

## ON THE OCCURRENCE OF THE FOSSILIFEROUS HOUTHALEN-SANDS

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Since M. GLIBERT's description of the macro-fauna from the mine shaft of Houthalen, a new term: Houthalenian was proposed and accepted instead of the formerly "Bolderian".

This mine shaft became the type-section instead of the classical outcrop of the Bolderberg where the present fossils are reworked at the boundary with the overlying sands of Diest.

The sands of Houthalen are correlated with the Hemmoor beds who, according to the usual interpretation, belongs to the Middle Miocene.

Paleontological arguments have been advanced to put the sands of Houthalen stratigraphically beneath the sands of Antwerpen and Edegem (Antwerpian = Anversian). However, the correlation between both formations remains a problem, because a good link between them is still missing.

Till now, the characteristic fauna of the Houthalen sands was only found in a few borings, in a restricted area (fig. 1). At Houthalen, the fossiliferous beds are located at the lowest part of the formation (from 80,25 tot 80,55 m depth, according to the description given by M. GLIBERT).

Silicified molluscs occur also, together with small flint pebbles, sometimes fish remains, at some levels in the upper and middle part of the Houthalen or Bolderberg sands (fig. 2).

It appears clearly that they have not the same stratigraphical signification as the typical Houthalen fauna.

One sample from the shaft of Houthalen was examined by D.A.J. BATJES (1958). Most of the foraminifera from it were not different from those of the underlying sands of Voort

(Chatthian) and other Upper Oligocene formations. This is obviously not a reliable information because the sample was taken very close to the sands of Voort and it seemed quite sure that these foraminifera were reworked.

So, we strongly feeled the necessity to obtain new and perhaps better material for further investigations.

Some cored boreholes recently drilled by the Geological Survey of Belgium in the Neogene formations of N.E. Belgium, have discovered the sands of Houthalen or their lateral equivalent, at Helchteren, Hechtel, Wijshagen and Neeroeteren (fig. 1).

The lithological sequences in these and some older boreholes from the same area, are compared on fig. 2 and will be briefly described hereafter.

### PLEISTOCENE

sand and gravel ("Hoog-Terras")

### NEOGENE

*Sands of Mol* (Plio-Pleistocene)

white, pure sands, fine to medium coarse, with some thin clay layers

*Sands of Kasterlee* (paleontologically under-terminated)<sup>1</sup> pale green, slightly glauconitic fine sands with thin clay layers.

Small white spots (tubulations?). No fossils.

*Sands of Diest* (Diestian — Upper Miocene) dark green, glauconitic sands, fairly coarse. Some dark clay lenses. Vivianite concretions (Hechtel). Apparently without fossils.

<sup>1</sup> We consider them as a lateral equivalent of the sands of Kattendijk (Pliocene).

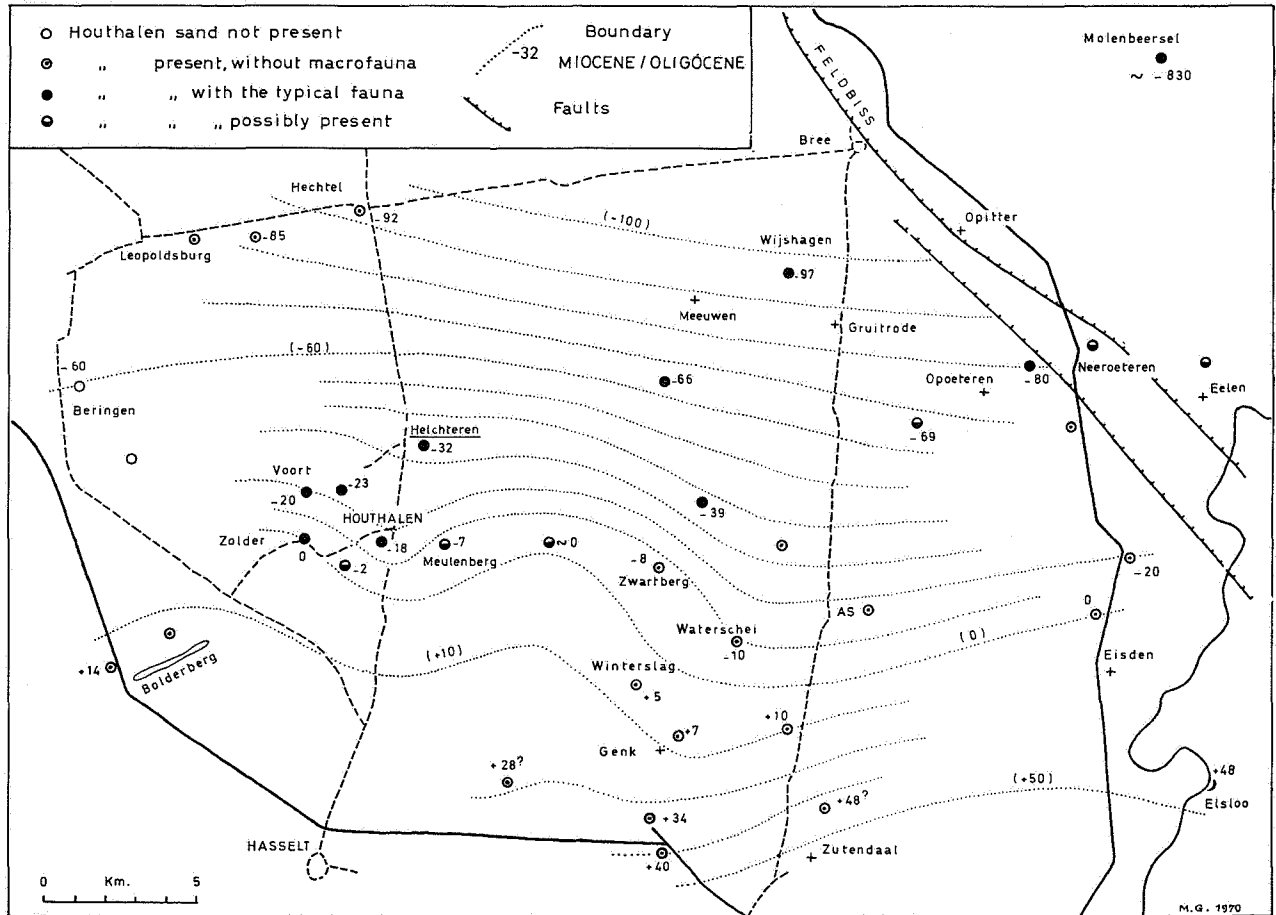


Fig. 1 - Occurrence of the Houthalen beds in N.E. Belgium Depthelines of the Elsloo gravel (after F. HALET - completed)

*Sands of Houthalen or Bolderberg* (Houthalenian — Middel Miocene) pale to dark brownish, medium fine, often very micaceous sands. They have sometimes a mottled appearance or show small vertical black stripes (fossil roots?) in the boreholes at Wijshagen and Helchteren. In Helchteren are these sands very loose at the top, but contain some clay material near the bottom. A characteristic feature is the occurrence at several levels of

small, well rounded flint pebbles with molluscs (mostly *Corbula*) sometimes otolites and other fish remains. The molluscs and also the environing sand are often silicified.

The fossiliferous beds with the typical Houthalen fauna occur on the lower part of the formation. But, their thickness and expectedly also their richness, increase to the east from Houthalen to Wijshagen.

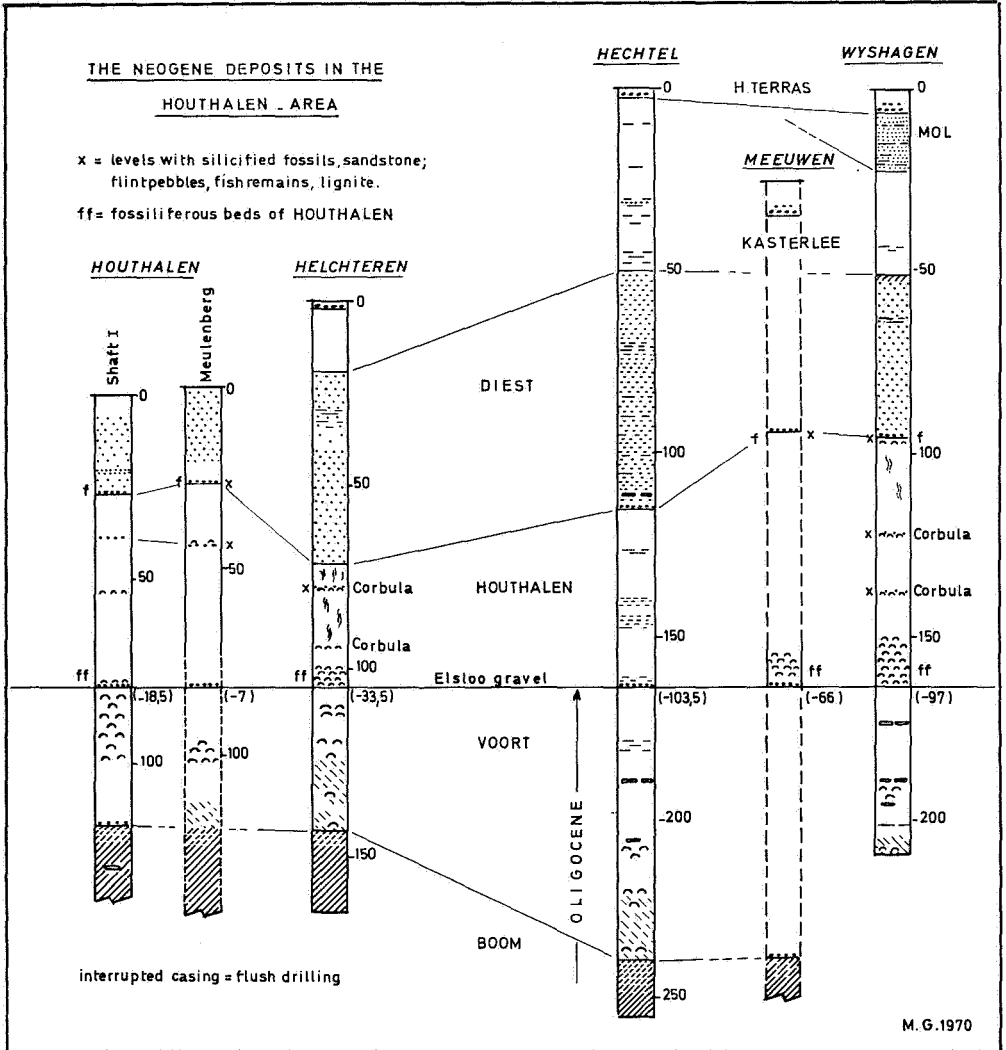


Fig. 2

The typical phosphatic pebbles of the "Elsloo gravel", at the boundary between Miocene and Oligocene, observed in Houthalen, Hechtel, Wijshagen and other boreholes did not appear in the cores from the Helchteren borehole. A sharp limit between the sands of Houthalen and the sands of Voort can therefore not be traced in this borehole.

The lithological composition of the Houthalen sands in the boreholes of Hechtel and Neeroeteren is different. The sands, well enclosed by the characteristic sands of Diest and of Voort, are still coloured by lignitic material but contain a fairly amount of glauconite with a greater admixture of clay. And, most surprisingly, no molluscs were found in it.

## OLIGOCENE

*Sands of Voort* (Chattian — Upper Oligocene) dark green, glauconitic sands, fossiliferous, going over to strong clayey glauconitic sands.  
*Rupelian* (Middel Oligocene) very fine, glauconitic clayey sands, without macrofossils, going over to a grey stilty clay (clay of Boom).

Up to now, only the fossiliferous sands from the Helchteren borehole have been thoroughly investigated. The paleontological descriptions given by Mrs. DE MEUTER and RINGELÉ in the following papers are eventually to be completed by a similar study of the borehole of Wijshagen.

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