

BOTANICAL SEMINAR OF THE UNIVERSITY
OF NEBRASKA.

AT the regular meeting on November 1, Dr. Roscoe Pound read a paper on 'The Purpose and Force of Botanical Laws,' directing attention to the fact that rules of procedure in science are as necessary as they are in civil life, and indicating that the method by which laws are obtained in the one case must be similar to those in the other. The paper was discussed by Professor Bessey (who spoke of the supposed danger of a repression of originality through the action of laws of science); Dr. Wolcott (who called attention to the code of laws and their successful execution in ornithology); and Dr. Clements (who discussed a proposed series of regulations in regard to the nomenclature of plant geography).

DISCUSSION AND CORRESPONDENCE.

PREGLACIAL DRAINAGE IN SOUTHWESTERN
OHIO.

TO THE EDITOR OF SCIENCE: In the issue of SCIENCE of October 4, Professor Arthur M. Miller offers an objection to the conclusions of Mr. Fowke, made from his studies on the drainage features of southwestern Ohio, in which Mr. Fowke has shown (*Bulletin of the Scientific Laboratories of Denison University and Special Paper No. 3 of the Ohio State Academy of Science*) that the preglacial drainage of the section of the Ohio river from Manchester, Ohio, to Madison, Ind., was to the northward along the line of the lower Big Miami and the Mill creek valleys to Hamilton. It has been my pleasure to have studied somewhat carefully the region under discussion in my field work, and the objections which seem so apparent to Professor Miller have not appeared so to me. While I would agree in the main with Professor Miller in his argument concerning the formation of reentrants made by up-stream cutting against an escarpment and the stratigraphic relations of stream gradient and dip, under which similar reentrants would be formed by streams flowing in the direction of the dip, I cannot see that there is much force in the application of these principles to the problem under discussion. There is no question but

that many of the reentrants found in the Clinton limestone outcrop of the region shown by Professor Miller's map were made in the manner he suggests. I have observed many of them in the field. But at the same time there are many possibilities of there being, in this same region, large valleys deeply buried under the mantle of drift running in the opposite direction from that of these reentrants which were formed by the backward-cutting streams. In all cases which I have observed of these reentrants made by backward-cutting streams, they might have as well formed part of a system of lateral tributaries to a main northward-flowing stream as to that of a southward-flowing one. Unfortunately the region which Professor Miller has chosen in his map and studies is not the same as that which furnished the data for the determination of the northward direction of the preglacial waters from the vicinity of Cincinnati and it would be hardly necessary to review these data at this time, as the full reports are easily accessible in the articles referred to and are not discussed by Professor Miller. It may be well to state, however, that the criteria used in the location of the preglacial lines of drainage are not confined to a study of comparative 'width-of-channel' of streams, but the conclusions are based upon a broader study of topographic forms, comparative erosion, distribution and direction of shingling of old gravels on the old graded valley floors, normal and abnormal stream relations and many other similar lines of evidence.

In Professor Miller's closing paragraph he speaks of the symmetry shown by the streams north and south of the Ohio river as adding force to the argument in favor of the present arrangement of the streams being also the preglacial arrangement, and he considers the Ohio as the main and parent stream. There seems to be an abundance of evidence, already published, to show that in preglacial times a strong watershed crossed the Ohio river near Manchester, Ohio, and that the section of the Ohio immediately above Manchester found its way up the reversed Scioto in preglacial times. With the Ohio river above Cincinnati reduced to a small stream (which Mr. Fowke calls Old Limestone) heading only at Manchester, it

is evident that the Miami, Licking and Kentucky rivers were all very much larger streams than Old Limestone, and if we should assume that the section of the Ohio below Cincinnati flowed, in preglacial times, in its present direction, the symmetry which Professor Miller sees in the present arrangement would appear most asymmetric.

I feel sure that a careful field study of the topographic features within a radius of twenty miles from the city of Cincinnati will convince any one of the truthfulness of Mr. Fowke's deductions.

W. G. TIGHT.

UNIVERSITY OF NEW MEXICO.

PERMANENT SKIN DECORATION.

THE July-December, 1900, issue of the *Journal of the Anthropological Institute* publishes an abstract (No. 117) of Mr. H. Ling Roth's article 'On Permanent Artificial Skin Marks, a Definition of Terms.' The author distinguishes four varieties, all collectively and rather loosely designated by travelers 'tattooing.'

I. The Tahitian punctured method—practiced also by sailors, soldiers, etc.—by which a design is pricked into the cuticle, leaving a smooth even surface of skin.

II. The Maori chiseled type, produced by an adz-like implement, in addition to the Tahitian pricker, and exhibiting when completed a fine pigmented groove.

III. The West African incised variety—usually, but not always, non-pigmented—wherein deeper and wider grooves are cut—not *tapped*—with a knife, bone or hardwood chisel.

IV. The raised scar ('*cicatrice saillante*') of Tasmanians, Australians, Central Africans, etc., resulting from the continued irritation of the original incision, the insertion of foreign matter and the over-production of reparative tissue lifting the design in welts.

Mr. Ling Roth considers it desirable that the Tahitian word 'tatu' be confined to the first-named process, the native designation 'moko' be recognized for the second; for the third and fourth respectively, the terms *cicatrix* and *keloid* are offered.

This classification, looking toward greater precision in the use of descriptive epithets, is

avowedly based chiefly on the character of the implements used and the method of their employment. The author has, however, overlooked two types as well marked as any of those included, the Dayak and the Eskimo. The former make use of a wooden block upon which the desired pattern is figured in relief. It is transferred to the skin by percussion, the block being pounded with an iron bar. Regarded from the side of its probable descent, this method must be deemed a subvariety of II. Classed by the tool producing it, it forms a distinct variety.

The other and more important omission, the inductive or line tattooing of the Eskimo seems most nearly related to type I, the latter form indeed occurring side by side with it. In the central regions, according to Dr. Boas, a needle and thread covered with soot is passed under the skin, the point of the instrument also being rubbed with a mixture of the juice of *Fucus* and soot or gunpowder. ('Central Eskimo,' p. 561.) The two processes recur more or less intimately associated over the greater part of the Eskimo habitat. The writer of this note would suggest for this inductive variety (type V.) the use of the Central Eskimo word 'kakina' (pronounced *kakeena*)='tattoo marks,' a term derived from the verb 'kakiva'='pierces it,' as in sewing, so as to make the point appear again on the same side. (See Rink, 'Eskimo Tribes,' p. 117.)

The main objection to the differentiation of these two types (II. b and V.) is the difficulty of distinguishing between II. a and II. b, and between I. and V., when neither the operation nor the implement has been observed.

H. NEWELL WARDLE.

ACADEMY OF NATURAL SCIENCES,
PHILADELPHIA, PA.

MAGAZINE ENTOMOLOGY.

TO THE EDITOR OF SCIENCE: Columns open for attack have surely room for defense—wherefore permit me to say to the critical Mr. Smith, of New Brunswick, that I fear he does not quite understand the article he criticises. The paper in *McClure's* for September is part of a book not meant in the least to be scientific, entomologic, or any other 'ologic, but simply to set down things seen, and heard, and done, by two