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100

WELL 25/2-1

PALYNOLOGICAL STUDY ON LOWER TERTIARY

# WELLFILE

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FICHE DE DIFFUSION

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Titre : Well 25/2-1  
Palynological study on Lower Tertiary

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Destinataires :

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| MM. R.G. LEVY           | } | 1 |
| PERRODON                |   |   |
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The palynological study of the Lower Tertiary of the well 25/2-1 was carried out from 1840 to 2711 metres. 57 samples of cores and sidewall cores were studied and one cutting sample at 1915 metres. The interval analysed comprises the formations between the bottom of the EOCENE Shales and the top of Cretaceous series. On the whole the series is very rich in fossils.

### PALYNOLOGICAL RESULTS

The palynological zonation of the well 25/2-1 is the same as that seen in the Lower Tertiary of the North Sea from nt I ZONE (DANIAN) to nt III ZONE (LUTETIAN).

The analytical and statistical data of this well are not given here. But Plate 1 presents the essential of the palynological zonation and the results of the palynofacies analysis. This is the first time a study of this kind has been attempted in the North Sea. For each sample there is a diagram which gives the relative proportions of amorphous organic matter (flakes and lumps), of black angular fragments (coals) and of vegetable organic matter.

### STRATIGRAPHY AND ECOLOGY

This study shows the close resemblance between well 25/2-1 and FRIGG wells (cf. Plate 1) in the succession of biozones and the evolution of microfloras.

#### 1 - 2711 m - nc 9 ZONE

Rich marine microflora of MAESTRICHTIAN age (this assemblage is the same as that of FRIGG 25/1-1). As in FRIGG 25/1-1, we can notice the presence of Aquilapollenites, a characteristic species of MAESTRICHTIAN borealis type.

#### 2 - 2667 - 2391 m - nt I ZONE

The microflora of nt I ZONE can be divided into nt I a and nt I b. Samples are richly characterised between 2553 and 2391 m (poorer samples between 2667 and 2585 m). The nt I a ZONE is characterised by the Dinoflagellate D.413 A of DANIAN age. The nt I b ZONE represents a rich assemblage (D.400) of DANIAN to LOWER PALEOCENE age.

Throughout nt I ZONE the palynofacies contains an abundance of black angular fragments on slightly oxydized palynological slides.

#### 3 - 2377 - 2257 m - LOWER nt II a ZONE

There is a distinct break between nt I b ZONE and LOWER nt II a ZONE, which corresponds to the frequent occurrence of the Dinoflagellate D.361. This is the typical microflora of the "Sables de COD" Formation of PALEOCENE age. This microflora has also been observed in the lower sandstone series of the FRIGG wells.

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The palynofacies contains 50 to 60 % of flaky organic matter of sapropelic type - Vegetable debris represent only 30 to 40 % of the total. This microplankton indicates a restricted marine environment with some important continental influences.

4 - 2237 - 2165 m - MIDDLE nt II a ZONE

The MIDDLE nt II a ZONE corresponds with the "Argiles à Tufs" Formation of FRIGG of PALEOCENE age.

This microplankton denotes a restricted marine environment with a peculiar abundance of the genus Deflandrea. Continental influences predominate here. The break between the LOWER nt II a ZONE and the MIDDLE nt II a ZONE corresponds with an important climatic change.

The palynofacies contains a large amount of flaky organic matter of sapropelic type (70 % at 2200 m).

5 - 2150 - 2005 m - UPPER nt II a ZONE

The UPPER nt II a ZONE is characterised by a microflora with the Dinoflagellates D.402 A and D.362 A-B. The palynofacies embodies a large proportion of flaky organic matter to a depth of 2100 m. Above this level, vegetable fragments become more important.

6 - 1990/1991 - 1915 m - nt II b ZONE

The nt II b ZONE characterises the "Sables de FRIGG" Formation of YPRESIAN age.

The palynofacies is composed of more than 50 % vegetable debris.

7 - 1908 - 1903 m - nt II c ZONE

This biozone is richly fossiliferous and very reduced as that at FRIGG 25/1-3. It corresponds with the lower part of EOCENE Shales. Its age is YPRESIAN.

As in nt II b, the palynofacies shows a large concentration of vegetable fragments.

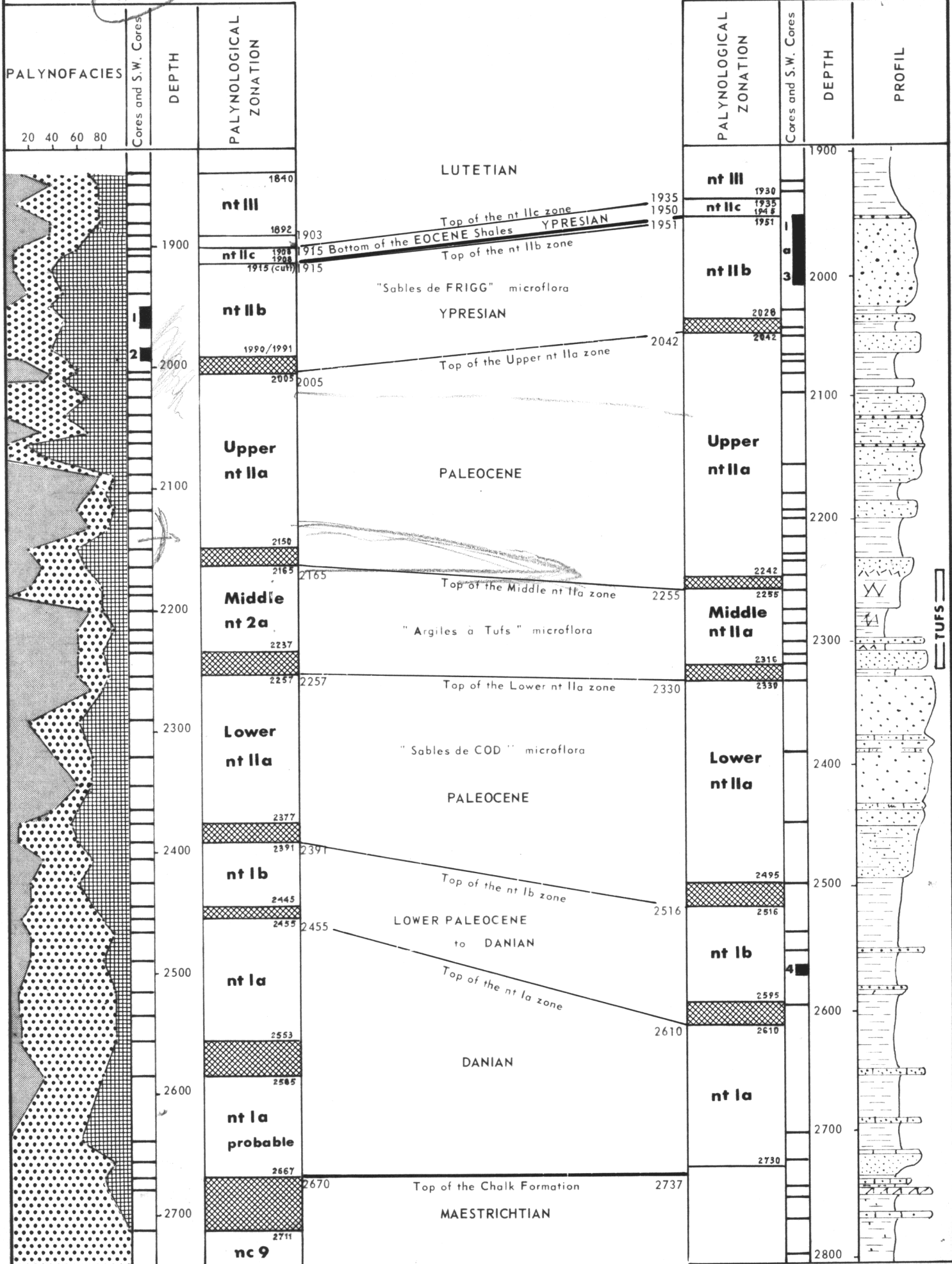
8 - 1897 - 1840 m - nt III ZONE

The nt III ZONE is particularly well defined at 25/2-1 and at FRIGG 25/1-3 because of the abundance of fossil marker D.353 A. This microflora characterises the LUTETIAN.

PALYNOLOGICAL CORRELATIONS BETWEEN THE WELLS 25/2-1 AND 25/1-3

FRIGG 25/1-3

25/2-1



Terminal depth 2743 m

- Amorphous organic matter
- Black fragments (coal)
- Plant cuticles and lignified woods

- Lithological correlations
- Palynological correlations