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Notes on the Geology of the Boston Basin

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NOTES ON THE GEOLOGY OF THE BOSTON BASIN.

 J. L. TILTON.

The region about Boston forms a basin. Standing on the reservoir at College Hill one looks north, west and south upon lines of hills surrounding Boston and the thickly populated adjoining country. In the relation of the rocks underlying the drifts this region also forms a basin. The distant hills are of hornblende granite extending from near Marblehead southwest to near south Natick, thence east toward Quincy. Close to this granite area are other igneous rocks, and within the basin, conglomerate and slate so related and concealed by drift as to present many difficult problems.

It is not surprising that the discussion* of the area contains not only a mass of conflicting conclusions, but even a mass of conflicting statements concerning field evidence. The rocks seemed to grade into one another; the felsite along the margin of the basin appeared where observed to penetrate the granite instead of the granite the felsite; the flow structure seemed stratification; the sedimentary material is so related to the igneous rock and presents plains of stratification so obscure and nearly vertical that to some the conglomerate appeared uppermost, to others the slate uppermost, while to still another there seemed to be two beds of conglomerate. For years it was agreed that the felsite, porphyry and diorite were all originally sediments changed to their present conditions by varying degrees of metamorphism.

In age the sedimentary rocks were variously classified, Cambrian, Devonian or Carboniferous.

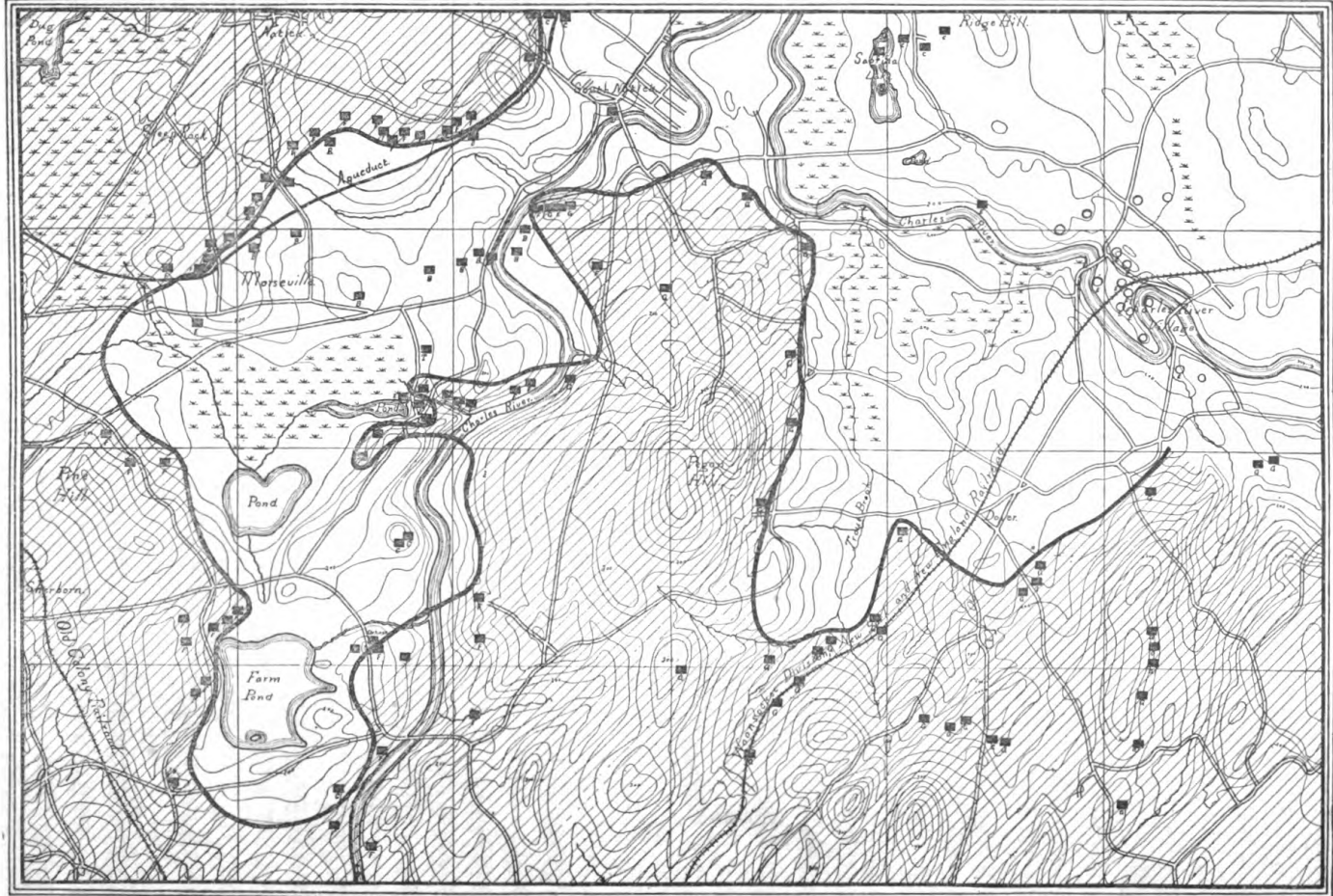
Since 1877, Dr. M. E. Wadsworth and Mr. J. S. Diller have given careful attention to these problems. In conclusion Mr. Diller, † after a presentation of evidence that seems incontro-

*The discussion is given in full in "The Azolic System," Whitney and Wadsworth, Bull. Mus. Comp. Zool. at Cambridge, Mass., Vol. VII.

† "Felsites and their Associated Rocks north of Boston," J. S. Diller, Bull. Mus. Comp. Zool. at Cambridge, Mass., Vol. VII.

THE SOUTHWESTERN PART OF THE BOSTON BASIN.

J.L. Tilton, December, 1894.



Scale, 1 in. = 1 mile.
 General Dip and Strike of Rocks,
 Sandstone
 Shale
 Slate, surface
 Conglomerate
 Breccia
 Eruptive Rock, Relation not determined

vertible, based as it is on both detailed field evidence and microscopic examination of the rocks, states that in the area he studied the stratified rocks within the basin are the oldest rocks, the granites surrounding the basin are next in age, then come the diorite, diabase and melaphyre in order. He also concludes that the granites, felsites, diorite, diabase and melaphyre are all eruptive rocks, not derived by metamorphism from any part of the stratified rocks.

These conclusions relate to the part of the basin north of Boston where evidence is most abundant and complete. In the fall of 1894, it was the writer's privilege to study the southwestern part of this basin and to prepare the accompanying map, the plate of which is now kindly loaned by the Boston Society of Natural History. This map and the paper that originally accompanied it* give the location of outcrops to be found in the area under consideration and a discussion of the relation of those outcrops based in part on the field evidence and in part on the microscopical character of the rock. The basin itself was found to extend in narrow areas farther southwest than formerly supposed.

* "On the Southwestern Part of the Boston Basin," Proc. Boston Soc. Nat. Hist. Vol. XXVI, June 28, 1895.