solution of potassium carbonate. We may hope that, before long, further light will be thrown on the constitution of these bodies.

The action of alkalies on soil is quite in accordance with the assumption of the amide nature of its nitrogenous compounds. Boussingault long ago showed that the agricultural operation of liming a soil caused the production of ammonia. It has recently been shown by Baumann, and others, that a solution of soda, even in the cold, develops a notable amount of ammonia in soil, while at a high temperature the action becomes very considerable.

Nor are facts wanting which seem to exhibit the actual synthesis of amides from ammonia and humic acids. Knop long ago observed that when peat was treated with ammonia the ammonia disappeared, and could no longer be detected. Joulie found, in his experiments on the changes which take place in farmyard manure, that when finely divided straw, horse-dung, and ammoniacal urine of known composition were mixed, and allowed to ferment, a great disappearance of ammonia took place, accompanied by a gain of 35 to 63 per cent. in the organic nitrogen. The ammonia had in this case clearly united with some of the organic compounds present.

The view of the constitution of the nitrogenous matter of the soil which has been now brought forward will, we think, prove fruitful: it throws much light on the chemical changes within the soil; it has also possibly important bearings on plant-nutrition. That the acid sap contained in roots is capable of rendering soluble, and thus effecting the assimilation of various mineral matters with which they come in contact, is admitted to be a fact by physiologists. May it not equally follow that the insoluble amides of the soil are also attacked by the acid root-sap? We know not yet the properties of the soluble amides which result from the action of acids on the insoluble amides of the soil; but if they are diffusible through a membrane, they must enter the plant, and it is certainly very probable that they would then be found capable of taking part in plant-nutrition. A reaction of the kind we have supposed between the root and the soil would probably take place to a very different extent with different plants, much depending on the character of the root-sap. When the subject has been more fully investigated, it may perhaps be found that we have in this action of the roots an explanation of those obscure cases of plant-nutrition which at present puzzle the agricultural chemist. R. WARINGTON

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

CAMBRIDGE.—The following is the speech delivered by the Public Orator, Dr. Sandys, in presenting for the honorary degree of Doctor of Science, Prof. Alexander Agassiz, Curator of the Museum of Zoology, Harvard College, Massachusetts:—

Cum Collegio Harvardiano antiquitus consociati, nuper vetera amicitiae iura auspiciis optimis renovavimus; litteris datis acceptisque trans maria lata dextras iunximus; legatis denique insignibus missis, ludis illis saecularibus, etiam absentes, velut praesentes interfuimus. Hodie vero e Collegii illius professoribus unum revera praesentem videmus, virum et suo et patris et Collegii sui nomine nobis dilectum. Donec Alpium inter culmina ingentes illae glaciei moles desuper paullatim descendunt, tam diu patris illius nomen superstes vivet, qui, in Republica non magna natus, Rempublicam maximam gloriae suae fecit participem, expertus scilicet vetera illa verba quam vera essent:—

"Omne solum forti patria est, ut piscibus aequor,
Ut volucri vacuo quicquid in orbe patet."

Filii vero famam patre tanto non indignam, quibus potissimum verbis exsequi potero? Utinam tu mihi hodie adesses:—

O testudinis aureae
Dulcem quae strepitum, Pieri, temperas;
O mutis quoque piscibus
Donatura cycni, si libeat, sonum.

Atqui Musa illa vocata non audit; rogata tacet; virumque praeconio altiore dignum sermone pedestri laudandum relinquit. Ergo, utcunque possumus, virum libenter laudamus, qui, cum ingenii sui ope aeris thesaurum ingentem invenisset, Academiam suam divitiarum suarum amplitudine ornavit, iudice me (insusurrare mihi videtur Horatius) iudice me, "non sordidus auctor naturae verique." Quid autem de vivario illo dicam, aequoris Atlantici prope marginem ulteriorem condito, ubi maris immensi miracula minutissima ab hoc viro accuratissime examinantur, ubi oceani ipsius e penetralibus profundis rerum naturae veritas ipsa audacter extorquetur? Satis erit hodie de veritate illa dicere quod olim de Romanorum virtute dictum est:—

"Merses profundo; pulchrior evenit."

Duco ad vos marinae praesertim zoologiae indagatorem indefessum, ALEXANDRUM AGASSIZ.

SCIENTIFIC SERIALS

THE *Quarterly Journal of Microscopical Science*, January.—The anatomy of the Madreporian coral Fungia, by G. C. Bourne (plates xxiii. to xxv.). During a visit to Diego Garcia (an atoll lying in 7° 13′ S. lat., 72° 23′ E. long.) which extended from the middle of September 1885 to the middle of January 1886, the author was able to collect and preserve a large number of specimens of *Fungia dentata*. These Fungiæ were very abundant within the lagoon, where at low spring tides they could be collected by scores from depths of from three to ten feet: a prolonged search failed to secure any specimens under two inches in diameter, or an example of the nurse-stock. It is suggested that the time of the year was the cause of this; the depth of the water in which the search had to be made was also unfortunate for such investigations. The name "mesogloea," suggested by Prof. Lankester, is used to denote the supporting lamina of Cœlenterata: the only seeming objection to the name is that it is the name of a well-known genus of Algæ.—On some points in the development of *Petromyzon fluviatilis*, by Arthur E. Shipley (plates xxvi. to xxix.). The material was obtained by fertilising the eggs of the ripe female Lampern, hatching the larvæ out, and rearing them in confinement. The summary is too long for abstracting, but it may be mentioned that the early development of the skeleton is described up to the stage where Prof. Parker commenced his researches.—The ammoniacal decomposition of urine, by Dr. W. R. Smith (plate xxx.). Records a series of observations proving that the ammoniacal decomposition of urine is brought about by the presence of a Micrococcus which differs from that described by Prof. W. Leube, inasmuch as it liquefies gelatine. Though about twenty different organisms were isolated from one sample of healthy urine, only this one acted so.—Notes on Echinoderm morphology, No. 10; on the supposed presence of symbiotic Algæ in *Antedon rosacea*, by P. Herbert Carpenter (plate xxx.). Discusses the views of Vogt and Yung as to the Sacculi of Antedon being symbiotic Algæ, and considers these views as certainly not proven; an opinion which Perrier seems by intuition to have already ascribed to him.—The function of nettle-cells, by Dr. R. von Lendenfeld (plate xxx.). The plasmotic contractile coat of the cnidoblast is incited to action by the cnidocil: the animal can control this action.—Some new methods of using the aniline dyes for staining Bacteria, by E. H. Hankin. Illustrations of the structure and life-history of *Phytophthora infestans*, by Prof. H. Marshall Ward (plates xxxi. and xxxii.).—On the formation and liberation of the zoospores in the Saprolegnieæ, by Dr. Marcus M. Hartog.

THE *Journal of Botany* for January is chiefly occupied by a biographical notice of the late Dr. H. F. Hance, of Whampoa.—In the number for February, Dr. Richard Spruce describes and figures a Hepatica from Killarney new to science, to which he gives the name *Lejeunea Holtii*; Mr. Alfred Fryer continues his notes on the genus *Potamogeton*; and Mr. J G. Baker commences a synopsis of the six genera *Sodiroa*, *Caraguata*, *Schlumbergeria*, *Guzmannia*, *Catopsis*, and *Tillandsia*, which make up the tribe Tillandsieæ of the natural order Bromeliaceæ.

Bulletin de l'Académie Royale de Belgique, December 1886.—Determination of the parallax relative to the larger member of the double star Σ 1516 of Struve, by L. de Ball. From previous observations the chief star of this group appeared to have a proper movement in a straight line independently of its companion, with which it had no physical connection. By means of a Cointe refractor the author has followed the relative displacements of the two stars, and has determined a periodicity, the effect of the relative parallax, which he finds to be

$$0''\cdot091 \pm 0''\cdot013,$$

and the distances

$$0''\cdot112 \pm 0''\cdot010.$$

From these elements he determines an absolute parallax $0''\cdot104$, with a mean error $0''\cdot008$, corresponding to a distance which