ACCORDING to *The British Medical Journal*, on the suggestion of Dr. Nicholson, professor of natural history at the University, the Town Council of Aberdeen agreed some time ago to utilize part of the buildings of the old bathing station as a marine aquarium. The tanks have been made, and the further necessary fittings are in hand. In view of the great importance of the fishing trade at Aberdeen further developments have been contemplated with regard to combining a department for fish hatching and culture on a scientific basis with the aquarium. It is to be expected that the investigations carried on in such an institution should prove of great interest and importance to the students of zoology at the University.

Garden and Forest states that the crown forests of Sweden comprise more than one-quarter of the entire wooded area of the country and are managed with scrupulous care. The increase alone is cut, so that a productive forest is to stand forever on all crown lands that are unsuitable for cultivation. More than this, the government has entered upon an extensive system of planting trees on desolate and uncultivated areas, and these object-lessons have induced owners of private forests, especially the larger proprietors, to manage their timber lands so that they will become permanent sources of income. These facts were communicated to our Department of State by Hon. H. W. Thomas, United States Minister to Sweden, and they are of particular interest, not only to Sweden, but also to the United States and to Canada, whose lumber meets the Swedish product as its greatest competitor in the markets of the world. Since the forests in Sweden grow slowly, it has generally been supposed that the immense quantities exported would gradually exhaust this most important source of the nation's wealth, but from the facts stated it appears probable that the forty-seven million acres of forests in the country will continue to be a source of income for all future time. The products of the forest now comprise nearly one-half of the total exports of the country in value.

THE *British Medical Journal* states that the German Medical Press Association held its annual meeting recently at Frankfort-on-Main, under the presidency of Dr. Adler, of Vienna. The following medical journalists were elected members of the committee for the ensuing year: Dr. Adler, of the *Wiener medizinische Wochenschrift;* Prof. Ewald, of the *Berliner klinische Wochenschrift;* Dr. Honigmann, of the *Zeitschrift für praktische Aerzte*, and Docent Dr. Mendelsohn, of the *Zeitschrift für Krankenpflege.* The number of members of the Association is now 39, representing 37 journals. Prof. Virchow was elected an honorary member of the Association, and in acknowledging the honor conferred on him recalled the fact that he had been a member of the German Association of Scientists for 50 years, and during all that time he had been editor of its *Archives.*

UNIVERSITY AND EDUCATIONAL NEWS.

THE will of the late Willard B. Perkins leaves, among other public bequests, $24,000 to Colorado College, and $6,000 each to Columbia University and the Massachusetts' Institute of Technology, for travelling scholarships in architecture.

THE University of Helsingfors has received by the will of the late Dr. H. F. Antells 800,000 M., the interest of which is to be used for travelling scholarships and scientific expeditions.

DR. WILLIS GREEN CRAIG has been elected President of Center College, at Danville, Ky.

DR. PEITHNER V. LICHTENFELS, of the Polytechnic Institute at Graz, has been promoted to a full professorship of mathematics. Dr. Edler, of Göttingen, has been called to an associate professorship of agriculture at the University of Jena; Dr. E. Pringsheim, docent in physics, and Dr. Karl Friedheim, docent in chemistry, have been appointed to professorships in the University at Berlin.

DISCUSSION AND CORRESPONDENCE.

AGE OF THE POTOMAC FORMATION.

TO THE EDITOR OF SCIENCE: In the last number of SCIENCE, Prof. Marsh tells us that the vertebrate fossils of the Potomac formation demonstrate its Jurassic age. This is a matter of much interest, because the evidence from fossil plants has been thought to place the for-

mation in the Cretaceous. The number of persons to whom the local question of correlation is important may not be large, but the whole body of geologists and paleontologists are concerned with the methods and principles of correlation, and an excellent opportunity seems to be here afforded for the comparison of vertebrate with botanic evidence. I therefore write to express the hope that when Prof. Marsh continues the subject, as he has promised to do, he set forth the grounds for the conclusion he has announced with so much confidence. His article states, in effect, that through a comparison of vertebrates from the Potomac formation with vertebrates from other formations he has inferred the Jurassic age of the Potomac; but he gives no hint of the character of his evidence or the course of his reasoning, so that the conclusion has at present only the authority of his statement, without opportunity for verification. Unless I am mistaken, the conclusion that the Atlantosaurus and other horizons of the Rocky Mountain region are Jurassic was announced in the same way, without citation of evidence; and in that case it is important to establish the correlation of the Potomac beds, not merely with these Western horizons referred to the Jurassic, but with European beds whose age admits of no question.

My own desire to learn Prof. Marsh's method of correlation is stimulated by certain considerations which seem to show that it must differ in an important way from the method ordinarily used by students of invertebrate fossils and fossil plants. As he has pointed out, land vertebrates are peculiarly sensitive to climatic and other physical conditions, and the evolution of new forms is consequently rapid. The life of a species is short, and its value for purposes of correlation is correspondingly high because its chronometric indication is precise; but it appears to me *a priori* that this quality of rapid evolution is a two-edged sword; while it facilitates correlation within the same faunal province, it introduces a difficulty when remote provinces are compared. In remote provinces the progress of evolution must follow different lines, so that there can usually be no common species for comparison. Therefore, as correlation by means of other organisms depends chiefly on the comparison of faunas through their identical species, correlation by means of land vertebrates must have a different basis. This point seems to be illustrated by the general problem of Jurassic correlation. In Prof. Marsh's recent classification and synopsis of the Dinosauria (Sixteenth Annual Report, U. S. Geological Survey) it appears that only the higher categories of classification include representatives from both Europe and North America. There is no common species; there is not even a common genus. Of nineteen families referred to the Jurassic, six are European only, eleven are North American, and but two span the Atlantic. One of these last is not peculiar to the Jurassic and is therefore of minor value for the correlation of American horizons; so that the closest affinity of the European and American formations seems to be expressed by the statement that there is one American genus which falls in the same family with a European genus.

There is yet another reason why inference in this particular case needs to be fully supported by evidence, and that is that the physical relations of the beds afford a presumption in favor of their Cretaceous age. Prof. Marsh mentions that the Potomac formation in New Jersey passes by insensible gradation into marine Cretaceous above and is separated by unconformity from rocks of supposed Triassic age below; but he apparently sees in this relation merely the fact that the Potomac lies between formations of Cretaceous and Triassic age. The geologist, however, infers that the unconformity beneath the Potomac represents a time interval, and consideration of the extensive dislocation and deformation o the Newark beds and of the enormous degradation they suffered before the deposition of the Potomac gives the impression that that time interval was very long as compared to the time represented by the Potomac beds themselves. When it is further considered that the lowest marine horizon determined above the Potomac is correlated by its invertebrate fossils with a horizon somewhat above the middle of the European Cretaceous, it seems easier to assign the Potomac to the lower Cretaceous of Europe and correlate the time-break with the Jurassic

period than to correlate both the Potomac and the time-break with the Jurassic and assume that the lower Cretaceous horizons of Europe lack representation in our Atlantic series.

In drawing attention to these matters of apparent difficulty I have no intention to controvert Prof. Marsh's view, but merely to show how desirable it is that he set forth the reasons therefor. G. K. GILBERT.

WASHINGTON, D. C., December 5, 1896.

LE CONTE'S ELEMENTS OF GEOLOGY.

TO THE EDITOR OF SCIENCE: In commenting on Le Conte's 'Geology' (SCIENCE, November 27th), Prof. C. W. Hall objects to 'the multiplicity of theories advanced and discussed.' He says: "A text-book should be the exponent of a doctrine. It should be constructed on the definite and positive plan best adapted, in the mind of the author, to expound his body of principles. When several theories are presented and the student practically told to take his choice, or when he is told that all are true, the function of the text-book disappears." The student who leans upon a text-book based only on facts and well understood phenomena 'subjects himself to the inspiration of positive ideas, and, in his intellectual processes, acquires that habit of decision so essential to practical success.'

It is with diffidence that I venture to dissent from Prof. Hall's opinion, because he is an experienced educator and I am not; but it appears to me that something is to be said in favor of occasionally submitting to students alternative opinions regarding an unsettled question. The scientific text-book which presents only facts and accepted principles, or gives only the author's opinion on open questions, must tend to leave the student with the impression that scientific knowledge is complete. The statement and discussion of rival hypotheses not only exhibits the actual incompleteness of knowledge, but illustrates the method of progress, and it appears to me quite as important to the world's future that the rising generation shall learn the method of research as that it become acquainted with the results of research. It may also be questioned whether the habit of decision inspired by the exclusive assimilation of positive ideas will usually lead to the best results when applied to the practical affairs of life. Problems of affairs resemble, in the complexity of their factors, the problems of such a science as geology; and the mind which habitually suspends judgment until various points of view have been considered may gain, through the wisdom of its decisions, as much as it loses through delay. G. K. GILBERT.

WASHINGTON, November 30th.

THE POSITION OF THE COMPANION OF SIRIUS.

TO THE EDITOR OF SCIENCE: A brief statement regarding the correspondence of the position of the companion of Sirius as observed with the 36-inch refractor of this observatory with the positions obtained from the published elements may be of interest to the readers of SCIENCE.

So far as I know, four sets of elements have been published, which are based upon all the micrometric measures previous to periastron, namely, those by Auwers, Burnham, Howard and Zwiers. Mr. Burnham gives no ephemeris with his orbit (period, 51.97 yrs.), but from the elements it is safe to say that his ephemeris would not differ very widely from that computed by Zwiers. An approximate interpolation in the ephemerides by the other computers gives the following position for 1896.8:

	P.	s.	Period.
Howard (A. J. 235)	214.°6	4.″75	(57.02 yrs.)
Auwers (A. N. 3085)	175. 7	3. 92	(49.40 ")
Zwiers (A. N. 3336)	186. 4	4. 05	(51.10 ")
The simple mean is	192.°2	4.″24	

The mean of five measures of position angle and four of distance by Prof. Schaeberle and myself gives for the same date, 189.°3, 3.″67 (A. J. 388). This communication is suggested by the note on the same subject by 'H. J.' in the November 20, 1896, number of SCIENCE.

R. G. AITKEN.

MT. HAMILTON, November 30, 1896.

COMPLIMENT OR PLAGIARISM.

MY courteous friend, Prof. Fiske, hastens to acknowledge that the quotation from Halsted's Elementary Synthetic Geometry in SCIENCE, p. 656, shows that "the criticism is not applicable to his more recent work."