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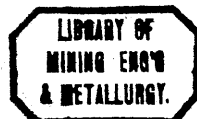
THESIS



THE
GEOLOGY
of the
RATTLESNAKE HILL GRANITE
of
SHARON, MASSACHUSETTS.



Surveyed in 1913 for thesis by



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TOPOGRAPHY.

The area between Sharon, Stoughton and North Easton in which the Rattlesnake Hill Granite occurs has topography characteristically glacial.

The northern part of the area is covered with deep debris composed of tills, sands and gravels. These deposits are in the forms of drumloidal hills and low rolling plains, which subsequent erosion has slightly dissected.

The south western part of the district has characteristics similar to those of the north.

The south eastern section is composed of three hills, with glacial debris deposited on their slopes and in the valleys between them. The first of these hills is near the eastern edge of the area and rises to a height of 300 feet. It is a drumlin with a core of Weymouth granite. The second hill is to the south west of the first and rises to a height of 360 feet. It has a core of fine Rattlesnake Hill granite and is

surrounded by glacial deposits. The third hill, Rattlesnake Hill, is north west of the second and rises to a height of 420 feet. This hill is the core of the granite intrusion and is surrounded by bare outcrops partly covered by glacial material.

The area to the north and south west is farmed and is open and sparsely wooded. The south western hill region is wooded by scrub oak growth with dense underbrush.

DESCRIPTION OF ROCK TYPES.

The Weymouth granite is an altered biotite granite. In the outcrop it has a reddish-brown color and is deeply weathered and crumbling. The fresh specimen shows whitish feldspars, dark green scales of altered biotite and a few black scales of biotite. The rock in such a specimen has a light green appearance which differentiates it from the gray alkaline granites.

The rock in thin section shows its altered character more plainly. The plagioclase is changed to sericite, epidote and zoisite and is in rounded forms. The biotite is altered to chlorite and epidote which give the rock its green appearance. The quartz remains in its original form between the feldspars.

The composition of this granite as seen under the microscope separates it definitely from the granite of Rattlesnake Hill. There is little orthoclase and where this mineral appears it has an entirely different habit from that found in the alkaline type. The orthoclase in the Weymouth type grows around and between distinct plagioclase. It is microperthitic and in very subordinate amount. The biotite is the

predominant dark mineral, or was before its alteration, while in the alkaline type there is almost no biotite. The plagioclase differing from that in the Rattlesnake Hill granite is altered, in distinct individuals and is of the oligoclase variety.

The Rattlesnake Hill granite in the outcrop when fresh appears as a dark gray holocrystalline rock with prominent hornblende. When the outcrop is weathered deeply the color is red, from the iron rich amphibole, and the texture appears porphyritic. The latter fact is due to the isolation of the quartz in feldspar as described under the petrography. This type of weathering often removes all of the amphibole and leaves a residuum of magnetite in the cracks.

The rock outcrops in two distinct types which grade one into the other. The first is the very coarse granite with crystals up to 20 mm. in length. The second type is the fine, glassy granite which surrounds the first in the field and adjoins the contact with the Weymouth granite.

The rock microscopically is seen to be all of

the same composition and to differ only in texture, alteration and crushing. It is composed of quartz in the interstices of the other crystals, microcline and microperthite, riebeckite and small amounts of biotite. The alkali-feldspar is the predominating mineral and the others are all subordinate except the quartz. The microperthite is intergrowths of orthoclase and albite, the latter mineral of which is small in amount. The riebeckite is in shreds and the biotite in small groups.

The texture varies from very coarse, thru finer phases to a fine glassy rock which appears much different from the coarse counterpart. It is seen to have exactly the same character, however.

The rock in thin sections shows between the crystals in places a fine crushed breccia material. The crushed substance is seen to be cleavage fragments of feldspar and fragments of quartz. The crushing is almost entirely absent in the coarse specimens and is very prominent in the fine.

The thin sections are described in detail in the section on petrography.

The glacial deposits occur in all parts of the field and are of little importance except in their hindrance of the geologist in his work.

The material of the debris is almost entirely till and coarse gravel containing boulders of the formations of the area and of other observed formations as far to the north as the Roxbury conglomerate. The ice has also distributed great blocks of the two granites into all parts of the field.

No stratified or water lain deposits were observed.

GENERAL GEOLOGY.

In the consideration of the geologic character and age of the two types of granite found at Sharon, the distribution of bed rock, its probable bounds, the character of contacts, the cooling or textural changes and the alteration of the unweathered rock are of primary importance.

The Weymouth granite is found in a long, prominent ridge to the east of Ames pond. This almost continuous outcrop runs to the waters edge at the east shore of the lake and begins again at the west shore. From this point the Weymouth granite rises sharply into a prominent outcrop skirting the west shore of the lake. The same rock occurs in a cut at the road near this point. Weymouth granite is also found on the shore of Leach Pond and up the slope rising from the pond level. It is found at (109) south of Massapoag Pond, north of the centre of the area in the creek bed at (58), and in several outcrops south

of Dry Pond. The latter are in the creek bed at (56), and in a typical outcrop cut by a narrow, fine grained dike by the road at (55).

The Rattlesnake Hill granite is found on the slope of the hill about 1/4 mile to the west of Ames Pond and on the outer limits of the mass of this granite at (54) just north of the fork in Bay Road, at (23) and (27) near Mountain Road and at (43) and (47) in the valley north of Rattlesnake Hill. Between these outer bounds of the rock are numerous outcrops of the alkaline granite of variant texture.

The Rattlesnake Hill granite may thus be seen to extend over the hill of this name, the valley to the south east of the hill and over the hill east of this valley. The Weymouth granite extends probably over the entire remaining part of the area. It certainly extends to the east and under Ames Pond and between Leach Pond and Massapoag Pond.

The boundary between the two granites roughly described runs along the 240 foot contour west of

Ames Pond, thru the stream cut valley north of Rattlesnake Hill, along an indefinite line from here to the 300 foot contour south east of Massapoag Lake, thru the valley just below this contour and between Massapoag and Leach Ponds and passes back along an indefinite line to its beginning. The doubtful parts of the line, to the north west and to the south east of the alkaline mass, are indeterminable as the bed rock in this part of the field is covered with drift.

Contacts between the two igneous masses are entirely concealed. The nearest approach to a contact is found between (54) and (55). The first of these outcrops is of very fine grained alkaline granite, almost glassy in texture. The second outcrop, (55), is of typical Weymouth granite of coarse grain showing a narrow, light colored dike cutting the granite. These two outcrops are about 150-200 yards apart.

The only textural change in the Weymouth granite observed is at (102) where a specimen for a thin section was taken. The microscope shows this rock to

be a basic phase of the Weymouth and to be granitic in character. As such dikes are found elsewhere associated with Weymouth granite, the dike probably has no genetic connection with the adjacent intrusion.

The textural changes in the Rattlesnake Hill granite are marked. At the top of the hill the texture is fine and this type of rock extends in a wide zone to the north east and south. Just west of the summit the granite is very coarse, grading in to the finer phase at the top. The coarse granite surrounds the hill completely in a narrow ridge which lies $1/2$ to $3/4$ of a mile from the summit. Outside this ridge the texture grades back to the fine type of granite and this rock grows finer as it approaches to probable contact with the Weymouth granite.

The alteration seen in the alkaline granite is entirely due to surface weathering. The feldspars even in the weathered rocks are quite fresh and the chemical change in the rock is evidently of no im-

portance. There is, however, a slight dynamical alteration of the minerals by crushing. The cracks between crystals are seen in places to be filled with a microscopic breccia of feldspar and quartz. The crushing is more evident in fine grained specimens.

The Weymouth granite is always altered in a characteristic manner. The feldspars are sericitized and the biotite is altered to chlorite. The alteration is characteristic of change at depths and is not due to surface weathering. The type of the alteration of this rock establishes it as of older age than the Rattlesnake Hill granite.

From the preceding facts may be deduced the types and the relative ages of the two intrusive bodies. The Weymouth granite is broad in extent; it shows no textural changes consequent upon the adjoining intrusion; it is considerably altered. The Rattlesnake Hill granite is small in extent and probably is entirely included within the Weymouth with roughly circular bounds. It has definite and marked textural changes and the rock grows finer toward the contact with the Weymouth granite. The alteration other than

surface weathering is slight and is represented by intercrystal crushing. The conclusion is obvious - the Rattlesnake Hill granite is the younger.

The stock of alkaline granite intruded the older Weymouth granite at a definite determinable depth. The crushing between crystals indicates a great pressure acting upon the crystallizing body stopping its way into the country granite. The absence of porphyry and the presence of merely a finely crystalline and of a somewhat felsitic cooling phase indicate a slow conduction of heat from the intrusive body. From the great pressure and the slow cooling, it may be concluded that the intrusion took place at a depth relatively great in proportion to the size of the intrusive body.

The phases of texture and their position are an index to the depth to which the stock has been eroded. The fine granite at the summit and surrounding the top of the hill is evidently a roof contact phase. The coarse granite surrounding this fine is the core

of the intrusion. The fine granite outside of this phase is the marginal contact cooling type. That a remnant of the fine roof cooling phase remains in so small an intrusion indicates that the intrusion has not been itself deeply eroded.

The character of the contacts of the alkaline and the Weymouth granites is purely conjectural. From the type of contacts found elsewhere in granites of this alkaline type, in Quincy and at Cape Ann, it is probable that the contacts are faults.

The relation of the two granites to topography is characteristic. The Weymouth granite in places stands up in ridges, but is for the most part eroded flat and covered with glacial drift. The Rattlesnake Hill granite at the core stands up in a high hill, which has been rounded by glaciation. The coarse granite forms ridges and knobs where found. The fine granite is eroded into rounded, low hills.

STRUCTURAL GEOLOGY.

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The structure of the area is confined to faulting. Faulting has without doubt taken place; but its manifestations are obscure. Scarps may have been found in several places; but they cannot definitely be so called. The contacts of the two granites are possibly faults; but again such a statement is a matter of mere conjecture.

HISTORICAL GEOLOGY.

The history of the Sharon area definitely begins with the intrusion of the great batholithic mass of Weymouth granite. This intrusion elsewhere is found to be in Cambrian sediments and is possibly Devonian.

The next period of geologic importance is that of the intrusion of the old Weymouth granite by alkaline masses of granite. These intrusions took place at Cape Ann, Quincy and Blue Hill, and in the Narragansett basin. The granite found in Sharon, due to its marginal and microscopic character is placed with this intrusion.

Finally the Weymouth granite was eroded exposing the alkaline stocks. This erosion includes glaciation and the consequent deposits. Erosion in the Sharon area has reached the top of the Rattlesnake Hill stock and has exposed its roof contact phase.

Subsequent to glaciation has been the slight Recent erosion by streams.

SUMMARY

The rocks of the Sharon area are of two types. These types consist of the alkaline Rattlesnake Hill granite and of the altered biotite or Weymouth granite.

The former intruded the latter in a stock which shows cooling phases of fine granite which grow finer in grain toward the contact with the Weymouth granite. The core of the stock is a coarse granite and the roof phase found at the top of the hill is a fine granite similar to the marginal type.

The Weymouth granite is an altered granite in which the feldspar has been sericitized and the biotite chloritized. The Rattlesnake Hill granite is an alkaline granite composed of microcline, microperthite, quartz and riebeckite. It has been correlated with the Quincy granite and its allied types.

DESCRIPTION OF OUTCROPS.

101. This outcrop occurs in a ledge projecting into Ames Pond from the eastern shore near the road crossing the pond. The outcrop is smoothly weathered and upon examination proves to be the typical altered biotite granite of the Weymouth type. The feldspars are whitish, evidently from alteration and the biotite has almost completely changed to a greenish-black mineral which keeps the biotite cleavage. The rock weathers deeply into a soft, crumbling material colored brown.

102. The rock of the outcrop is in a prominent exposed hill near the edge of the lake. It is almost directly east of Pine Island. The rock of the outcrop is of the Weymouth type but not typical. The texture is finer than that found at (101) and in places there is an abundance of dark mineral, chiefly biotite.

103. The outcrop is in the same hill as (102)

about 500 yard to the south. The rock found here is coarse in texture and is of the typical (101) appearance.

104. This rock outcrops on the western edge of Ames Pond just north of the road crossing the pond. The outcrop is prominent and slopes steeply to the lake shore. It is of the coarse Weymouth type and is deeply and characteristically weathered.

105. After passing to the west from (104), over glacial drift and somewhat deceptive boulders, this outcrop is encountered. It occurs in dense scrub oak and is so surrounded by drift that it may possibly be not representative of bed rock. It is a weathered and crumbling rock from which a fresh specimen could not be obtained. The quartz in the rock weathers out prominently from white to reddish feldspars and gives the appearance of a quartz porphyry. The thin section cut from a specimen obtained here shows the rock to be a fine grained granite from which the ferro-magnesium minerals have been altered. The iron from this alteration gives the rock its red color.

106. This outcrop, to the south-west of (105)

and up the slope from it, is at the summit of the hill and at a height of about 260 feet. The red weathered rock with the prominent quartz occurs here in several well exposed and smoothly weathered ledges. It has the characteristic appearance of this phase of what is found to be the Rattlesnake Hill granite. The feldspars are white to reddish in the exposed outcrop and dark minerals are absent. The quartz is prominent and stands out from the body of the rock. The thin section cut from a specimen taken here shows the characteristics described under (105); but is somewhat less weathered and altered.

107. The same rock as the last outcrop occurs here in a high knob.

108. On the slope of the hill downward from the last outcrop the granite grows coarser and has more hornblende in the weathered outcrop. The surface has the characteristic mottled appearance of the Rattlesnake Hill granite and loses the red color of the finer grained types. The petrographic description of this rock will follow.

9. The hillside at this point on the traverse is a rounded drumlin like form of glacial drift.

10. On the slope of the hill here near the lake blocks of jointed granite of the Weymouth type occur mixed in places with drift. The bed rock also is found in several places.

11. Glacial drift is abundant at this point.

12. The road here runs along the side of a distinct drumlin. The deposits are entirely glacial.

109. In a cut thru which the road runs is found coarse granite of the Weymouth type. It occurs in a good sized outcrop which is definitely not a boulder tho it is in drift.

13. This outcrop is of glacial material.

14. The glacial blanket continues thru this point.

15. This occurrence is that of a drumloidal hill on which the town of Sharon is built. It is a further continuation of the glacial blanket which conceals the bed rock.

16. The road at this point cuts thru a drumlin

composed of till.

17. The road here cuts glacial material.

18. The top of the hill here has no rock outcrops; but is entirely glacial.

19. Drift continues here.

20. Some boulders of coarse Rattlesnake Hill granite are found here; but the character of the ground still remains glacial.

21. The hill was explored for outcrops; but only glacial material was found.

22. The outcrop is of a heavily weathered coarse grained granite of a gray color. The hornblendes are from 1/2-1 inch in length and the feldspar and quartz are in large crystals. The surface of the rock appears patchy on exposure and red iron stains prevent fresh specimens being obtained within 6 inches of the surface. Some SiO_2 is found in cracks.

23. The rock at this point is of the same general character as that of (22). It is some what coarser and has local "knots" where cracks are filled

with very large hornblende and quartz. The rock is weathered smooth and is altered deeply.

24. Outcropping here is a fine grained rock of the type described under (105). The feldspars are colored reddish due to weathered iron and the quartz stands out prominently from the feldspar mass. Long needle like hornblende occurs in this rock. It is the same as (105); but less altered.

25. This rock is a fine grained Rattlesnake Hill granite with the characteristic prominent quartz standing out from the feldspar. Both the altered variety without dark minerals except residuary magnetite and the type with long hornblende are found in the outcrops at this point.

26. The rock is a fine grained gray granite of the alkaline variety. It contains good crystals of hornblende and is of even grain. On the north the rock of this outcrop grades into the more weathered type of the last, (25). On the surface the gray color disappears and the reddish and rough character of (25) is shown.

27. This is a prominent knob of the altered
Course
fine grained alkaline granite.

28. The hill to the west of the road is glacial.

29. The weathered fine alkaline granite out-
crops at this point.

30. The rock at the outcrop here is cut by a
scarp running east and west and about 20 feet in
height. This may be a fault plane. The rock to the
south is slightly finer in texture than that to the
north; but both are of the weathered alkalic type.

31. About 200 yards to the north from (30) is
a similar possible escarpment. To the north of this
cliff the granite is a little coarser than to the
south and shows more hornblende in the outcrop.

32. In this outcrop the hornblende of the rock
is larger than that in the last occurrence. The feld-
spars are large and the quartz very much so, often
reaching a diameter of 20 mm. The quartz also is found
filling cracks and seams in the rock. To the north
the grain of the rock becomes coarser and shows local
pegmatitic phases.

33. The rock is of the same character as (32), but is slightly coarser.

34. The rock of (33) grades into a very coarse granite of gray color and almost entirely unaltered. The feldspars, hornblendes and quartz are distinct and even grained. The maximum crystal length is about 20 mm. The rock is very hard and resistant to breaking.

35. The rock described under (34) extends to the west and north along a contour a little lower than the hill top. It is thruout the same.

36. Near the top of the hill, the outcrop is a smooth gray weathered rock. It is quite fresh and of fine grain.

37. Just south of the summit is a ledge of gray alkaline granite of fine grain. It is a little coarser than the rock of (36) and locally contains small cracks filled with pegmatite.

38. Covering the summit of the hill and just to the north of (37), is a smoothly weathered ledge

of very fine Rattlesnake Hill granite. It is coarse in spots in segregations of large crystals of quartz and hornblende. The rock grows slightly coarser to the north.

201. Just to the east of (37) is an outcrop of extremely fine glassy appearing gray granite. A thin section was cut from this rock.

202. At the bottom of the hill to the southeast of (201), is an outcrop of the alkaline granite which has a coarser texture than that of the preceding rock. It is intermediate between the very coarse type and the fine glassy granite.

203. The rock at this outcrop is similar to that of (202) and in thin section is seen to be crushed to a great extent.

204. The rock in the outcrop resembles that of (201); but under the microscope appears more crushed. The texture is approximately the same.

205. This outcrop is across the valley from the preceding and is of coarse alkaline granite. It is the same as the rock near the top of the hill in the coarse outcrops.

39. The rock here is a fine weathered granite with a red gray color.

40. This rock is of clean Rattlesnake Hill granite and is about the same texture as at the top of the hill.

41. The rock is of the fine, deeply weathered alkaline granite. It shows the weathered out quartz roughening the surface.

42. The rock is of coarse texture and blends into the finer rock to the south. The coarse granite stands up in a long ridge running around the hill.

43. The rock is of finer grain than the ridge outcrop to the south. It is typically alkaline.

44. The bed rock here is covered with glacial debris.

45. The glacial drift continues to the hill top.

46. This point is similar to (44) in the character of the glacial deposits.

47. The bed rock outcrops here in a low ledge and is seen to be fine grained Rattlesnake Hill granite.

48. In a low ridge rising from the drift covering the ground, occurs deeply weathered, fine grained alkaline granite.

49. The rock here is fine in grain but a little coarser than that of the last outcrop. It is weathered and shows the characteristic projecting quartz.

50. Here is found both the fine granite of the Rattlesnake Hill variety with the hornblende weathered out and that with the long crystals of hornblende. The rock here is similar to that of (25).

51. The ridge found between (41) and (42) continues here and the rock of the outcrop is very coarse and resembles that of (34) except that it is more weathered and shows no hornblende in the surface outcrop.

52. The ridge continues here and the rock is the same as that of (51).

53. The fine grained alkaline granite occurs here in a weathered outcrop. Long hornblende crystals appear in reddish feldspar that is somewhat kaolinized and quartz appears in large grains.

54. The outcrop is on Bay Road just north of the intersecting Easton Road. The rock is of fine grain, shows the characteristics of the quartz, feldspar and hornblende described in the last outcrop, (53), and appears of a little finer grain than this rock.

55. By the side of the road is a large smoothly weathered ledge of the typical Weymouth granite. In one or two places the rock is penetrated by very narrow dikes of fine aplitic appearing material.

56. Near the bed of a stream crossing the road and to the west of the road, is a ledge of the Weymouth granite.

57. The ground here is covered with drift as it has been since the last outcrop. A long esker like drumlin is cut here by a gravel pit.

58. A low ledge of Weymouth granite is exposed at this point and leads to the inference that the drift over all the northern part of the area covers this granite.

59. Glacial drift covers this part of the area deeply and the topography is distinctly of the glacial type.

PETROGRAPHY.

205. The minerals are quartz, feldspar, hornblende and biotite.

Feldspars. Microcline shows the characteristic gitter structure and is in rough, poorly outlined rectangles. The microcline is often intergrown with an acid plagioclase, probably albite. In the microperthite the albite may be distinguished from the alkalic feldspar by its higher interference colors. The albite in places occurs alone, generally near a microperthite individual and the growth of one of these crystals is shown to be a continuation of the growth in the orthoclase by the same extinction being in the whole mass of albite. The albite also occurs in very fine fragments with similar fragments of orthoclase in the cracks between the large feldspars.

The quartz is in irregular masses and in interlocking grains in the interstices between the feldspars. The quartz is in places larger than the feld-

spars; but is separated by them into distinct irregular individuals. The quartz often has wavy extinction.

The hornblende is in rough pieces and shreds. It is dark blue in color and has very strong pleochroic absorption from dark blue to yellow green. The mineral has a high index of refraction and is negative. It is riebeckite.

The biotite is in small amount and occurs in lath shaped fragments sometimes arranged radially. It has strong pleochrism and shows a good cleavage. Some of this biotite, so called, may be astrophyllite.

This slide is the typical Rattlesnake Hill granite from which the other slides of this variety of rock differ only in texture and alteration.

201. The composition of the rock and its crystalline character are the same as in (205). The texture is finer.

The rock is crushed to some extent and along the lines between crystals there is fracturing. A narrow zone of fine breccia lies between the crystals

in places and a quartz grain in this zone was found to be sheered across on a microscopic normal fault.

204. This slide is entirely similar to (201) but is slightly more crushed.

203. This rock is of the (205) type but is very fine grained. The characters and mode of occurrence of the minerals is exactly as in (205); the size of the crystals, however, is smaller.

202. This specimen is the same in character and in texture as the type slide, (205).

109. The minerals are quartz, feldspar, biotite, chlorite, epidote, sericite and zoisite.

The quartz has its characteristic irregular form between the feldspars. It is intergrown in places with the alteration minerals.

The feldspars are orthoclase and an altered acid

*Dedham
granite*

plagioclase.

The orthoclase is a microcline with some microperthite and grows in formless masses around and thru the plagioclase. This feldspar is almost unaltered where found; but is in very small amounts or is entirely absent in some of the other slides. In this slide the orthoclase is prominent.

The plagioclase is of the acid group and is probably an altered oligoclase. It occurs in rounded poorly outlined forms which probably were originally sharply rectangular. The plagioclase is filled with fine, bright secondary sericite which has a high birefringence. Associated with the mica are epidote, showing low colors, and zoisite of a very low double refraction.

The biotite is seldom found fresh; but where so found has the strong brown to yellow pleochrism, the high interference colors and the good cleavage characteristic of this mineral. The biotite in the interstices of the feldspars is usually partly or wholly altered to chlorite and epidote. The chlorite

has the green pleochrism and the very low birefringence characteristic of it. The epidote shows high interference color and high relief in plane light.

This rock is evidently an altered biotite granite and is the characteristic type of the Weymouth granite. The other slides of this rock are entirely similar to the described section.

108. This is a coarse Rattlesnake Hill granite exactly the same in texture and character as (205).

101. This rock is the typical Weymouth type granite with little or no orthoclase.

*Salem granite - biotite
or hornblende type*

102. Minerals are plagioclase, quartz, biotite, hornblende, sericite, epidote and zoisite.

The quartz is in the interstitial spaces between the feldspars.

The feldspar is an altered plagioclase in rough rectangular forms which have been rounded in the process of alteration. The alteration minerals are sericite in bright flakes, epidote in granules with a medium interference color, and possibly some zoisite. The feldspars are very small and the rock of very fine grain.

*Weymouth
type granite*

The biotite and hornblende are in great abundance and are scattered thru the rock. The biotite is in shreds and the hornblende is in elongated crystals of a green color.

105. This is a fine grained rock of the Rattlesnake Hill type of granite. The character is the same as to quartz and feldspar as the granites described; but the feldspar is in greater amount and the quartz in less amount. The quartz is isolated in the midst of feldspars of about the same size.

The black mineral of the rock has been altered and is now represented in the cracks and interstices of the feldspar by magnetite.

This rock is the typical altered fine grained alkaline granite.

106. The rock is the same in every respect as (105). The prominent character of the quartz in the outcrop is here seen to be due to the weathering away of the surrounding feldspars.

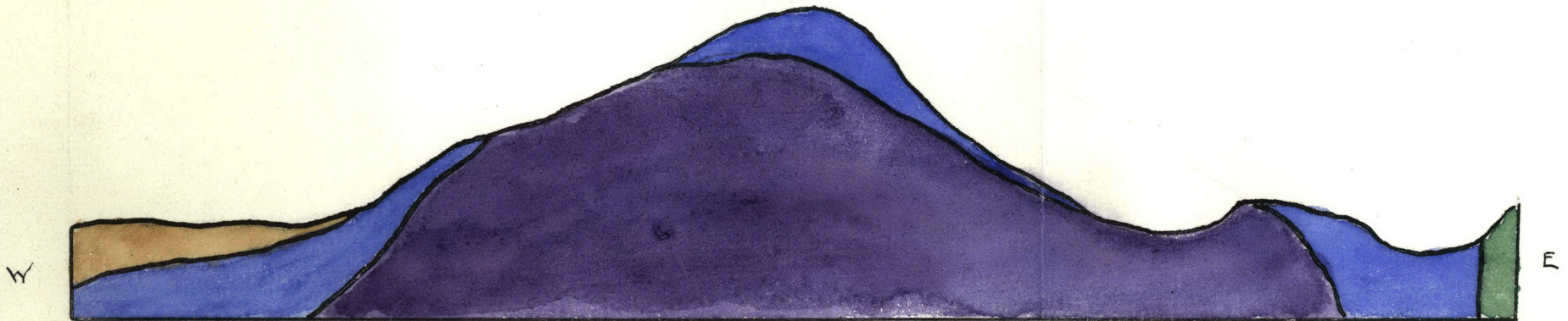
MAPS AND SECTION.

Upon the first map the red line shows the traverse surveyed and the crosses and numbers represent the places where rocks outcrop and where rock samples were taken. The stations preceded by the hundreds numeral, as 101, are places where the rock has been cut in thin sections.

In the second map the bed rock is shown in the various colors. Where, on account of glacial drift covering bed rock, the type of the latter is indefinite, the drift is shown.

Brown	-----	Glacial drift.
Green	-----	Weymouth granite.
Blue	-----	Fine Rattlesnake Hill granite.
Purple	-----	Coarse " " " .

Rattlesnake Hill



W

E

E-W Section

