

but this is questioned by Saltet, who finds that different micro-organisms are concerned in the process, and that the reduction proceeds in stages, as is the case with the reduction of nitrates to ammonia. Saltet has isolated a new micro-organism, *Bacillus desulfuricans*, which reduces sulfates to sulfites, but produces no hydrogen sulfid.

It has been found by Matignon that metallic magnesium liberates from their oxids not only thorium, cerium and lanthanum, but also praseodymium, neodymium and samarium. Nitrogen, but not argon, is rapidly absorbed by all of these metals. When the last three are obtained from their oxids in the presence of hydrogen, they unite with it to form hydrides, which are dissociated when strongly heated. Moissan finds that the carbid of samarium, SmC_2 , can be formed in the electric furnace in minute, transparent, yellow, hexagonal crystals. It is decomposed by water, the chief gaseous product being acetylene, though considerable hydrogen and members of the paraffin series are also formed. In this action it closely resembles the carbid of yttrium.

THE fact that Dewar has found hydrogen to be a constituent of the atmosphere gives much interest to the discovery of Gautier, that hydrogen is formed by the action of water on granitic rocks at temperatures considerably below a red heat. In one experiment a granite rock was heated with phosphoric acid and gave 1,400 cc. of gas per kilo, 916 cc. of which was hydrogen. With water, the quantity liberated is somewhat less. Ammonia is formed at the same time, and Gautier concludes that both these gases are derived from the action of water on nitrids, chiefly iron nitrid, though possibly some of the hydrogen may come from carbides. Matteucci found during a recent eruption of Vesuvius, pieces of rock, coated with ammonium chlorid and iron nitrid, which would seem to show a close relation between these substances.

In a short paper in the *Berichte*, Giesel confirms the observation of Walkhoff as to the effect of radio-active substances on the skin, similar to that of the Röntgen rays. He placed a celloid capsule containing a quarter of a gram of radium, under his arm, and in two

hours a slight reddening was apparent. In the course of two or three weeks considerable inflammation was present, with darkening, and finally loss of the skin. A similar action was found to take place on the leaves of living plants, and salts, glass and paper were also affected.

J. L. H.

ZOOLOGICAL NOTES.

DR. ANTONIO PORTA, of the Institute of Zoology and Comparative Anatomy at the University of Parma, has lately published in the Proceedings of the Royal Institute of Science and letters of Lombardy his researches on *Aphrophora spumaria* and, in a footnote, he says, "I had already finished the present paper when I received a pamphlet by Professor Morse in which he discusses the formation of the froth in the *Aphrophora spumaria*. It was with genuine satisfaction that I found there a confirmation of observations that I had made. Moreover, I repeated one of his excellent experiments, which leaves no doubt whatever of the fact that the insect emits a liquid only. Placing a larva on a piece of absorbent paper in order to dry it and then upon a glass, if we allow a drop of our saliva to fall upon it, it begins to fill this liquid with air-bubbles."

It is a curious fact that Mr. Morse gave an account of the manner in which the so-called spit-insect makes the froth on grass in his 'First Book of Zoology' twenty-five years ago. German editions appeared in Stuttgart and Berlin, an English edition was also published, and finally the book was translated into Japanese, and yet every general work on entomology has repeated the erroneous ideas regarding the habits of this creature. Even the last volume of the Cambridge Natural History series continues the error. In May of last year Mr. Morse published in the *Popular Science Monthly* an extended account with illustrations explaining more in detail the habits of the larva, and its method of forming the froth and it is to this paper that the Italian naturalist refers.

NOVA PERSEI.

PROFESSOR EDWIN B. FROST writes to the *Astronomical Journal* from Dartmouth College,

under the date of February 25th, in regard to the new star as follows: "This brilliant object attracted my attention at eleven o'clock on the evening of February 22d, before the receipt of the announcement of its discovery by Dr. Anderson. It was at that time to my eye brighter than a standard first magnitude star, and showed a distinct yellowish color, recalling to my mind the shade of *Nova Aurigæ*. It was cloudy here on the 23d, and the spectrum was first examined, between clouds, on the 24th, from 6^h 30^m to 10^h 30^m E.S.T. The observations were made with a McClean direct-vision star spectroscope attached to the nine-inch refractor of the Dartmouth Observatory. The general appearance of the visual spectrum was quite similar to that of *Nova Aurigæ*, with the bright components of the doubled lines on the less refrangible side (toward red). The dark components appeared relatively more intense, however, than in case of *Nova Aurigæ*, probably in great part a result of the superior brightness of the present star. The dark band on the more refrangible side of *C* was especially broad, much more so than in Campbell's drawing of the visual spectrum of *Nova Aurigæ*. Although the spectroscope employed does not permit micrometer settings to be made, the identification would seem to be sufficiently exact of the hydrogen lines *H α* and *H β* , the sodium lines at *D*, the magnesium group *b* (in whole or part), and probably the strong line at $\lambda 5016$ —all these being represented by dark and bright components. Numerous other lines were seen which can not yet be identified. Singularly enough, the helium line *D₃* was very faint or absent (the identification of the sodium lines being assumed). This was also the case with *Nova Aurigæ*."

THE ASSOCIATION OF AMERICAN UNIVERSITIES.*

I HAVE the honor to report upon the second annual meeting of the Association of American Universities, which I attended by your designation as the representative of Columbia University.

The meeting was held at Chicago, February

* Report of Professor Nicholas Murray Butler, delegate from Columbia University to President Low.

26-28, 1901. The opening session was held at Chicago University, and the subsequent sessions at the Fine Arts Building on Michigan Avenue. Each of the fourteen institutions represented in the Association was represented by one or more delegates. Each session was well attended by the delegates, and the discussions were practical and earnest. Newspaper reporters and the general public were excluded from the sessions, which, therefore, took on the very helpful form of a conference or a committee meeting. At the close of each session the Secretary gave out to the press such information as he thought proper.

The three topics chiefly discussed were: (1) inter-university migration of graduate students; (2) fellowship; and, (3) the examination for the degree of doctor of philosophy.

Upon each of these topics a short report was presented by a delegate designated in advance for the purpose. Each discussion brought out the details of the practice of the several institutions in regard to each of the matters considered, and while the Association refrained from passing resolutions, certain conclusions were arrived at by what was substantially unanimous consent.

It was held in regard to the first topic that it is wise to promote by all possible means the inter-university migration of graduate students, to the end that they may come under the guidance of teachers of varying points of view, and so may receive the broadest possible introduction to their chosen field of study. The only limitation suggested upon this migration was that circumstances being what they are, it might be unprofitable to the student for it to continue after he had made some progress upon his dissertation.

As regards the question of fellowships, it was held by a majority of those who spoke, that the provision for university fellows in this country is already too large, and that there is danger of stimulating unduly a number of men to go forward to investigation and research who have not the highest and best qualifications for such work. The opinion was expressed that it would be advisable to make some of the fellowships distinctly research fellowships, to be awarded only to students who had already