

ingots. King Charles the Third, proud of the discovery having been made in his kingdom, ordered a medal of platinum to be struck in 1785, to commemorate M. Chabaneau's success, and granted him a pension. Wollaston's discovery respecting platinum was made in 1804.

"For more than a month," writes our Naples Correspondent, "our mountain has given indications of great activity, and has been more or less in a state of continual eruption. A few nights since, on returning late to my house, I observed almost a semi-circle of fires, which rose up and died away at intervals, about the foot of the cone. The fires were so many tongues of flame, at times shooting up very high. The Guide of Vesuvius has just brought me in his report, which I despatch:—'During the whole month of September the large crater continually threw out stones and ashes; and in the direction of Bosco Reale there was an accumulation of ash full three palms in depth. On the 30th of October, till about four o'clock on the morning of the 1st of November, the large crater began to make a great noise, and loud sounds, as of cannon, were heard. The cone was too small, but in the night it was enlarged by full two hundred feet, throwing out vast quantities of stone; and when the "cannon shot" was heard, the crater shook as under the influence of an earthquake. The small crater has ceased its activity, so as not to throw out more smoke. The lava ran from the Piano delle Gimestre; it has now ceased in that direction, and runs in the direction of the Crocelle, stopping a little above the Specola.'"

Mr. HOLMAN HUNTS Picture of 'The FINDING of the SAVIOR in the TEMPLE,' conceived in Jerusalem in July, 1854, is NOW ON VIEW at the GERMAN GALLERY, 168, New Bond Street, from Ten till Five.—Admission, 1s.

WAR IN CHINA.—GREAT GLOBE, Leicester Square.—SITES and SCENES of the PRESENT HOSTILITIES in CHINA, and a Tour through the Celestial Empire, embracing the Gulf of Petcheli, and the Peking River, the Taku Forts, Peking, Canton, and the principal Cities, Ports, and Treaty Ports of the Empire; including New and Magnificent Scenic Effects. Exhibited DAILY, at the GREAT GLOBE, Leicester Square.—Admission to the Dioramas and the whole building, One Shilling.

## SCIENCE

*Elements of Chemical Physics.* By Josiah P. Cooke, Jun. (Boston, U.S., Little, Brown & Co.)

If we are not extensively indebted to Americans for discoveries in natural science, we are, at least, indebted to them for many excellent manuals. This may arise from the fact that those who devote themselves to science in that country are more occupied in diffusing a knowledge of its principles than in extending its boundaries. It is perhaps on this account that they become more alive to the necessities of the elementary literature in science than we are in England. Be that as it may with regard to other sciences, there is no doubt that the subject which has been taken up by Prof. Cooke is one which has been much neglected in our elementary treatises on Chemistry. The science of chemistry embraces a knowledge of the changes to which bodies are liable, and also of the changes they are capable of producing on other bodies, with a knowledge of the causes which produce these changes. Now, before such changes can be studied, it is essential that the specific properties of these bodies before they are chemically changed, should be thoroughly known. There is, in fact, no chemical knowledge without this starting-point. Yet such knowledge is not regarded as chemical knowledge. Chemistry proper does not begin till a body has undergone some essential change, or communicated this state of change to another body. All the properties which a body may present independent of chemical change are called physical. Yet these are the very properties that are changed by chemical force; hence the necessity of studying, first, the physical properties of bodies. It would, however, be expecting too much that every chemist,

previously to entering upon his own especial studies, should have to master all the great problems connected with the study of Physics. Hence a practice has sprung up amongst them of introducing into their elementary works a few remarks, more or less extended, on the principal forms and properties of matter under the influence of gravitation, motion, heat, light and electricity. Such facts and illustrations have obtained the name of Chemical Physics. These introductions in some of our older manuals have been short enough. Some of them omit light and electricity, others heat or some principal branch of inquiry into this subject; but gradually it has assumed more importance. This has been especially the case in chemical text-books intended for medical students, not only on account of the importance of the physical properties of matter in relation to chemistry, but on account of the relation of the purely physical properties of matter to the vital properties of the tissues of animals.

Another phase of inquiry which has given to the chemist and the physiologist a deeper interest in the physical properties of matter, has been that which resulted in the production of Mr. Grove's able paper 'On the Correlation of Physical Forces.' In this work he had gathered up those threads of inquiry which gave consistency to a theory of the probable identity of all the forces of nature. Motion, heat, light, electricity, chemical affinity, were but the manifestations of an ever-changing primal force. It was but a step to correlate these physical forces with the phenomena of life in plants and animals; and in gathering together the scattered facts for such a generalization, we are largely indebted to the writings of Matteucci and Carpenter.

It is, then, with much pleasure that we announce a work from America which, whilst intended for the student of chemistry, embraces, so far as it goes, a statement of the laws of chemical physics commensurate with the important aspect this branch of science has already assumed amongst original inquirers in this country and on the Continent. The present volume embraces the subjects of the general properties of matter, the three states of matter, and heat. The author proposes to treat of light, crystallography and electricity in a second volume; and on stoichiometry, or the principles of chemical classification, in a third volume.

The subjects which are brought together in this first volume, are frequently for practical purposes treated of by other authors in separate volumes. Thus, in connexion with gravitation, the subject of weight is discussed as a necessary part of the general theory, and a chapter is added on weighing and measuring, which will be found of considerable practical value to the working chemist. In the chapter on Heat, the recent researches of Regnault have been embodied, and an interesting account is given of the principal results of the observations of this great experimentalist. The whole subject also of the molecular forces acting between heterogeneous molecules, embracing the laws of the absorption of liquids and the diffusion of gases,—an inquiry of high interest to the physiologist,—is treated with great ability and judgment.

As an introduction to chemical physics, this is by far the most comprehensive work in our language. We only fear that it may be considered too extended for use in the class-room. We have, however, no doubt that it will find its way into the library of students who are ambitious of laying a secure foundation for their chemical knowledge.

## SOCIETIES.

**GEOGRAPHICAL.**—Nov. 13.—Lord Ashburton, President, in the chair.—Capt. J. Grantham, R.E.; R. Lush, Q.C.; J. A. Lockwood, and H. Cartwright, Esqrs., were elected Fellows.—The minutes of the former Meeting having been confirmed, the Chairman said that a letter would be read from Capt. Burton, by the Secretary. It would be a matter of pleasure to all present to know that Capt. Burton was in good health. Dr. Shaw then read the following characteristic letter, which had been addressed to him by that officer:—

"Salt Lake City, Deseret, Utah Territory, Sept. 7.  
"My Dear Shaw,—You'll see my whereabouts by the envelope; I reached this place about a week ago, and am living in 'the odour of sanctity,'—a pretty strong one it is too,—apostles, prophets, 'et hoc genus omne.' In about another week I expect to start for Carson Valley and San Francisco. The road is full of Indians and other secondaries, but I've had my hair cropped so short that my scalp is not worth having. I hope to be in San Francisco in October, and in England somewhere in November next. Can you put my whereabouts in some paper or other, and thus save me the bother of writing to all my friends? Mind I'm travelling for my health, which has suffered in Africa, enjoying the pure air of the prairies, and expecting to return in a state of renovation and perfectly ready to leave a card on Muata Yanoo, or any other tyrant of that kind.—Meanwhile, ever yours,  
R. F. BURTON."

—The paper read was:—'Proposed Exploration in North-Western Australia under Mr. F. Gregory.'—Mr. Galton read letters from Capt. Speke, in command of the East African Expedition, conveying the gratifying intelligence that, through the kind assistance of Sir George Grey, Governor at the Cape of Good Hope, the party had been strengthened by the accession of a guard of twelve Hottentot soldiers and 800l. Admiral Keppel had conveyed the expedition in Her Majesty's steamer *Brisk* to Zanzibar.—A despatch from Sir George Grey on Mr. Chapman's and Mr. Anderson's late journeys in South Africa was read.—The President announced that subscriptions would be received at the Royal Geographical Society, 15, Whitehall Place, in aid of Consul Fetherick's Expedition, to co-operate with that under Capt. Speke and Grant, *via* Khartoum and the Upper Nile.

**ZOOLOGICAL.**—Nov. 13.—Dr. Gray, V.P., in the chair.—Dr. Gray read a note on a new species of Tortoise, of the genus *Manouria*, from the Murray River, Australia, proposed to be called *M. affinis*. He also described the female of his *Cuscus ornatus*, and exhibited and pointed out the character of a new species of *Corallium* from Madeira, for which he suggested the name of *C. Johnstonense*.—Mr. Osbert Salvin exhibited and read a note upon some specimens of the egg of the Quésal or Long-tailed Trogon (*Pharomacrus paradiseus*), of Guatemala, transmitted to him by R. Owen, Esq., Corresponding Member of the Society.—Mr. Gould characterized a new species of Nangaroo, of the genus *Halmaturus*, discovered by Mr. McGillivray in North-East Australia, near Cape York, and proposed to call it *Halmaturus stigmatus*.—Mr. Gould also exhibited examples and read descriptions of the following new species of birds:—*Odontophorus melanonotus*, from Ecuador; *Moho apicalis*, from the Society Islands; and *Toccos Harilambis*, from Western Africa.—Mr. Sclater read a paper 'On the Birds of the Falklands,' giving a list of fifty-seven species now known to occur there, and made particular reference to a valuable series of skins, recently transmitted to England from those islands by Capt. Pack.—Mr. Sclater also read a note on the Japanese Deer, living in the Society's Menagerie, which he considered probably referable to *Cervus sika*, of Temminck.—A paper by Prof. Rheinhardt, of Copenhagen, Foreign Member, 'On the Affinities of Balænicæps,' was read to the Meeting. Prof. Rheinhardt considered the nearest ally of this bird to be the umbrette (*Scopus umbretta*).—Dr. Günther described two new species of fishes; one of which, *Pagrus bogatii*, discovered by Mr. Lowe on the coast of Portugal, was a new addition to the Fauna of Europe.—Papers were also read—by Dr. Baird,