student's notes will be confined to institutions where lectures on chemistry are not extensive. The book, describing only a few of the commoner and well-known compounds, is for the most part accurate. Dr. Stoddard has divided the elements into metals and non-metals, according to their periodic functions, placing bismuth, tin, antimony, and arsenic among the latter. We think it simpler and less confusing to the student if only the elements which have no basic properties are included among the non-metals. According to Dr. Stoddard's division, we see no reason why lead should not be classed as a non-metal.

The general arrangement of the qualitative analysis, by the same author, differs but little from that of other manuals. There is a close resemblance to the form of the 'lecture-notes' on the same subject by Prof. Henry B. Hill; the difference, however, in point of clearness and conciseness, not being in favor of the 'outline.' A small manual of qualitative analysis should be of such arrangement that it may be used on the laboratory-desk; and the method of regular analysis should be given in a continuous form. The methods described for the basic analysis are not always those which we have found to give the best results in the average student's hands; and the reactions given for the detection of the acids are decidedly meagre. We see nothing in the book that is new, or of any advantage over the manuals of qualitative analysis now in use.

The systematic mineral record, by Prof. E. M. Shepard, is intended to accompany any text-book of mineralogy, and will be of great help to the student in the systematic examination of minerals. Its chief feature is the extremely clear and minute explanation of the various physical and optical characteristics which enable one to determine the nature of the specimen; and the definitions are illustrated by examples of well-marked types.

NOTES AND NEWS.

DR. BENJAMIN APTHORP GOULD is to return to this country very soon from South America, where he has recently completed the observations upon which he has been engaged for so long a time at the observatory of Cordoba. His fellow-citizens of Boston propose to give him a reception and a dinner on his return.

— The British steamship Venetian, Capt. Traut, reports that on March 22, at seven P.M., in 43° north, 51° west, the sea was very much agitated, and breaking in all directions; that this condition lasted half an hour, and could not have been caused by the changes in the wind. It had the appearance of a very heavy tide race.

— A number of electrical storms are reported by vessels in the North Atlantic from March 9 to 13, and at various points off the coast from Cape Hatteras to Cape Cod. St. Elmo's fire was seen in most of the cases, and many of the storms were accompanied by heavy thundering and lightning.

— The Lyceum of natural history of Williams college, Williamstown, Mass., the oldest natural-history society but one connected with any college in the country, will celebrate its fiftieth anniversary on the 24th of this month, at which a former member, Dr. W. K. Brooks of the class of 1870, now associate of Johns Hopkins university, will deliver an address. The lyceum proposes to take advantage of the occasion to raise funds to enable it to undertake expeditions to some spot, similar to those which it has undertaken in former years to Labrador, Florida, etc.

— The first number of the *American journal of archaeology* reflects much credit upon the editorial management, and warrants the expectation that it will supply a greatly needed want to the students of archeological science in all its numerous branches. For this reason we regret the more, that, in the initial number of an American journal, the topic of American archeology should be conspicuous by its absence. This, we understand, has not arisen from neglect upon the part of the editors; and arrangements have already been made to remedy it. The original articles are not numerous, but all are of undoubted merit and interest. Professor Norton revives the memory of the earliest American classical archeologist, Mr. J. J. Middleton, of the well-known South-Carolina family of that name. He was the companion of Dodwell in his studies of the Pelasgic remains in Italy, but preceded him by six years in publication. Some of his drawings were reproduced in the well-known posthumous publication of Dodwell, but no credit was given to the American scholar. Mr. Waldstein contributes the substance of an important note to his forthcoming 'Essays on the art of Phidias,' correcting the misconception as to the artistic significance of the peplos group on the eastern frieze of the Parthenon. The longest paper is by Prof. Aug. C. Merriam, a study of inscriptions found upon a collection of sepulchral vases from Alexandria, now in New York. It is most creditable to American scholarship, and a decided addition to knowledge. The managing editor, Dr. A. L. Frothingham, jun., begins a series of articles on the relative excellence of Italian and French sculpture during the thirteenth century, in a very entertaining fashion; and Mr. Marsh gives a lucid summary of a remarkable essay by Dörpfield, which has shed a flood of light upon the origins of Doric architecture, and its relations to earlier crude brick construction. More than half the number is devoted to book-notices, summaries of the contents of the more important archeological periodicals of Europe, and news items about discoveries, and the

labors of explorers in various countries of the old world. This promises to be one of the most valuable features of the new enterprise, which we commend most heartily to the support of all who have any interest in the study of antiquity.

— The new entomological journal, published under the auspices of the Brooklyn entomological society, under the extraordinary title of *Entomologica (sic!) Americana*, has just appeared. It is of about the size and general appearance of *Papilio*, which, and the former *Bulletin* of the Brooklyn society, it supplants. It does not differ in general character from them.

— The second of the papers by Drs. Tamburini and Seppilli on their experimental investigations in hypnotism has appeared in German translation by Dr. Fränkel of Bernburg. The first half of the pamphlet is occupied by an account of experiments and facts observed, while the last half gives their deductions from the facts. The division made by Charcot, of the phenomena, into those of the lethargic, cataleptic, and somnambulistic states, is accepted, and directions given for producing each of these states; but the three conditions are not regarded as in their ultimate nature different. All three are regarded as due to hyper-excitability of the whole cerebro-spinal axis, differing among themselves only as the irritability is greater or less. One of the arguments urged in favor of this view is from the fact that an irritation which will produce at first the lethargic state, will, if intensified, produce the cataleptic, and, upon being made still more intense, the third state, or somnambulistic, characterized by a stiffening of all the muscles. The experiments seem to have been carefully made, and the pamphlet is of real value.

— Three pages of the Bryennios manuscript, reproduced by photography from the original text, and edited, with notes, by J. Rendel Harris, associate professor of New-Testament Greek and paleography in the Johns Hopkins university, are now on the point of publication. These pages include the last verses of the Epistle of Barnabas; the superscription and opening of the first Epistle of Clement; the close of the second Epistle of Clement; the first verses of The teaching of the apostles; the last verses of the Epistle of Ignatius to the Romans, etc. A few copies are offered for sale at one dollar net. The edition is strictly limited to one hundred and twenty-five copies, and orders should therefore be sent at once to the publication agency of the Johns Hopkins university, Baltimore, Md.

— The recent announcement of the suspension of a daily paper called *The dial*, published in New York during the past year, has given an impression that the monthly journal *The dial*, published in Chicago, is the one referred to. *The dial* has just closed successfully its fifth year with the April number, just issued.

— The British steamship Chicago, Capt. Jones, reports March 13, 49° 48′ north, 12° 53′ west, eight P.M., to midnight, in 50° 5′ north, 13° 48′ west, the observation of a very brilliant aurora borealis. The display extended in an arch from north-east to north-west, and from the horizon to the zenith, the whole appearing to be arranged in concentric rings of different brilliant colors. The night was so light from this cause, that a newspaper was read on deck.

— The electrical exhibition held at the observatory of Paris was opened on the 21st of March. A series of lectures is being delivered on electricity, the first being by Mr. Wolf, on the application of electricity to astronomy, and the last by Mr. Marié-Davy, on the use of electricity in prognosticating the weather. The lectures will be published.

— In the report of Professors Sedgwick and Nichols of the Massachusetts institute of technology, who were instructed by the Massachusetts board of health to investigate the subject of 'water-gas,' we find that they are averse to the general introduction of this gas for illuminating-purposes. Ordinary coal-gas contains about seven per cent of carbonic oxide, whereas water-gas contains as much as thirty per cent. This large percentage of poison in the gas would render its introduction, even under the most careful precautions, extremely dangerous to life. In an atmosphere containing one per cent of coal-gas, dogs, cats, rabbits, and pigeons were apparently able to resist the effect of the carbonic oxide almost indefinitely; while, on the other hand, with the same amount of water-gas, death from poisoning generally resulted after from five to eight hours of exposure. Coming from such a source, this report must have much weight in settling this much-vexed question.

— Dr. George H. Horn of Philadelphia was elected an honorary member of the Entomological society of France at its meeting of March 11.

— The influence the merchant may have on science by well-directed efforts is well exemplified in the career of Godeffroy, who recently died in Germany, and who was, until lately, head of the great German firm of traders to the South-Sea Islands. He was, however, says *Nature*, much more than a merchant. Besides captains and supercargoes, he sent to Micronesia, Melanesia, Polynesia, and especially to Samoa, men of science, whose duty it was to make collections and send them to Hamburg, to form there an exhaustive museum of natural history. The first whom he sent out on a mission of this kind was Dr. Graefe of Zurich, now inspector of the zoölogical station at Trieste, who went to Samoa in 1861, and, from this as a centre, visited the Fiji, Tonga, and other groups in the region. He returned to Europe after eleven years, bringing with him important collections, and he undertook the editorship of a *Journal of the Godeffroy museum*. Amongst others thus despatched to the South Seas, was a lady who spent ten years studying the botany of northern Queensland, and a Polish surgeon who lived for five years in the Marshall and Caroline Islands, then returned to Europe, returning again to the Carolines, where he is at present. A list of the men employed by Godeffroy to travel in the South Seas to study the various islands, make collections for his museum, and report to him, would embrace all nationalities, all de-

partments of study, and every portion of the southern Pacific. Eight catalogues of the museum were published between 1864 and 1881, several of them containing zoölogical and geographical monographs as well. The *Journal*, which commenced in 1871, contained not only papers on the museum and its contents, but was open to the discussion of any scientific subject connected with the South-Sea Islands. Its most important feature was formed by the papers, by specialists, on sections of the collections sent home for the museum. Fourteen parts were published in all, the most remarkable being on the fishes, which contained 140 plates and 312 illustrations. Through financial reverses, this princely merchant died poor; and no purchaser was found for his museum, which will probably be broken up.

— According to the *Auk*, the celebrated collection of birds' eggs belonging to Dr. Baldamus of Coburg, Germany, is now offered for sale. A printed catalogue of the collection has been prepared; and it appears that the collection, which is especially rich in the nests and eggs of European birds, numbers nearly two thousand species and some ten thousand specimens. It would be a valuable accession to any museum in this country.

— The electric light has found a novel use recently in the attempt to apply it for the prevention of such explosions as have lately taken place in London. An arc-light of fifty Carcels was employed on one of the police-boats of the Thames to light the Speaker's terrace or the Westminster bridge. It was found that the movements of individuals on the land, or of boats on the river, could readily be followed. As the police-boats are too small to allow of the use of dynamo-electric machines, recourse was had to pri mary batteries, a chloride-of-silver battery of the form invented by Skrivanow being used, which did not occupy more than a cubic foot of space.

— The governor of Indiana has appointed Maurice Thompson of Crawfordsville to be state geologist, in place of Professor John Collett, whose term expires April 26. Mr. Thompson is known only as a writer upon out-door recreations and popular science. The reason for not re-appointing Mr. Collett is not given, and, if he was to be supplanted by another, it should have been by a thoroughly competent person.

— The managers of the Indiana institution for the deaf and dumb at Indianapolis have procured cases for a museum of considerable extent. They have a very good room in their building for this purpose. The idea of object-teaching in natural science to deaf-mutes is a good one, and will undoubtedly be followed by good results.

— In the programme of prizes for award, presented at the recent annual meeting of the Académie des sciences, was included a prize of four thousand pounds, left by Bréant in 1849, and still unawarded, to be given to any one who "shall find an efficacious remedy for Asiatic cholera, or shall discover the causes of this terrible scourge." To secure this prize, it will be necessary, 1, to find a means of curing Asiatic cholera in the immense majority of cases; 2, or to indicate with absolute certainty the causes of Asiatic cholera, so that by their suppression the epidemic shall cease; 3, or to discover a certain prophylactic as infallible, for instance, as is vaccination for small-pox.

— Dr. and Mrs. Asa Gray and Dr. W. G. Farlow visited the city of Mexico on their way to southern California. They were tendered a reception by the Historical society of southern California at Los Angeles, March 16, where Dr. Gray, though suffering from a severe cold contracted at New Orleans, made a few pleasant remarks, and was followed by an address on fungi affecting fruit-trees, by Professor Farlow. The party visited San Diego, where, unfortunately, unpleasant weather prevailed: they intend visiting other points of botanical interest.

— Pasteur's system of vaccination for anthrax has been tried with triumphant success by the Indian government, acting on the advice of Mr. J. Mills, the inspector of cattle-disease for Madras. According to the official papers, ponies, donkeys, cows, bullocks, buffaloes, sheep, and guinea-pigs have all been protected by vaccination from the consequences of inoculation with virus which proved fatal to unvaccinated animals. A vaccinated pony and a buffalo were sent to a village where there was an epidemic of anthrax; and though they were herded with diseased cattle, and grazed on the same pastures, they escaped the disease. In Burmah the elephants have been vaccinated with equal success. At first the 'vaccine' was imported from France; but the uncertainty of obtaining it pure and efficacious from any one but Pasteur himself has induced the Indian government to fit up a laboratory for the manufacture and dispensing of the fluid in Bengal; and, if that is successful, other laboratories will be founded in other centres. Mr. J. H. B. Hallen was sent, some time ago, to study in Pasteur's laboratory; and the report recommends that all veterinary surgeons should go through such a course of instruction.

— The Paris industrial exhibition for 1885 will be held from July to November in the galleries of the Palais de l'industrie. It has been decided to form three foreign sections, — one for England, another for Belgium, and a third for Italy, — in order that the processes adopted by the French workmen may be fairly compared with those of the countries named.

— Some inquiries having been made of us concerning the accuracy of the times of the occurrence of the solar eclipse of March 16 for some of the principal cities of the United States, published in *Science* last Christmas, we would say that it was not designed to furnish accurate predictions for the use of astronomers, who are in the habit themselves of performing such calculations specially for their respective points of observation, but simply to give near approximations for the use of the public at large; the times of ending being given with a little less degree of exactness than those of beginning, which latter, as far as heard from, agreed with observation within the minute, and the whole believed to have answered all practical ends.