

A Dung beetle rolling a ball of dung.

(Photo. c. Butterworths Pub. (Pty) Ltd. 1985)

an example of an alien species which has accidentally been introduced into South Africa.

Man's association with beetles has, however, also a brighter side and many beetles are in fact very useful. Possibly one of the greatest benefits to man is the role they play in pollinating flowers. For example the Oil palm weevil *Elaeidobius kamerunicus* is used to pollinate Oil palms in Malaysia and are estimated to have an annual pollination value of approximately U.S. \$ 115 million.

Beetles also help to keep our environment clean by acting as scavengers. By eating dead animals, decaying plants and dung they can rightfully be dubbed the dustmen and nightcartdrivers of the



An adult Ladybird beetle sinks its jaws into an aphid.

(Photo. c. Anthony Bannister. 1979)

countryside!

Beetles are also of great importance in biological control (*i.e.* where one organism (the pest) is controlled by other organisms (the natural enemies)). A well-known example is the control of scale insects and plant lice by the Ladybird beetle (Coccinellidae). In South Africa much progress has been made in controlling noxious plants by means of introducing their natural beetle enemies. The notorious Silky hakea, *Hakea sericea* for instance, seems to be affected by the attack of certain erirhinine weevils, while the Long-leaved wattle, *Acacia longifolia* and Stinkbean *Albizia lophanta* are attacked by cryptorhynchine weevils and the Lantana *Lantana camara* is defoliated by cassidine leaf beetles.



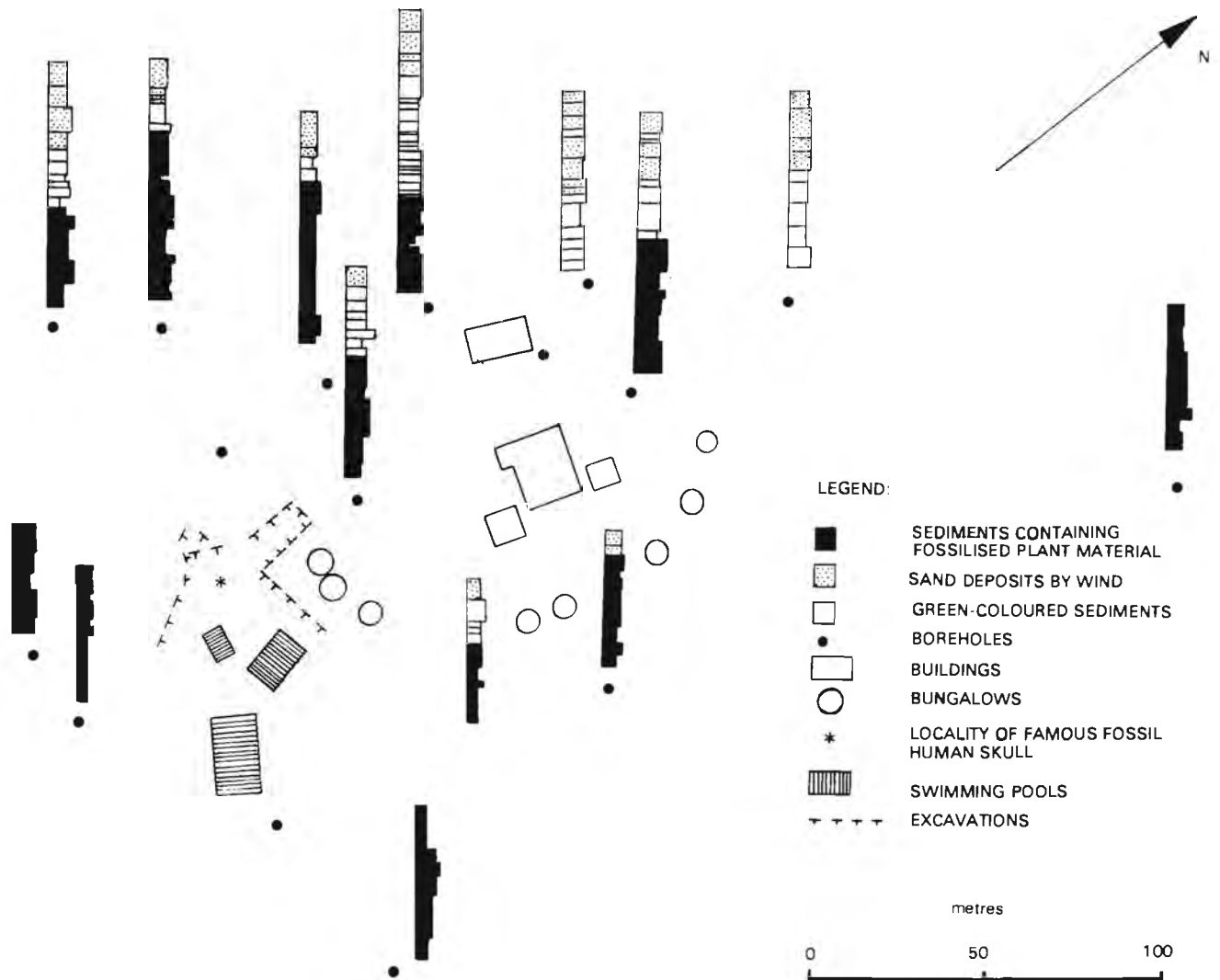
GEOLOGICAL RESEARCH AT FLORISBAD

B.S. Rubidge & J.S. Brink

The occurrence of fossils in the spring deposits at Florisbad, approximately 42 km north of Bloemfontein, has been known since 1912 when the area was developed as a spa. However, particular attention was focussed on the Florisbad site when a fossilised (now world famous) human skull was unearthed in 1932. During 1980 the National Museum acquired Florisbad as a research station and since has undertaken extensive archaeological excavations in order to find more fossils and to

study the sedimentary deposits.

One of the objectives at Florisbad is to determine the structure and nature of the soil below the surface and for this purpose thirty-one boreholes were drilled at various points under the supervision of Dr Clarke during 1981 and 1982. Samples of the sediments were taken at various intervals in each borehole, and their precise depth of origin noted.



Distribution of sediments at Florisbad based on borehole data.



Auger drill in operation at Florisbad.

Preliminary research on all the sediment samples (354 in all) from the boreholes has recently been completed and has shed some light on what lies below the surface. Amongst other things, it is now known that the sediments containing lots of fossilised and decayed plant material are concentrated round a central area. It is presumably in this area that the fountains were most active, consequently provided permanent pools of water around which an abundance of plants grew. Such findings provide clues as to where to continue excavating for more fossils.

Geological research as well as research on the fossils from Florisbad will eventually describe the environment at Florisbad as it was thousands of years ago, and what kind of animals and primitive men once roamed the Orange Free State plains.

