mitted to the fangs of rattlesnakes, and other large viperine serpents are very much more quickly digested, not only by snakes, but by toads and other carnivorous reptiles and even mammalia, than pieces of meat or animals of corresponding species which have not been so treated.

There can be very little doubt that this morbific fluid, this venom, is a product of a recent evolution. The venom gland, although large, is distinctly one of the salivary glands iu structure, one of the racemose group, very little altered in appearance from that which secretes the ordinary saliva, the venom being in fact an abundant saliva, and containing some toxic element the nature of which has not yet been distinctly ascertained, in addition to the ordinary salivary products. There is probably no other instance in nature of the enormous disproportion of change of function when compared with change of structure as obtains in the venomous fluid of the gland of a poison-bearing snake, unless indeed it be the function of the brain of man when compared with that of animals almost equal to him in complexity of cerebral structure.

There remains, however, a third group of serpents, gifted with the power of killing their prey before deglutition. These, which number possibly 400 or 500 species (the number not being accurately ascertained owing to absence of observation of living specimens), may be termed the Constrictive Group; and although no such physical distinction can be drawn between these and the ordinary or Colubrine snakes on structural grounds, as is at once apparent between the latter and the venomous group, yet the process of feeding is so entirely different, as to suggest the feasibility of establishing such a difference, by careful dissection. With these snakes the prey is slain at the moment of the seizure, by constriction, by being wrapped within the folds of the body and crushed to death; and this process is so remarkable in its vigor and in its rapidity, that it is impossible to imagine the creatures destitute of specially developed, if not specially supplied, muscles for this purpose.

This group includes not only the great Anaconda of tropical America, the very much smaller Boas of that region, as well as the Tree Boas, and the Pythonoid snakes of Africa and the East Indies, but very many smaller species as well. The black snake of North America is indeed distinctively named Coluber Constrictor; but there are very many other species manifesting this peculiarity which have as yet obtained no such distintive recognition, such as the Blue Racer of the States, the Saw-marked snake of South America, and the largest of the European serpents, the beautiful four-rayed Elaphis of Italy and Greece, which occasionally attains a length of six feet, and is capable of swallowing a large rat.

It is just possible that this power of constriction may have been acquired recently, like the venom of the poison-bearing snakes. Unfortunately, paleontology affords no evidence upon this point. We know very little of the evolution of the Ophidia. Fossils are very scarce; and although some of them, such as the noted specimen from the London Clay, suggest serpents of large size, and therefore presumably constrictors, we know nothing beyond what is suggested by mere inference as to whether they were gifted with venom, or had this property of constricting their prey before swallowing.

If we examine the lateral and intercostal muscles of one of the large Pythonoid snakes, we shall find that although these are very highly developed, and have indeed in certain instances small tendenous slips attaching them to the ribs, which are not found in smaller species, they are precisely analogous to the ordinary intercostal muscles which obtain through the whole of this family.

In certain species, such as the Milk snakes of the Northern states, and the Mandarin snake of China, we may occasionally see, when they are dealing with prey rather too strong for them, a sort of attempt made at constriction, a rapid coiling and uncoiling of the body, as though to confuse the animal struggling within the grasp of the jaws and teeth. And it is perhaps not wholly unjustifiable to imagine that this power of constriction may originally have been acquired in this way; that serpents which had previously fed, as our ordinary Colubrine snakes do, upon frogs, lizards, and soft-bodied animals which they could kill by pressure of the jaws alone, found themselves, for some reason or other, reduced to catching the smaller mammalia, mice, moles, etc., and that in their endeavors to get these within the cavity of the mouth, they found it necessary to bring the body into play to effect the purpose which had hitherto been accomplished by the jaws alone. One may, however, express the hope that when larger materials are at hand for examination, in the shape of the grander Pythonoid snakes, and most especially of the great Water Boa, the Anaconda of Central America, that some more definite information on this point will be gleaned.

NOTES AND NEWS.

AT a recent meeting of the Canadian Institute, Mr. Andrew Elvins asked permission to add a sentence or two to his paper on the satellites of Jupiter, read at a former meeting. He said: "The period of each satellite as we pass outward from the planet is about double that of the one next inside itself, except in the case of Satellite I. Half its period would be about 21 hours, but there is no satellite having that period. Half of this 21-hour period is just where Professor Barnard's new satellite exists. Its period is between 11 and 12 hours. I therefore think that an undiscovered sixth satellite exists at 166,000 miles from Jupiter's centre, with a period of 21 hours."

— The faculty of the Museum of Comparative Zoölogy, Cambridge, Mass., will receive applications from candidates desiring to occupy the table at the Naples Zoölogical Station, which has been placed at its disposal from Oct. 1, 1893. The applicant must be (or have been recently) a student or instructor at some American university, preferably a person who has taken the degree of Ph.D. or S.D.; he must have published some creditable original investigation, and should be recommended as an able investigator by the professor under whom he has studied. Applicants will please forward to Professor Alexander Agassiz, Director of the Museum, before May 10, their recommendations and a statement of their qualifications and of the subject to which they hope to devote themselves. In order that the faculty may make the most satisfactory disposition of the table during the whole year, the applicants are requested to state the length of time they desire to remain at Naples, and also the earliest and latest dates within which they can avail themselves of the appointment. The faculty will, at its meeting in May, nominate to the Corporation of Harvard College for approval the incumbent or incumbents for the year 1893-94.

— The papers entered to be read at the April meeting of the National Academy of Sciences, are as follows: On the Systematic Relations of the Ophidia, E. D. Cope; Biographical Memoir of General Montgomery C. Meigs, H. L. Abbott; On the Nature of Certain Solutions, and on a New Means of Investigating Them, M. C. Lea; The Relations of Allied Branches of Biological Research to the Study of the Development of the Individual, and the Evolution of Groups, The Endosiphonoidea (Endoceras, etc.) Considered as a New Order of the Cephalopods, A New Type of Fossil Cophalopods, Results of Recent Researches upon Fossil Cephalopods of the Carboniferous, A. Hyatt; Biographical Memoir of Julius Erasmas Hilgard, E. W. Hilgard; Monograph of the Bombycine Moths of America, North of Mexico: Part I.—Notodontidæ, A. S. Packard; Intermediary Orbits, G. W. Hill; The Relations between the Statistics of Immigration and the Census Returns of the Foreign-born Population of the United States, Statistical Data for the Study of the Assimilation of Races and Nationalities in the United States, Richmond Mayo-Smith; Telegraphic Gravity Determinations, Comparison of Latitude Determinations at Waikiki, T. C. Mendenhall; A One-volt Standard Cell, H. S. Carhart (introduced by T. C. Mendenhall); Fundamental Standards of Length and Mass, T. C. Mendenhall; Peptonization in Gastric Digestion, R. H. Crittenden; Helen Kellar, Alexander Graham Bell; On a Potentiality of Internal Work in the Wind, On a Bolograph of the Infra-red Solar Spectrum, S. P. Langley; The Classification of the Gastropodous Mollusks, Theo. Gill. Presentation of the Draper Medal to Professor H. C. Vogel.