble in water. The compounds with the other bases are soluble in acids, but insoluble in water—with the solitary exception of the manganese salt. The zinc salt is green, the silver salt is of a reddish yellow. The acid solutions of the iron and aluminium salts are green. Addition of sulphuretted hydrogen causes a flocculent brown precipitate, while the liquid assumes a deep azure blue hue—one of the most distinctive properties of the acid. The yellow vesbiate of potassium when fused, turns black, and if then cooled is insoluble. If on the contrary the temperature is further elevated, the fused mass becomes transparent and is soluble on cooling. The analysis of the silver salt showed it to contain 47·58 per cent. of vesbic acid. This would give 105·29 as the equivalent weight of vesbic acid, and an atomic weight of about 130 or 162, according to the amount of oxygen in combination.

In view of the small quantity of but three grammes of vesbic acid which Prof. Scacchi has thus far succeeded in isolating, he very prudently desists from making any definite claims with regard to the certainty of the existence of vesbium, until he has obtained quantities sufficient to insure purity in the compounds and exactness in the analytical results.

Thus far it appears allied to vanadium or molybdenum, although not responding to the special tests of these metals. A more accurate determination of the atomic weight will also show whether it can fill the gaps in the groups containing these metals according to Mendeleeff's classification. T. H. NORTON

## *PRIZES OF THE PARIS ACADEMY OF SCIENCES*

AT the annual meeting on March 1, the Academy of Sciences distributed a large number of prizes, besides the extraordinary prize awarded to Mr. Crookes for the "Ensemble de ses Expériences." The Poncelet prize has been granted to M. Moutard, Professor at the Polytechnic School, for his works in analysis; the Dalmont prize to M. Collignon, Engineer of the Ponts et Chaussées, for similar services rendered to mechanics. M. Collignon is the author of a treatise on rational mechanics, containing not less than five large 8vo volumes. The Lalande prize was granted to Mr. Peters, the well-known astronomer of Clinton, for the discovery of forty-three small planets, eighteen of them discovered in 1879. M. Trouvelot, the French astronomer who was banished in 1851, and settled in the United States, took the Valz prize for his descriptive designs of Mars, Jupiter, and Saturn, which are exhibited in the large hall of the Paris Observatory. M. Trouvelot's observations on Jupiter's spots were considered as deserving of special mention. The Lacaze prize for physics was awarded to M. Leroux, Professor to the School of Pharmacy for his researches on vapours, on chronographs, magneto-electric machines, and peripolar induction. The Lacaze prize for chemistry was granted to M. Lecoq de Boisbaudran for his discovery of gallium

A large number of the questions proposed for solution by the commissions of the Academy, have been left unsolved and unrewarded, such as the Plumey prize for improvements in steam navigation, the great prize of mechanics for any invention tending to enlarge the efficiency of French men-of-war, the Damoiseau prize for a revision of the theory of Jupiter's satellites, the Vaillant prize for improvements in phonetic telegraphy, the Breant prize (4,000*l.*) for a remedy against choleraic infection, and others.

It is alleged that the failure of these competitions is caused by the too narrow limits imposed on the competitors, and the want of interest felt by the learned public in the proposed subjects. It may be noticed that the practice of rewarding men of science for the whole of their works is gradually gaining ground. Mr. Crookes's prize, an "extraordinary" one, was proclaimed after all the others.

One of the most important functions of the Academy of Sciences is the distribution of these annual prizes, the number of which is considerable—not less than thirty-one, whose aggregate value is about 10,000*l.*, exclusive of the Breant prize for cholera (4,000*l.*). Four of these prizes are paid out of public money, others from sums bequeathed by individuals whose number is yearly increasing. Generally these sums are vested in the funds, and the interest is employed in granting prizes, sometimes yearly, sometimes every two or three or four years. Some of the prizes to be delivered in 1880 are an exception to the rule, and the money is to be given *at once* if any one be found deserving it, according to the verdict of the Academical Commission.

The sitting was opened by an address delivered by M. Daubrée, and after the proclamation of the prizes, M. Bertrand, Perpetual Secretary, read the *éloge* of M. Belgrand, a free Academician, who died recently. He was engineer of the Ponts et Chaussées, and the head of the water service in the city of Paris. It was M. Belgrand who superintended the construction of the aqueduct, which from an immense distance brings within the fortifications of Paris an inexhaustible supply of pure spring water. In prefacing his address M. Bertrand remarked that the number of departed academicians who, from 1666 up to 1880 had not had the advantage of having their *éloge* pronounced by the Perpetual Secretary, amounts to seventy-two, amongst whom are Napoleon I., who was a member of the section of Mechanics, Leon Foucault, and Arago !

## *ARTIFICIAL DIAMONDS*

AN unusually large audience gathered at the Royal Society last Thursday to hear Mr. Hannay's account of his artificial diamonds.

The President, after inviting discussion of the paper by Messrs. Hannay and Hogarth, observed that probably the large audience had assembled more especially in consequence of the general interest attaching to the next paper on the artificial formation of the diamond, and he felt that the valuable investigation just detailed showed Mr. Hannay to be a person worthy of attention when he claimed to have made even so startling a discovery as that on the face of this next communication. With regard to this the President observed that the attitude of science was always sceptical, and the Society would need ample proof that the metamorphosis of carbon into diamond had been really effected. But when once it has been proved, even with regard to the most microscopic particle, the scepticism of scientific men would cease for ever. And he reminded the Society that the present was only a preliminary notice dealing with the statement that headed it, and that a more complete memoir detailing the process would be eagerly expected by the Fellows of the Royal Society.

The following paper by Mr. Hannay was then read by Prof. Stokes :—

While pursuing my researches into the solubility of solids in gases, I noticed that many bodies, such as silica, alumina, and oxide of zinc, which are insoluble in water at ordinary temperatures, dissolve to a very considerable extent when treated with water-gas at a very high pressure. It occurred to me that a solvent might be found for carbon; and as gaseous solution nearly always yields crystalline solid on withdrawing the solvent or lowering its solvent power, it seemed probable that the