

CRETACEOUS AMMONITES OF WEST AFRICA

CRETACEOUS ammonites have long been known from many parts of West Africa, and some of the faunas, notably those of Angola, have been the subject of substantial works. Apart, however, from descriptions of Turonian and Coniacian faunas from the Mungo River, comparatively little has been published about the Cretaceous ammonites of Nigeria. With the publication, however, of Dr. R. A. Reyment's "Cretaceous Ammonoidea of Southern Nigeria and the Southern Cameroons"* we have for the first time a comprehensive monograph of the material from considerable areas of the country. Dr. Reyment figures about 135 species and sub-species, many of them new, ranging in age from Middle Albian to Maestrichtian. He supplies a great deal of new information of both palaeontological and stratigraphical importance.

The Albian faunas consist mainly of keeled ammonites of the Mortoniceratidae, most of them species already described from Europe, Angola, Zululand or Madagascar. The puzzling genus *Neokentroceras*, characterized by exceptional tuberculation in the small specimens which alone had been figured, is now shown to have outer whorls like those of many typical members of Mortoniceratinae, in which subfamily it must now be placed. One most surprising discovery was that of a new species of *Gyaloceras*, an inflated genus of Aconeceratinae, which was previously reported only from Queensland. Like most of the other genera of this subfamily of Oppeliidae, it will probably turn out to have a wide range.

The Nigerian Cenomanian has yielded few ammonites, but the Lower Turonian has produced abundant ammonites of great interest. These include, in particular, a wide range of genera and species representing the burst of radiation from the Acanthoceratidae which characterized the early Turonian.

* Reyment, R. A., "The Cretaceous Ammonoidea of Southern Nigeria and the Southern Cameroons", Geological Survey of Nigeria, Bulletin No. 25, pp. 112+25 pl., 46 figs. (Lagos). 20s.

Much light is thrown on the relationships of some genera that have been long but ill known. In addition, there are full descriptions of a number of new genera and sub-genera which fill in gaps in the story of this burst of radiation.

Most of the known forms of the families Tissotiidae and Vasococeratidae (two of the groups derived from Acanthoceratidae) characterize the deposits of the Tethys, the Cretaceous 'Mediterranean' and tropical sea, and it has been impossible to work out any accurate correlation with more northerly Turonian, characterized by other families of ammonites. Special interest therefore lies in Dr. Reyment's discovery, in association with *Hoplitoides* and *Neoptychites*, of a few specimens of *Watinoceras*, a genus which occurs in North America, England, Turkestan and perhaps Japan, and is a valuable stratigraphic indicator.

The later ammonites include an interesting group of Coniacian species, some already described by Solger, and some small and unremarkable Santonian and Maestrichtian faunas.

The author makes a sensible use of subgenera and subspecies. Thus, while he describes all the distinct forms, he avoids that inflation of taxonomic scale which is a common and dangerous tendency on the part, particularly, of those who have to deal with abundant collections of well-preserved fossils of rapidly evolving groups. No doubt among the reasons for this welcome restraint is the fact that the author is a member of the Geological Survey of Nigeria, in close touch with the field staff, and also has himself collected a large part of the material he describes.

The monograph is very well produced, admirably illustrated both with plates and line-drawings and written with a refreshing clarity and absence of 'ammonite jargon'. It will be of particular value to all who work on the African Cretaceous; but, as already indicated, its interest and importance extend far more widely.

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PROTEIN METABOLISM, RESPIRATION AND GROWTH*

A SYNTHESIS OF RESULTS FROM THE USE OF ¹⁴C-LABELLED SUBSTRATES AND TISSUE CULTURES

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Impact of Growth on Fresh Weight, Protein Metabolism and Respiration of Carrot Tissue Explants

The characteristics of the rapidly dividing cell might reside either in substances that are peculiar to the tissue treated with coconut milk or, alternatively, they may reside more in the *intensity* of certain processes than in their *nature*.

(* Continued from p. 734)

Therefore, one may ask whether the amino-acid composition of the protein in the rapidly dividing cells is different from that of the more resting cells. The amino-acid composition of the entire protein complement in the tissue was determined from the analytical data and the changes that occur with time may also be seen. To reveal the relative molar composition of the protein, the value of 10 was arbitrarily assigned to alanine. The composition of the protein under the different treatments and at