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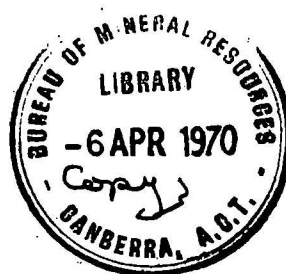
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MICROPALAEONTOLOGICAL EXAMINATION OF SAMPLES FROM THE  
TUBA AREA, PERMIT 22, PAPUA.

by

D.J. BELFORD.



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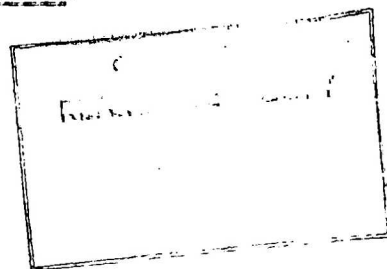
MICROPALAEONTOLOGICAL EXAMINATION OF SAMPLES FROM THE  
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Twenty-six samples from the Tubu area, Permit 22, Papua, were forwarded for palaeontological examination by Papuan Apinaipi Petroleum Ltd. The Tubu area is 47 miles north-west of Port Moresby, and 10 miles north-east of Cape Suckling. One sample - 722 - is not shown on the list supplied, and four samples - 678, 679, 680 and 801 are not shown on the locality map.

The stratigraphical succession, indicated on a photogeological sketch map by R. T. Mathews and E. K. Sturm-fels is from oldest to youngest Kaieu Greywacke, Bokama Limestone, Diumana Greywacke, Tubu Siltstone and Kaufana Sandstone. The samples forwarded for examination were collected from the Bokama Limestone, the Diumana Greywacke and the Tubu Siltstone.

Detailed Examination of Samples

Bokama Limestone. Samples 690 and 692.

These samples contain foraminifera, corals, algae and echinoid spines. The only diagnostic foraminifera recognised in the several thin sections prepared is Myogypsina sp. This indicates that the samples are to be placed in the "f" stage, but it is not possible to determine if they are from the lower or upper part of this stage, that is, from the upper part of the Lower Miocene or Middle Miocene.

Diumana Greywacke. The samples shown on the locality map as being from this formation are 668, 669, 671, 771, 772, 774, 883, 884, 885, 887 and 889. Samples 676, 677, 682, 685, 686 and 687 are from areas mapped as doubtfully Diumana Greywacke. The four samples (678, 679, 680 and 801) not shown on the locality map are also thought to be from this formation.

Only two samples, 801 and 883 are unfossiliferous. Two distinct foraminiferal assemblages occur in the remainder. The first assemblage consists mainly of specimens of Alveolinella, Amphistegina, Elphidium and Operculina, with rare smaller foraminifera, and occurs in samples 668, 669, 671, 771, 772, 885, 887 and 889. Species identified are:

- Amphistegina lessonii d'Orbigny
- Anomalinella rostrata (Brady)
- Elphidium craticulatum (Fitchel and Moll)
- Eponides berthelotianus (d'Orb.)
- E. praecinctus (Karrer)
- Globigerinoides trilobus (Reuss)
- Operculina ammonoides d'Orb.
- O. bartschi Cushman
- O. sp. cf. O. gaimardi d'Orb.

Of the samples referred doubtfully to the Diumana Greywacke, 678, 679, 680, 682, 685 and 686 contain a similar assemblage. Additional species recorded from these samples are:-

Alveolinella quoyi d'Orbigny  
Operculinella venosa (Fitchel and Moll)  
Orbulina universa d'Orb.

This assemblage dominated by Alveolinella, Amphistegina, Elphidium and Operculina is from either upper "f" stage or "g" stage (Middle or Upper Miocene).

The second assemblage, consisting of abundant smaller foraminifera, occurs in samples 774 and 884. Species identified are:

Globigerinoides trilobus (Reuss)  
Globorotalia menardii d'Orbigny  
Amphistegina lessonii d'Orb.  
Anomalina glabrata Cushman  
Bolivina dilatata Reuss  
B. sp. cf. B. hebes Macfadyen  
B. schwageriana Brady  
B. subreticulata Parr  
Eponides berthelotianus (d'Orb.)  
E. margaritiferus (Brady)  
E. praecinctus (Karrer)  
Gyroidinoides soldanii (d'Orb.)  
Reussella spinulosa (Reuss)  
Siphogenerina striata (Schwager)  
Siphonina tubulosa Cushman  
Sphaeroidina bulloides d'Orb.  
Streblus beccarii (Linne)  
Trifarina bradyi Cushman

This assemblage of smaller foraminifera is placed in "g" stage (Upper Miocene).

Samples 676, 677 and 687 referred doubtfully to the Diumana Greywacke, also contain an assemblage of smaller foraminifera, which are very abundant in sample 687. Species identified are:-

Globigerinoides sacculiferus (Brady)  
G. trilobus  
Globorotalia menardii  
Orbulina universa  
Amphistegina lessonii  
Anomalina glabrata  
Anomalina<sup>ella</sup> rostrata (Brady)  
Astrononion sp.  
Bolivina alata (Seguenza)  
B. dilatata  
B. sp. cf. B. hebes

B. quadrilatera (Schwager)  
B. schwageriana  
B. subreticulata  
Bolivinopsis bulbosa (Cushman)  
Cassidulina laevigata d'Orb.  
C. subglobosa Brady  
Ceratobulimina pacifica Cushman and Harris  
Clavulinoides sp.  
Elphidium craticulatum (Fitchel and Moll)  
E. crispum (Linne)  
Epistomina elegans (d'Orb.)  
Eponides berthelotianus  
E. margaritiferus  
E. praecinctus  
Gyroidinoides soldanii  
Nodosaria arundinea Schwager  
Nonion incisum (Cushman)  
Plectofrondicularia interrupta (Karrer)  
Pseudoclavulina sp.  
Pullenia bulloides (d'Orb.)  
Pulleniatina obliquiloculata (Parker and Jones)  
Reussella spinulosa  
Robulus costatus (Fitchel and Moll)  
R. vortex (Fitchel and Moll)  
Siphogenerina dimorpha (Parker and Jones)  
S. striata  
Siphonina tubulosa  
Siphonodosaria insecta  
Sphaeroidina bulloides  
Sphaeroidinella seminulina (Schwager)  
Streblus beccarii  
Trifarina bradyi  
Uvigerina crassicostata Schwager  
U. schwageri  
Vaginulinopsis sp.  
Virgulina pauciloculata Brady

This assemblage is also placed in "g" stage.

The Diumana Greywacke probably ranges in age from the Middle Miocene into the Upper Miocene. Because of the complexity of the area as shown on the sketch map, it is difficult to determine the relative stratigraphic positions of the samples, but it appears that the first assemblage given above underlies the second.

Tubu Silstone. Two samples taken from this formation - 776 and 779 - contain abundant smaller foraminifera. Species identified are:

Globigerinoides sacculiferus  
G. trilobus  
Globorotalia menardii  
Orbulina universa  
Anomalina glabrata  
Bolivina schwageriana  
B. tortuosa Brady  
Canceris auriculus (Fitchel and Moll)  
Epistomina elegans  
Eponides berthelotianus  
E. margaritiferus  
E. praecinctus  
Gyroidinoides soldanii  
Nodosaria arundinea  
N. vertebralis (Batsch)  
Pseudoclavulina sp.  
Robulus costatus  
R. vortex  
Siphogenerina striata  
Siphonina tubulosa  
Siphonodosaria lepidula Schwager  
Sphaeroidina bulloides  
Sphaeroidinella seminulina  
Trifarina bradyi  
Uvigerina gemmaeformis Schwager  
Vaginulinopsis sp.  
Virgulina pauciloculata

This assemblage is placed in "g" stage.

No information was given on the formation from which sample 683 was collected. The assemblage obtained from it is very similar to that from samples 776 and 779, and it is also placed in "g" stage.

#### Conclusion.

The succession of foraminiferal assemblages, from "f"-stage to "g" stage, appears to agree with the succession as determined in the field and there are sufficient differences in the assemblages to characterize the formations to which they belong.