

the West Indies and southern Florida, was first taken at Woods Hole in 1894, and has since been found on several occasions. The species attains a weight of over 25 pounds, but only small specimens (3 inches or less) have up to this time been obtained here.

One species of half-beak (*Hyporhamphus roberti*) is common at Woods Hole, and in the current year another species (*Hemirhamphus brasiliensis*) was found for the first time. The latter is reported from Chesapeake Bay, but from no other localities north of Florida.

In August, 1898, there was taken a small file-fish of the genus *Alutera*, which resembles a fish known from Asiatic waters since pre-Linnæan times and described by Osbeck in 1757 as *Balistes monoceros*. It also has some points of similarity to the Cuban fish described and figured by Parra in 1787 under the vulgar name of 'lija barbuda,' which was subsequently identified by Poey and called by him *Alutera guntheriana*; the latter is regarded by some recent authorities as identical with *A. monoceros*, but the lack of specimens has prevented a settlement of the question. The Woods Hole fish differs in a number of important features from the foregoing, and apparently represents an undescribed species.

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NOTES ON INORGANIC CHEMISTRY.

UP to the present time there has been little experimental evidence of the trivalence of the so-called rare earths. They form no volatile compounds in which the density can be determined. The single proof of the correctness of the formulæ Ce_2O_3 , La_2O_3 , etc., has been the determination of the specific heat of the metals by Hillebrand, which would give the atomic weights of the metals as about 140. This has been generally accepted by chemists, but from time to time

certain French chemists, notably Wyruboff, have questioned the trivalence. This has been largely on crystallographical grounds. Wyruboff shows that the silicotungstates of cerium, lanthanum and didymium are isomorphous with that of calcium, and argues from this that these metals must be bivalent. It is also stated that these metals in their compounds have certain strong resemblances to the alkaline earths. The whole subject is taken up by W. Muthmann, of Munich, in the *Berichte* and very fully discussed. He finds that many of these supposed resemblances do not exist in reality and that others do not substantiate the inference drawn from them. Particularly he shows that the fact that metals replace one another in isomorphous salts by no means proves them to have the same valence. By this argument a large share of the metals would be made bivalent. Especially in salts of high molecular weight, as in the salts of complex acids, the negative complex is the dominating influence in determining crystallographic form. This important principle is well sustained by Muthmann. To settle the matter of the valence of these metals beyond controversy, he has determined the valence, by the conductivity of solutions of lanthanum nitrate, sulfate and chlorid of different strengths, and the molecular weight of cerium chlorid by the boiling-point method. In every case a trivalent formula is obtained, and the correctness of the usually-given formulæ for compounds of these metals may be considered as finally established.

THE work of Professor Jörgensen, of Copenhagen, on the cobalt-ammonia bases is well known. It has continued over many years, following the work of Gibbs and Genth, which was published in the Smithsonian Contributions to Knowledge in 1856. In the last number of the *Zeitschrift für organische Chemie*, Jörgensen gives a most

valuable *résumé* of this work, collecting together, from his many articles, the best methods of preparing each compound of the class, and in many cases adding much hitherto unpublished information. The *résumé* will be of the greatest help to all future workers in this interesting field, for much as has been done by Dr. Gibbs, Professor Jörgensen and others, the ground can be said to be hardly more than broken.

A PRACTICALLY new field has been opened in the same number of the *Zeitschrift*, by Professor Sabanejeff, of Moscow, that of structural isomerism in inorganic compounds. While there seems to be no inherent reason why structural isomers, which are so familiar in organic chemistry, should not exist among inorganic compounds, no undoubted cases have hitherto been proved. The two isomeric sodium potassium sulfites NaKSO_3 and thiosulfates NaKS_2O_3 of Röhrig and of Schwicker are doubtful, and Hantzsch has shown that the two nitramins NH_2NO_2 are rather stereoisomers than structural isomers; indeed, Hantzsch says that it seems probable that structural isomerism is perhaps confined to the compounds of carbon. Sabanejeff has attacked this problem with great success, and his first article deals with salts of ammonium, hydroxylamin and hydrazin. He describes seven pairs and one triplet of structural isomers, three of the fifteen compounds being new and nine never before analyzed. Among the pairs are hydroxylamin hypophosphite, $\text{NH}_3\text{O}, \text{H}_3\text{PO}_2$, and acid ammonium phosphite, $\text{NH}_3\text{H}_3\text{PO}_3$; hydrazin phosphite, $\text{N}_2\text{H}_4\text{H}_3\text{PO}_3$, and acid ammonium amidophosphate, $\text{NH}_2\text{PO}(\text{OH})_2\text{-NH}_3$; and the triplet, ammonium oxyamidosulfonate, $\text{NH}(\text{OH})\text{SO}_3\text{H.NH}_3$, hydroxylamin amidosulfonate $\text{NH}_2\text{SO}_3\text{H.NH}_3\text{O}$, and hydrazin sulfate, $\text{N}_2\text{H}_4\text{H}_2\text{SO}_4$. In all these cases the salts are well characterized and stable. This work is of great importance,

as it settles the fact that structural isomerism is a general property and not peculiar to the compounds of carbon.

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CURRENT NOTES ON ANTHROPOLOGY.

CRANIOLOGICAL OPINIONS.

THE subject of craniology in its relation to anthropology is taken up by Dr. R. Lehmann-Nitsche in an article in the *Revista del Museo de la Plata* (Tom. IX., 1898). After some preliminaries, he points out with distinctness the inability of a single physical peculiarity, such as the cranial index, to fix racial lines; and draws a comparison between the two theories most recently propounded, the one by Wilser and the other by Sergi, showing how they are in absolute contradiction.

His conclusion is that 'craniology, as at present studied, is incapable of defining typical or racial characteristics.' Much of this, he argues, is due to a confusion of biological and racial factors of development.

Dr. Marina, in his 'Studii Antropologici' (Torino, 1897), concludes with the affirmation: "The terms 'leptoprosopic' and 'chamæprosopic,' no more than those of 'dolichocephalic' and 'brachycephalic,' are competent for distinguishing the varieties and types of the human skull."

Some may remember that in a work published eight years ago I advanced precisely this opinion about craniology ('Races and Peoples,' pp. 19, 20).

ANCIENT GRAVES IN MAINE.

DR. CHARLES C. WILLOUGHBY, chief assistant in the Peabody Museum, in Vol. I., No. 6, of the 'Archæological Papers' published by the Museum, gives a careful account of his investigations of the prehistoric burial places along the coast of Maine. It is well illustrated, with four plates and fifty drawings in the text.

The graves differed in age. Beads of na-