

## THE OCCURRENCE OF THE BEETLE *Hydromedion sparsutum* (Müll.) IN A PEAT PROFILE FROM JASON ISLAND, SOUTH GEORGIA

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JASON ISLAND is a small islet situated in lat. 54°10'S., long. 36°30'W. at the entrance to Cumberland Bay on the north coast of South Georgia. The island vegetation is dominated by a tussock community of *Poa flabellata* which is flattened in places by the activity of gentoo penguins that nest in the crowns of the tussocks. The vegetable accumulation has built up a considerable thickness of peat. In 1957 a section was cut in this peat by the late J. Smith at the summit of the island about 50 ft. (15.2 m.) above sea-level and the profile was sampled in detail. In two of his samples Smith recognized insect remains and so, in the hope of finding more of them, these and other samples selected from different parts of the profile were examined.

The samples were first examined macroscopically and any visible insect remains were removed and mounted on cards. The samples were then soaked in water for 24 hr. Some of the more friable peats broke down readily after this treatment but others, in particular those that were well humified, had to be boiled in 10 per cent potassium hydroxide before satisfactory disaggregation occurred. In several cases, however, where the peat was well felted there often remained aggregates of vegetable matter which successfully resisted all attempts to disintegrate them and, in the worst cases, these accounted for half of the specimen. After they had been removed, the remaining sludge was washed over a sieve (295  $\mu$  aperture) and the residue was searched under a binocular microscope.

The amount of material in each sample was small (between 50 and 200 g.); nevertheless insect remains were found in every sample investigated (Table I). All the specimens of coleoptera recovered could be ascribed to the single species *Hydromedion sparsutum* (Müll.), a tenebrionid beetle found today abundantly on South Georgia and Annenkov Island. The most up-to-date account of this species is given by Brinck (1945). The species is indigenous to this group of islands but the genus *Hydromedion* is represented by other species in the southern tip of South America. *H. sparsutum* lives in the large tufts of tussock grass and it hibernates in the tufts usually as an imago, though both larvae and pupae are capable of hibernation. Since so many complete imagos were found embedded in the peat and also a larva probably of this species, it seems probable that these specimens represent individuals that had failed to survive the rigours of winter. In one case a complete imago was found tightly tucked into a cavity in the peat which was lined with a very thin filamentous layer of chitin. This individual was lighter in colour than most of the other specimens and it appears

TABLE I. THE DISTRIBUTION OF SKELETAL PARTS OF *Hydromedion sparsutum* (Müll.)  
IN THE PEAT PROFILE FROM JASON ISLAND

Sample Depth (cm.)	Head	Thorax	Left Elytron	Right Elytron	Other Parts and Remarks
30-32	1	1	1	1	underside and aedeagus
142			1	1	abdomen
198-200	6	1		4	legs
294-296	5	1	2	1	abdomen
304-306	8	4	1	1	
308					larva and crushed imago
314-316	2	3	3	1	
324-326	4	1	6	5	abdomen
334-336	15	14	23	28	2 complete individuals
344	7	7	5	8	
353	2	4	5	6	3 abdomens
354-356	2	1	1	1	
368-370	2	1	2	3	

(from 50 to 200 g. samples)

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to be teneral—the condition of the insect when it has only recently emerged from the pupa and before its skeleton has properly hardened. It is thus probable that after pupation the imago remains dormant in a cocoon for some time before commencing active life. A parallel state of affairs is found in the chrysomelid genus *Donacia*.

The identification of the fragments presented little difficulty because of the smallness of the South Georgia beetle fauna (5 species in all). Confusion is only possible with the closely related *Perimylops antarcticus* Müll. However, the differentiating characters described by Brinck (1945, p. 17, figs. 6 and 7) are all preserved in one or more of the fossil specimens. In eight cases the diagnostic prosternum has been preserved (Fig. 1b) and on three heads enough remains of the antennae (Fig. 1a) to distinguish between the two species. From one specimen a well-preserved aedeagus was removed which matched exactly the aedeagus of modern specimens of *H. sparsutum*. All the less-diagnostic fragments (Fig. 1c and d) also compared well with modern representatives of this species and were therefore included in it.

In all but two of the samples investigated, moss mites were found but they were not identified specifically because adequate comparative collections were not available.

In conclusion it should be pointed out that this type of study lends itself well to the investigation of faunas of isolated places, especially where access is difficult and a prolonged stay is impossible. The collection of living insects by standard techniques is only effective at certain times of the year and it is easily possible to miss species on rare and brief visits at times which may not coincide with the active period of the insect. For the expenditure of relatively little energy, peat samples can be collected and investigated at leisure in the laboratory. Lastly, if the occurrence of a species can be related to the peat profile, a picture can be built up of its history in the context of the other animals and plants contained in the peat.

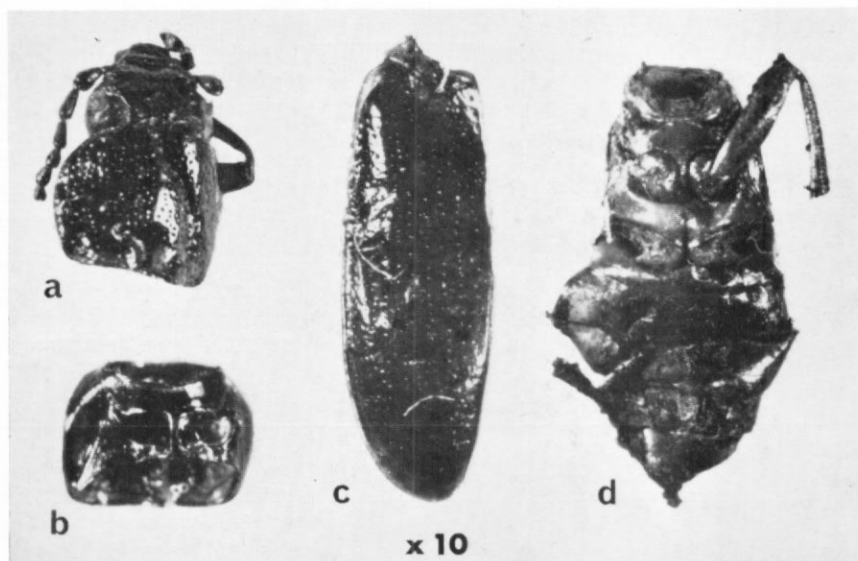


Fig. 1. Fragments of *Hydromedion sparsutum* (Müll.) from the peat profile, Jason Island, South Georgia.

- a. Joined head and thorax showing left antenna and right palp in place.
- b. Underside of thorax showing diagnostic prosternum.
- c. Left elytron.
- d. Underside of abdomen, somewhat crushed.

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#### REFERENCE

BRINCK, P. 1945. Coleoptera. *Sci. Res. Norweg. antarct. Exped.*, No. 24, 23 pp.