

## Evolution of the Estuary of the Seine Since the Last Glaciation

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## Evolution of the estuary of the Seine since the last glaciation

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The study of many core samples taken in the estuary of the Seine complemented by seismic data have permitted an understanding of the history of this region during the Flandrian transgression and during the last glaciation. The Quaternary deposits comprise three units, from top to bottom we distinguish: (1) Flandrian sediments (brackish and marine formations); (2) Fresh-water postglacial deposits, and (3) Basal gravels and pebbles on the bed-rock.

The palaeovalley presents a varied morphology with palaeomeanders and two successive erosion-levels. Upon these erosion-levels rest gravels and pebbles (figure 1). The upper level (I) situated between  $-3.7$  m and  $-20.7$  m N.G.F.¶ is dated as early in the Weichselian glaciation while the lower level (II) which slopes downward from  $-24$  m N.G.F. at Tancarville to  $-50$  m N.G.F. off Le Havre is dated from the last part of the Weichselian glaciation. The gravels and pebbles of the fluvial basin of the Seine have been reworked in part by the Flandrian transgression or contaminated *per descensum* by the shelly-marine sediments characterized by the mineralogic association: hornblende, epidote and garnet.

The Holocene deposits include various freshwater sediments: clays, silts, sands, calcareous tufas and peats deposited during the Boreal and the Atlantic stages before the marine influence and during the regressive stages. The brackish and marine sediments comprise silts associated with organic muds, shelly sediments and pebble bands. Brackish and marine deposits have been dated by pollen analysis and radiocarbon dated as from Boreal to Subatlantic.

During the Flandrian transgression two regressive periods have been displayed: one before 8000 B.P. and one about 7200 B.P.

On the other hand the difference in level of 4 m between two brackish peats dated respectively  $7780 \pm 150$  B.P. at  $-12.40$  m N.G.F. and  $7680 \pm 150$  B.P. at  $-16.50$  m N.G.F. in two adjoining cores shows the evidence of recent tectonic movements. These two peats are situated in the vicinity of a fault oriented ENE–WSW of which the southern block has subsided. A recent movement of this fault would be responsible for the variation in depth observed between these peats.

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¶ N.G.F. = Nivellement Général de la France (i.e. French Ordnance Datum).

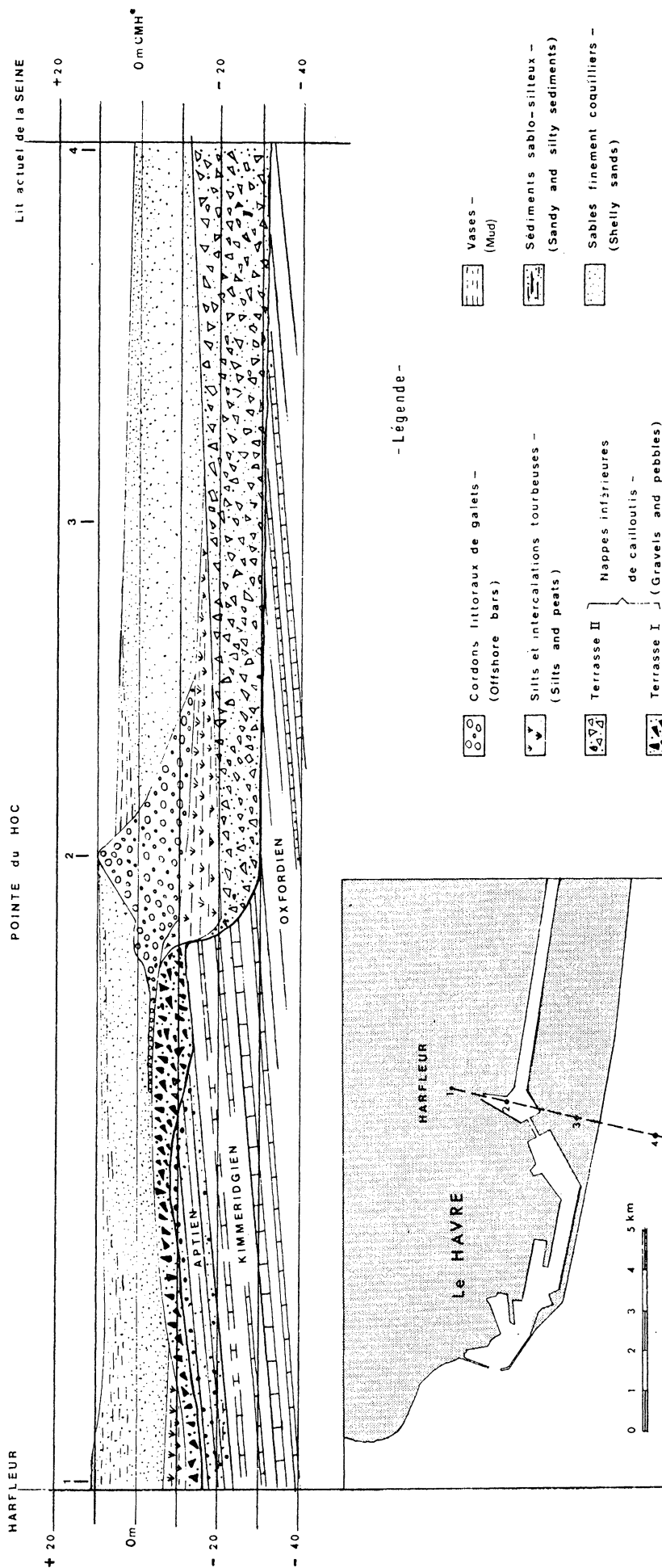


FIGURE 1. Transverse section near Harfleur. \*0 m C.M.H. is at -4.72 m N.G.F.

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