continue to grow as crystallites composed of interlayered cristobalite and tridymite. The ultramorphological data of Weaver and Wise[1] and the infrared and X-ray data of Calvert[4] seem consistent with a similar interpretation for the crystal structure of microspheres occurring in deep sea cristobalitic "cherts".

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Precambrian Stromatolitic Limestones from Northern Anglesey

IN describing the limestones in the Gwna group of the Precambrian Bedded Succession of Anglesey, Greenly[1] distinguished the Simple or "Cemaes" type from the Complex or "Llanddwyn" type. The Simple type is well exposed in a series of tectonically separated masses in the area east of Cemaes Bay (British National Grid map reference SH370940), within many of which a range of limestone varieties occur. These can be studied easily in the limestone mass forming the coastal headland north-west of Penrhyn-mawr (map reference SH37429397), which displays most of the varieties to be found in the Cemaes Bay area in easily accessible cliff exposures supplemented by sections in the walls of the now disused Gadlys quarry (map reference SH37359405). Greenly reported oolitic structure to be "not uncommon" in the Simple type of Gwna limestone, stating that it "is highly developed at Cemaes Bay where the rock is, locally, a true pisolite". He also described a fine parallel bedding which "can sometimes be seen on the margins of the massive rock" and referred to some of the rocks as "laminated limestones".

Recent studies of the Gwna limestone east of Cemaes Bay fail to confirm the observation of oolitic structure. Rocks from this area with a superficial resemblance to oolitic limestones ("pseudo-oolitic limestones") contain rounded bodies of uncertain, though possibly organic, origin, but rarely any true ooliths. These pseudo-oolitic limestones are closely associated with algal mat (stromatolitic) limestones and possibly the "fine parallel bedding" of Greenly represents his description of the structure now interpreted as stromatolitic. Some fragments present in the pseudo-oolitic limestones are merely reworked fragments of the stromatolitic limestones and thin section study clearly demonstrates the clastic nature of those bodies in the rocks interpreted as ooliths by Greenly. The so-called true pisolite more closely resembles the flat-pebble conglomerates recently described by Vidal[3] in association with the stromatolitic limestones of the late Precambrian of Sweden.

Stromatolite colonies are particularly well developed in the Penrhyn-mawr mass, though they are less obvious in field exposure than on acid-etched broken surfaces of the rock. Non-distinctively layered stromatolites, of the type known to have an extensive time range, are those usually encountered in these rocks, but examples of columnar stromatolites have also been found. These are of especial interest in view of the suggestion, recently explored by Cloud and Semikhatov[4], that Precambrian limestones might be dated by means of their contained columnar stromatolites, some of which have been shown to have more restricted time ranges than the non-distinctively layered varieties[5–7].

The age of the Bedded Succession in Anglesey, including the Gwna group, is not well known. The Precambrian age has been established by radiometric dating of the Coedana granite which intrudes rocks of this succession and has yielded a minimum age of 580 m.y. (ref. 8). Attempts at direct radiometric age determination of members of the Bedded Succession have been foiled by Caledonian overprinting and in these circumstances a "palaeontological" dating of a member of the Bedded Succession would be particularly useful. The variety of forms of stromatolite colony found in the Penrhyn-mawr rocks suggests, in general, a late Proterozoic age (900 ± 300 m.y.), though more careful study of the stromatolite forms than has yet been possible may well permit a more precise dating than this. As geochemists we are ill-fitted to attempt such a study and, accordingly, we draw the attention of our palaeontological colleagues to this intriguing group of limestones.

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Structure of Graphite

IT has been commonly accepted that graphite is made up of layers in which carbon atoms form trigonal and π bonds with three neighbouring atoms, the bond lengths (1.421 Å) and bond angles (120°) being equal. The two-dimensional unit cell is hexagonal and the conventional unit cell is a 60° rhombus containing two atoms. Under these conditions three possible coordinate pairs can be assigned for the two atoms belonging to the two-dimensional unit cell:

$$\left(0,\,0;\,\frac{1}{3},\,\frac{2}{3}\right),\ \left(0,\,0;\,\frac{2}{3},\,\frac{1}{3}\right),\ \left(\frac{1}{3},\,\frac{2}{3};\,\frac{2}{3},\,\frac{1}{3}\right).$$

If the layers are stacked in such a manner that any of the two pairs alternate, the sequence is termed A-B-A-B-A- . . . ; if all

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