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RECORDS:

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FORAMINIFERA FROM WUROI NO.1 WELL. PAPUA.

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SUMMARY

Seven cores from the Tertiary-Quaternary section of the Wuroi No.1 Well have been examined; the Foraminifera observed indicate a lower Miocene ('e' - 'f1-2') age for the beds. Lack of cuttings prevents accurate determination of the 'e' - 'f1-2' boundary. This is the first definite record of 'e' stage beds from wells in this area. The section below a depth of about 2282 feet is regarded as Mesozoic in age.

Wuroi No.1 Well, located at 8°48'52"S., 143°02'20"E., was drilled by contract on behalf of the Oil Search Group. Drilling began on the 30th September, 1964 and was completed on the 31st October, 1964; the well was plugged and abandoned at a depth of 4249 feet. Quaternary, Tertiary and Mesozoic sections were penetrated, with an unconformable contact between the Mesozoic and Tertiary at about 2282 feet. There was loss of circulation between 553 feet and 2305 feet and the absence of cuttings over this interval has prevented the accurate placing of the top of the lower Miocene, and of the boundary between the 'e' and 'f1-2' stages (Kereruan and Taurian of Australasian Petroleum Company usage). There is also a gap in cuttings between 175 feet and 480 feet.

This report is based on examination of Foraminifera in random thin sections; abundant free specimens have been obtained from some cores and these could be used for the preparation of oriented thin sections which would enable specific determination of the 'larger' Foraminifera. No Foraminifera have been found in available cuttings from the surface to 553 feet. This may be due to both environment and preservation, the limestone being fine-grained and recrystallised. Poorly preserved bryozoa, algae and possible gastropods occur. Core 2 (553 feet - 583 feet) also has only algae and possibly bryozoa, no Foraminifera being observed. There is no palaeontological evidence for distinguishing a Miocene/Pliocene boundary, or a Middle/Upper Miocene boundary.

Lower Miocene (f1-2, Taurian)

The first Foraminifera observed occur in core 3 (972 feet - 993 feet) and they indicate a lower Miocene (f1-2, Taurian) age; bryozoa, algae and echinoid spines also occur. The fauna is uniform throughout the core and Foraminifera identified are:

Flosculinella bontangensis Rutten
Lepidocyclina (Nephrolepidina) sp. [very small, one specimen only]

Sorites sp.
Elphidium sp.
Operculina sp.
Miliolidae
Indeterminable smaller Foraminifera

Core 4 (1506-1535) also contains abundant Foraminifera, with bryozoa, algae and echinoid spines. Foraminifera identified are:

Lepidocyclina (N.) spp.
Miogypsina sp.
Miogypsinoides sp.
Amphistegina sp.
Operculina sp.
Elphidium sp.
Sphaerogypsina globulus (Reuss)

This assemblage is also of lower Miocene (f1-2, Taurian)age.

Lower Miocene ('e', Kereruan)

The first evidence of beds of this age is seen in core 5 (1756 feet - 1781 feet). The interval 1756 feet - 1759 feet contains Foraminifera, large algal colonies, bryozoa and echinoid spines. Foraminifera identified from this interval are:

Spiroclypeus margaritatus (Schlumberger)
Lepidocyclina (N.) sp.
Amphistegina sp.
Miogypsinoides sp.
Elphidium sp.
Heterostegina sp.
Carpenteria sp.

The remainder of the core contains a different fauna, without Spiroclypeus, but it is still referable to the 'e' stage. Foraminifera identified are:

Lepidocyclina (N.) sp.
Heterostegina sp. cf. H.borneensis van der Vlerk
Borelis pygmaeus
Carpenteria sp.
Rotalia sp.
Miliolidae

Core 6 (1964 feet - 1992 feet) contains Foraminifera, bryozoa and algae. Foraminifera determined are:

Lepidocyclina (N.) sp.
Lepidocyclina (Eulepidina) sp. [fragments]
Miogypsinoides sp.
Sphaerogypsina globulus (Reuss)
Borelis pygmaeus
Heterostegina sp. cf. H.borneensis van der Vlerk
Operculina sp.
Chapmanina ? sp.
Indeterminable smaller Foraminifera (abundant)

This is an 'e' stage assemblage.

Core 7 (2116 feet - 2141 feet) consists of dolomite and recrystallised limestone; no identifiable fossils have been observed.

Core 8 (2276 feet - 2288 feet) contains Foraminifera to a depth of 2282 feet 3 inches. In some cases they are not identifiable in thin section and have been observed only on polished surfaces. Foraminifera identified are:

Lepidocyclina (N.) sp.
Heterostegina sp. cf. H.borneensis van der Vlerk
Amphistegina sp.

No Foraminifera have been observed below the depth of 2282 feet 3 inches and the sandstone sequence below this depth is regarded as Mesozoic in age. A sample from core 9 (2394 feet - 2421 feet) is, on palynological evidence, probably of basal Cretaceous age.

Deposition was active in the Wuroi area during the 'e' stage, and there are at least 526 feet of 'e' stage beds known in this well; no rocks of this age occur in the Mutare well. Transgression occurred over the Mutare area during the 'f1-2' stage, the thickness of the 'f1-2' beds in this well being 1752 feet plus; in the Wuroi well the thickness is 784 feet plus. The Pliocene-Recent fauna occurring from 70 to 365 feet in the Mutare well is absent from the Wuroi well; this does not necessarily reflect any age difference, but could be due to both environment and preservation. Many of the Foraminifera occurring in the Mutare well, such as Alveolinella, Marginopora, Planorbulinella and Sorites prefer a reefal environment. Their absence from the Wuroi area may indicate that the reef migrated to the north-east during the Miocene and Pliocene and that the fine grained carbonates in this Wuroi well are a deeper back-reef deposit.