

Substrate Map of Surtsey 1970

By

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INTRODUCTION

In the summer of 1970, S. Magnússon and B. Sveinbjörnsson made a general soil map of Surtsey. Admittedly, it is hardly possible to speak of a real soil, and the map is rather one of the various substrates on the surface of the island. Real soil formation has so far been very small on the island.

The map was made from aerial photograph of the island, which was taken in the autumn of 1970. Drafts of the map were made on the island, but these were corrected during the autumn when the map was being drawn, since there is considerable movement of the sand from one day to the next. An area covered by sand one day may be quite free of sand on the following

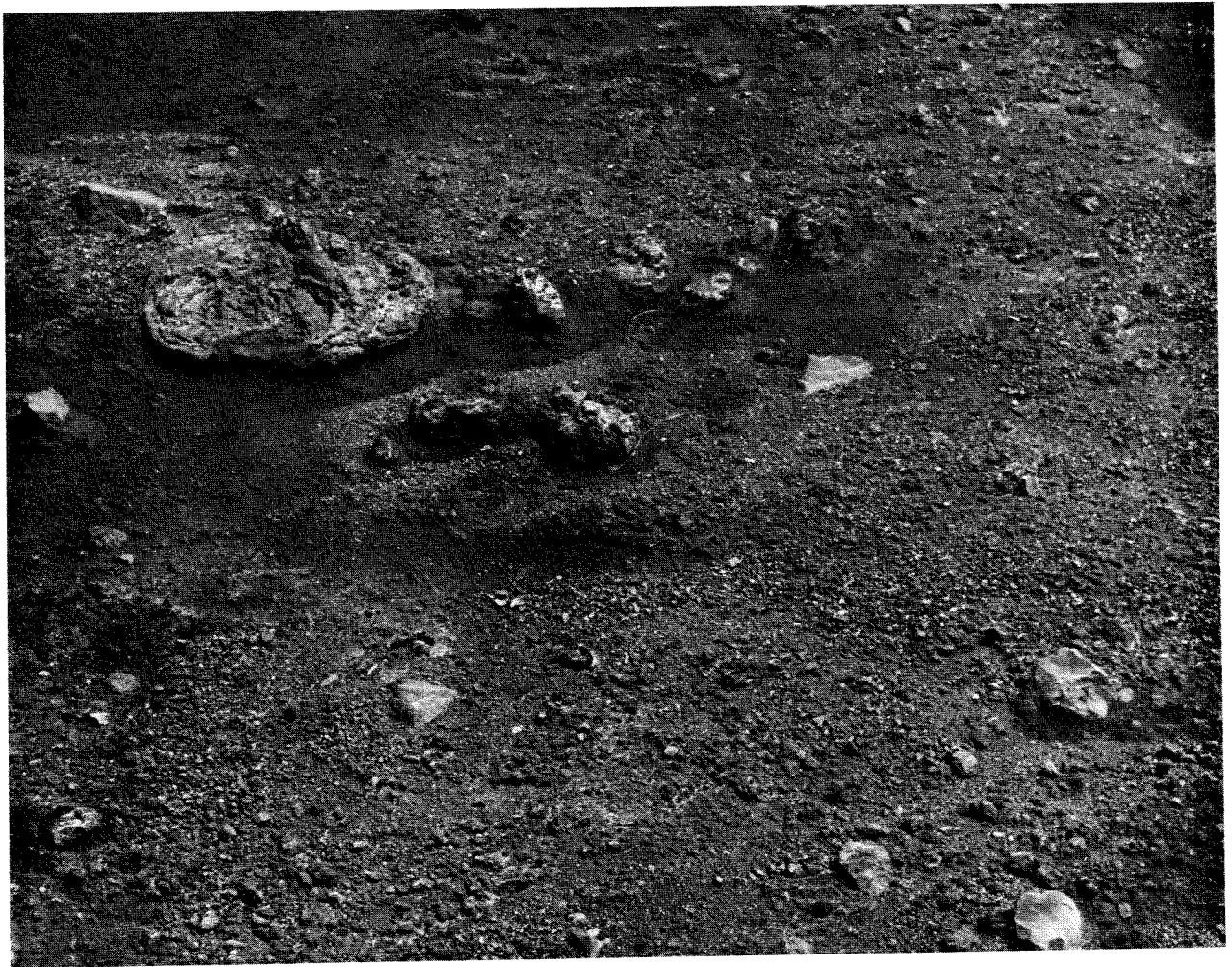


Fig 1. Tephra formed during the first phase of the eruption. (Photo by S. Magnússon.)

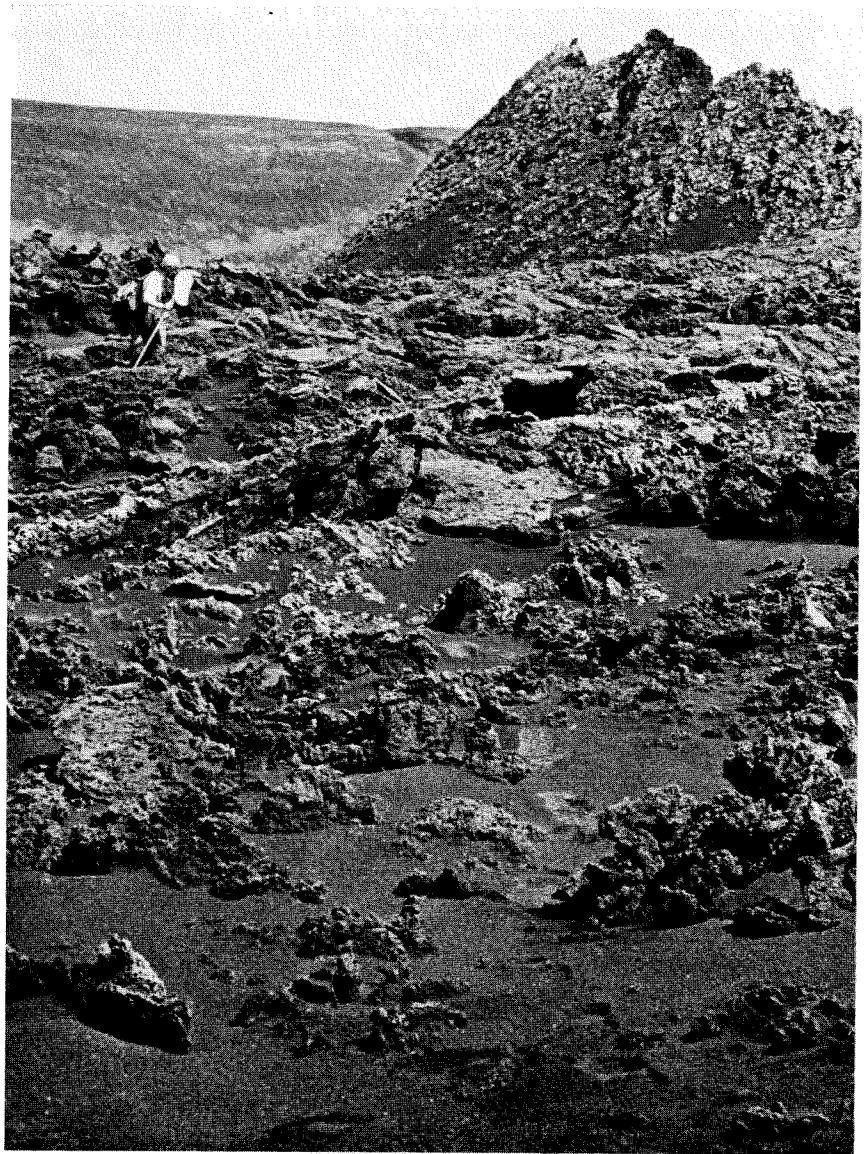


Fig 2. Lava with tephra cover 50–90%. (Photo by S. Magnússon.)

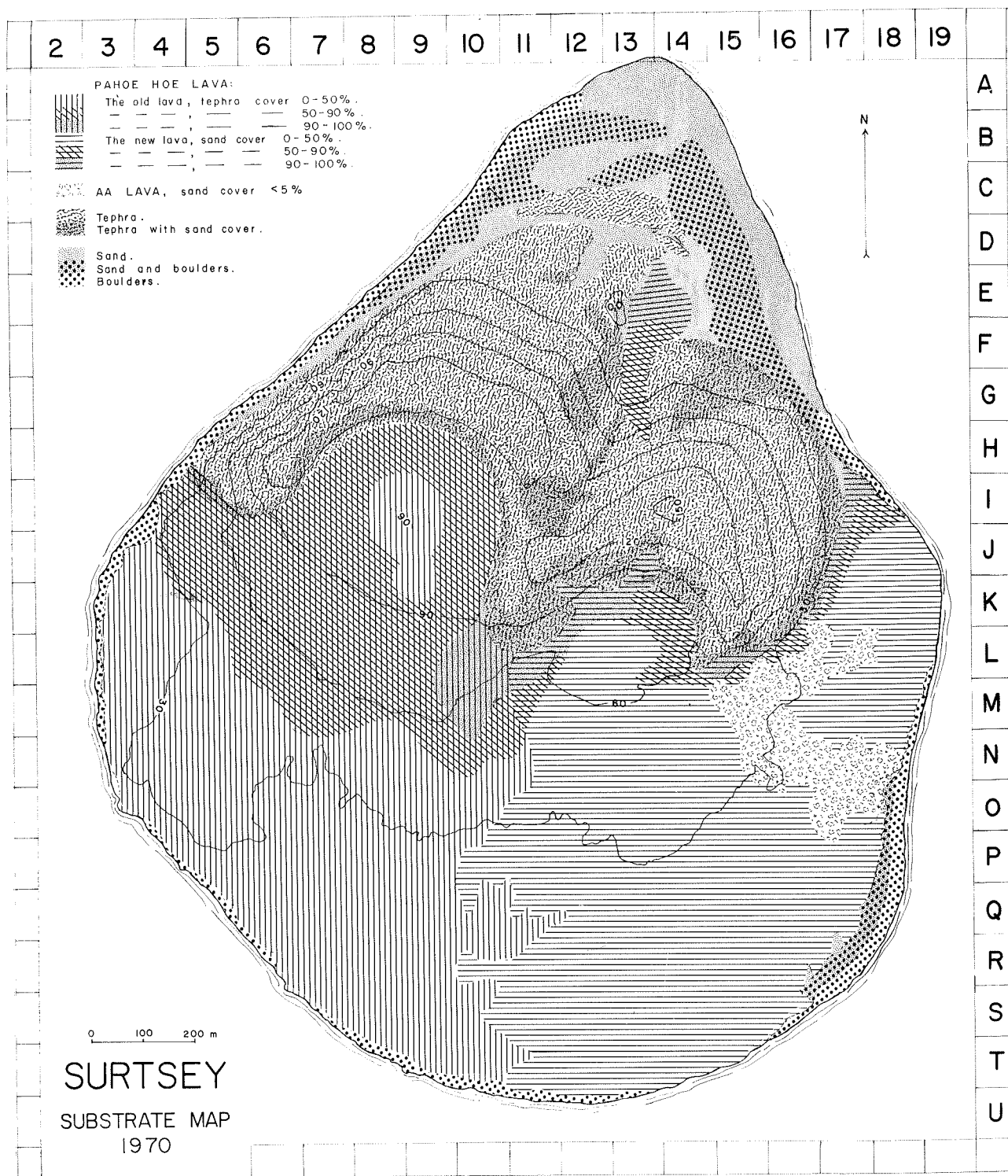
day depending on the weather conditions. There is also a considerable change in the shore line on the northern part of the ness from day to day. During the late summer of 1970, the shore on the eastern part of the ness was covered with large boulders, where it had previously consisted of a smooth sand beach. The change, which took place during a storm one night, shows that the map in question cannot give any complete picture of the distribution of types of substrates on the island, but provides an indication of how it was in the autumn of 1970.

METHOD OF RESEARCH

The following classifications of substrate were employed during the survey and the drawing of the map:

Lava:

1. Old pahoe hoe lava with varying layers of volcanic ash from the Jólnir crater covering 0–50%.
2. Old pahoe hoe lava with varying layers of volcanic ash from the Jólnir crater covering 50–90%.
3. Old pahoe hoe lava with varying layers of volcanic ash from the Jólnir crater covering 90–100%.
4. The new pahoe hoe lava with drift sand covering 0–50%.
5. The new pahoe hoe lava with drift sand covering 50–90%.
6. The new pahoe hoe lava with drift sand covering 90–100%.
7. Aa-lava with sandcover < 5%.



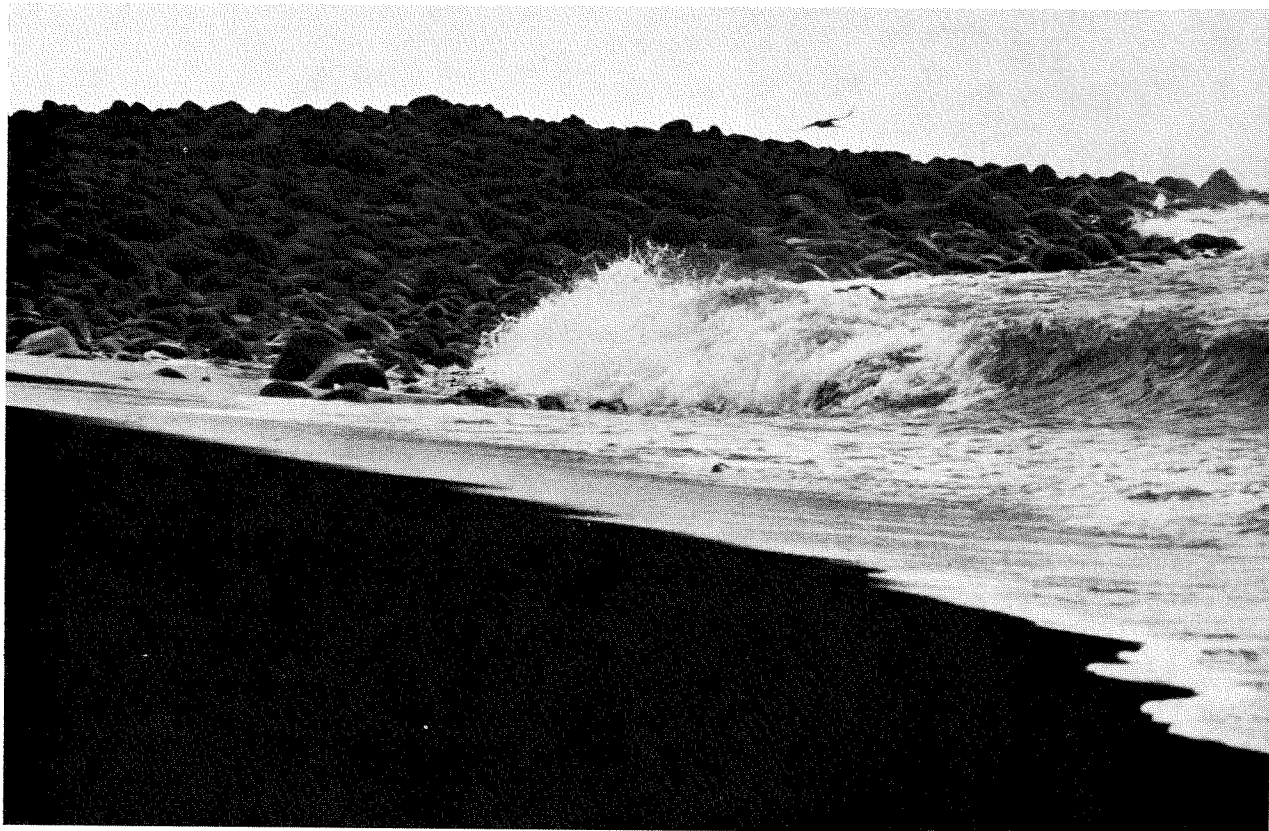


Fig. 3. Sand beach and boulders at the northern point of the ness. (Photo by S. Magnússon.)

Areas with no lava:

8. Tuff.
9. Tuff covered with sand.
10. Sand.
11. Sand and boulders.
12. Boulders (on seashore only).

DISCUSSION

A map of this sort can never be very exact, as it is difficult to follow the contours of each type of terrain accurately. The boundary lines are irregular, and in many cases they depend on the estimate of the individual. Nevertheless, we be-

lieve that the map gives a good idea of the approximate situation.

The map was particularly intended for comparison with the plant map of 1970, so that it would be possible to decide in what type of substrate the plants grew.

ACKNOWLEDGEMENTS

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