With regard to the first of these, which assumes a primitive caudalward direction of the hair, it may be suggested that a careful study of the direction of the overlapping of scales not only in the few mammals in which these structures persist but in other scaly vertebrates, particularly reptiles, may show that the arrangement of scales upon which this primitive hair direction is based is not so simple a one as it is here assumed to be. My own investigation of this subject, the results of which I hope later to publish, has shown me that scale arrangement may involve points and lines both of convergence and of divergence.

With regard to the second principle, that of hair directions due to 'morphological changes,' I have already confessed an inability to understand what phenomena this principle accounts for or to determine upon what basis any particular modification of the 'primitive hair direction' would be ascribed to it. To be sure, the author says distinctly that he makes no attempt to discuss this principle. By omitting, however, to at least clearly define it he exposes himself to the criticism of having selected from the observed phenomena of hair direction those for which he could discover or conjecture a mechanical cause, and of having relegated to this nondescript class all other phenomena except those which are included under the supposed primitive direction.

It is, indeed, inconceivable that, provided mechanical forces can produce inheritable changes in hair direction, the hairy coat (or in fact, the scaly coat) of a mammal should at any stage of its evolution have been free from the influence of such mechanical forces. In other words, to explain a primitive hair direction as to any less extent due to the action of mechanical forces than are the deviations from it is illogical. Thus while Kidd's classification of hair tracts is a useful one for purposes of discussion, to base such a classification upon a distinct difference in cause (*i. e.*, natural selection, morphological change and use inheritance) is to employ arbitrary distinctions.

We are indebted to Dr. Kidd for reviving an especially fine field, not so much for theoretical discussion as for scientific research which should eventually yield many data for such discussion. What is particularly needed at present is not a selection of facts to prove Lamarckism, Darwinism, Weismannism or any other theory, but a laborious, careful, complete working out of the entire field of hair directions, in as many forms as possible, together with a study of scale arrangement and the relation of scales to hair, to determine, if possible, the primitive conditions. Science has no place for dogmatic statement, and no hypothesis, however satisfactory when considered in view of one set of facts, should be protected at the sacrifice of a knowledge of any other facts which research may bring to light. Every scientist will argue with Dr. Kidd that 'the scientific attitude is that of judging a large series of facts on their own merits, and according to the weight of evidence, even if it tend against a widely accepted hypothesis!'

INEZ L. WHIPPLE.
SMITH COLLEGE, NORTHAMPTON, MASS.
August 1, 1904.

DISCUSSION AND CORRESPONDENCE.

ON CITING THE TYPES OF NEW GENERA.

IT seems worth while to call attention to the desirability of formally transferring the species upon which new genera are based, when these species have been earlier described in other genera. It seems a very trifling matter, but a bibliographer has to cite what he finds in print, and that only; and as a result of the present practise of many zoologists, the actual combination of a new generic name with its type species often occurs, not at the place where the genus is proposed, but accidentally, as it were, in some other easily overlooked place. To illustrate my meaning, I may refer to a couple of very recent instances:

Gilbertella, Eigenmann, Smiths. Misc. Coll., Vol. 45, p. 147. (1903.)
"*Type.—Anacyrtus alatus,* Steind."

Dimmockia, Ashmead, Mem. Carnegie Mus., Vol. 1, p. 357. (1904.)
"*Type.—Eulophus incongruus,* Ashm."

It seems to me that the proper way would have been to write for the first, type, *Gilbertella alata* (*Anacyrtus alatus,* Steind.), and the

second, type, *Dimmockia incongrua* (*Eulophus incongruus,* Ashm.).

T. D. A. Cockerell.

VARIÆ AUCTORITATIS.

To the Editor of Science: The early authorities alluded to by Mr. Eastman are always of interest and more so than modern men seem disposed to admit, hence it is of genuine value to run down his reference to 'Origines.'

In the first place, it should be obvious that the form 'Origines' could not come from *Origen,* as Mr. Eastman suggests.

It seems likely that Mr. Emmons, or *his* author, intended to quote the 'Origines' of M. Porcius Cato (Cato Major), who died B. C. 149; and of which work in two books fragments remain.

I have not the work by me, but believe there is something of the kind quoted from it in a medieval Latin writer, Lullius, if my memory serves me right, or it may have been Albertus Magnus, a work of whose is bound up with an early edition of a treatise by Lully.

The study of the early writers, difficult as it is from lack of knowledge of the meanings of their technical terms, is most unwarrantably neglected; and for the same reason their attainments are ignorantly sneered at. The old idea that Galen thought the arteries carried air, repeated from text-book to text-book, is a case in point, easily disproved by any one with a knowledge of ancient phraseology, from Galen's writings.

Much ancient tradition thus passes out of our ken, to be dug out by the solitary explorer here and there, but to vanish for ages or longer from the sum of practical human knowledge.

Geo. Chas. Buchanan.

Mora, Minn.,
August 17, 1904.

SPECIAL ARTICLES.

INTRUSIVE BURIALS IN ANCIENT MOUNDS.

The custom, which was formerly practised by various tribes throughout the Mississippi valley, namely, that of utilizing the ancient mounds as places of burial for their dead, is even now followed by some Ojibways in Minnesota. The Ojibway village of Sa-ga-wah-mick, which is located on the south shore of Mille Lac in the state of Minnesota, is situated in the midst of a group of some sixty mounds —many of these being seven or eight feet in height. According to the Ojibway tradition, which is also verified by historical facts, the country adjacent to Mille Lac was formerly occupied by the M'de Wakan Sioux who were driven out by the Ojibways about the year 1750, or, according to the Ojibway's story, 'five generations ago.'

The Indians at Sa-ga-wah-mick recognize the mounds as being artificial, and claim they were erected by the Sioux over the remains of their dead. Several facts tend to justify the belief that such may be the true explanation of their origin. Fragments of pottery which I found near the original surface in a mound about four feet in height were similar in structure and design to pieces which were discovered upon the surface of a village site, near by, and which is known to have been the site of a Sioux settlement before the country was occupied by the Ojibways. The peculiar form of burial discovered in the mounds was certainly entirely different from any known to have been practised by the Ojibways and would conform with the Sioux habit of removing the flesh from the bones before the latter were interred. In one mound which I opened were four burials. The arm and leg bones of each skeleton had been bunched separately, upon each was placed a skull, all rested upon the original surface and the mound of earth had been formed over them. In addition to these only one small bone was found in the mound.

The Ojibway believing these mounds to have been erected by the Sioux, now utilize them as burial places for their own dead.

On the sides and top of one of the largest mounds at Sa-ga-wah-mick were counted thirteen comparatively recent graves, all having the box-like cover of hewn logs—so typical of Ojibway burials—upon one end of which was cut the totem of the deceased. Around the summits of several mounds a picket fence had been erected to surround and thereby protect the graves.

Thus we find in a remote Ojibway village