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Leaching of the Pleistocene Drifts of Eastern Iowa

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tions, and have established two additional communications, the portal vein connection and the ilio-lumbar vein connection. The main circulation and disposition of the lymphatic system has been determined and the need of further knowledge concerning the histology of the lymph nodes, of which there appear to be two types, is pointed out.

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LEACHING OF THE PLEISTOCENE DRIFTS OF EASTERN IOWA.

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(*ABSTRACT*)

The term leaching is applied by glaciologists to that process of dissolving and carrying out in solution by ground water the soluble constituents of the drift, of which lime carbonate is the most notable in the Mississippi Valley. This discussion of that phenomenon is based on observations made by the writer on Pleistocene deposits of the larger part of the east half of Iowa, and in the vicinity of Chicago, Illinois. Briefly, the evidence warrants the following contentions: (1) The percolation of meteoric waters through clayey drifts is so slow that they become saturated within a few inches after the calcareous zone is encountered. The zone of notable solution is, therefore, limited to a narrow transition zone. (2) The leaching of the drift takes place by the gradual descension of this solution zone. (3) The rate of descension is probably greatest from the surface down to the horizon of the "ground-water surface for wet seasons," less rapid from this horizon down to the so-called permanent ground-water surface, and markedly checked at the latter horizon. (4) The bottom of the leached zone in young drifts may, therefore, not mark the horizon of permanent ground-water surface. (5) the stratigraphic horizon and topographic position of outcrops must be considered in quoting figures for the amount of leaching of a drift sheet. Other important factors are the amount of annual percolation of ground water, the general texture of materials, the size and relative quantity of calcareous constituents, and the amount of carbonaceous materials in the soil. (6) The factor of the rise of ground water into the leached

zone and the precipitation of calcium carbonate is rarely operative. This seems positive from the presence of limestone pebbles in the drift wherever the matrix reacts to acid. (7) The deposition of lime carbonate in an old leached zone by waters which have percolated down from an overlying calcareous formation is also not usually evident in clean exposures. Theoretically the conditions for precipitation in such cases are exceptional. (8) The phenomenon of leaching is one of the practical and legitimate criteria for the age of drift sheets or for differentiating drift-sheets whose general conditions are comparable to those of the east half of Iowa. Like all other criteria it must be used guardedly. Careful records of all the facts should be made.

In addition to the foregoing discussion, the writer points out the need of discriminating in the use of such terms as oxidation, leaching, decomposition, staining, and to avoid as much as possible such general terms as weathering, alteration, etc., without specific definition.

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