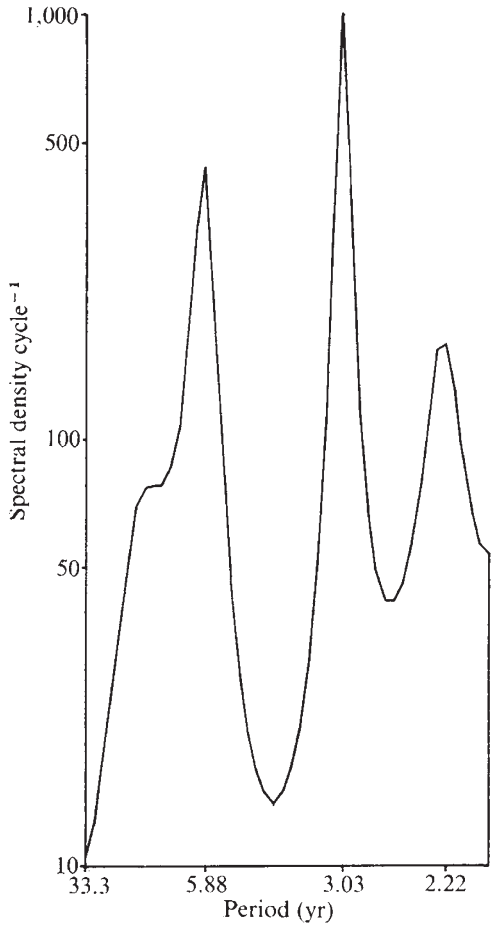

Fig. 2 Showing the spectrum of residuals when annual rainfall totals are regressed on the mean latitude of the surface high pressure belt for January in a current year, and June, March and February of the preceding year.

for January of a current year, with regression coefficient equal to −15.24.

(2) As above, but for June, March and February of the preceding year, with regression coefficients −9.31, 19.41 and 13.96 respectively.

(3) A linear term in time with regression coefficient 3.69.

(4) A constant term equal to −422.82.

(5) A trigonometric function having periods of 6.0 and 3.0 yr with cosine and sine coefficients 7.28 and −49.03, and −47.82 and 39.04 respectively.

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"Upper Jurassic" sediments of South Africa

MARINE sedimentary rocks exposed near Knysna in the Cape Province of South Africa were assigned to the Upper Jurassic on the basis of a fragment of an ammonoid and seven previously undescribed species of ostracod[1]. A more thorough examination of the microfossils in these rocks indicates that this assignment was erroneous and that the beds are of Early Cretaceous, probably Hauterivian, age[2]. This age determination was based on identification of fifty species of palynomorph, five species of calcareous nannofossil, and twelve species of foraminifera. Both the palynomorphs and the foraminifera indicate a correlation with the upper part of the Sundays River Formation, a unit reliably dated as Valanginian to Hauterivian. The nannofossils indicate a Valanginian or Hauterivian age.

Ordinarily, a slight error in the age of a few small exposures in a remote portion of the globe would not be a matter of significance. These were the only marine sedimentary rocks of Jurassic age known from South Africa, however, and their age was considered to be important for timing the break-up of Gondwanaland[3]. In a very superficial search of the literature, we noted numerous citations of the Jurassic age (see refs 3–7). It was therefore thought desirable to bring to the attention of those concerned with the problems of Gondwanaland rifting that there are no marine sedimentary rocks of known Jurassic age in South Africa.

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Cyanophycean nature of stromatoporoids

STROMATOPOROIDS are calcareous fossils abundant in many Palaeozoic (mainly Silurian and Devonian) shallow-water carbonate sediments. Forms ascribed to stromatoporoids have also been reported from Mesozoic epicontinental and tethyan carbonate deposits[1]. The nodular, tabular or cylindrical and, generally, vertically laminated calcitic skeletons of stromatoporoids (Fig. 1*a*), ranging in size from a few mm to >1.0 m, are internally formed of curved plates, short or long pillars and vertical walls. A characteristic feature of many stromatoporoids are stellate structures, a few mm to 6–7 cm across, termed astrorhizae. In spite of 150 yr of investigation the systematic position of stromatoporoids is still controversial. They have been variously interpreted as foraminifers, sponges and hydrozoans[2,3] with discussion on the latter two groups bearing particularly on the interpretation of the skeletal morphogenesis[4,5]. New discoveries[6] of peculiar modern sponges with mixed calcareous and spicular siliceous skeletons (Sclerospongiae) reopened discussion on the relationship of this group to stromatoporoids, initiated at the beginning of the century by Kirkpatrick[7,8]. Hartman and Goreau's suggestion[9] has been taken up and supported by Stearn[5,10] and Wendt[11]. Stearn argued that stromatoporoids should be recognised as a separate subphylum of the Porifera. Wendt similarly regarded stromatoporoids as

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