

Cann J R. Spilites from the Carlsberg Ridge, Indian Ocean. *J. Petrology* 10:1-19, 1969.  
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**A suite of rocks dredged from the Carlsberg Mid-Ocean Ridge in the Indian Ocean proved to belong to an enigmatic, controversial, and widely-discussed group of rocks, the spilites. The oceanic setting enabled closer constraints on their origin than had been possible previously. [The *SCI*<sup>®</sup> indicates that this paper has been cited over 105 times since 1969.]**

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"As part of the great Indian Ocean Expedition of the early 1960s, the marine geology group at Cambridge, then led by Maurice Hill, examined in unprecedented detail a small area in the crestral region of the Carlsberg Ridge, the mid-oceanic ridge of the Northwest Indian Ocean. Mid-ocean ridges were already suspected as having something to do with continental drift, but the ideas of sea-floor spreading were still in their infancy and plate tectonics was a term still uncoined. Drum Matthews, sailing on the *HMS Owen*, carried out the initial survey work. Then Maurice took the newly-commissioned *RRS Discovery* out in the summer of 1963 for more detailed experiments. Maurice felt very strongly that though geophysical experiments were elegant and informative, it was important to find out something about the rocks on which the measurements were being made. This was an unfashionable view at the time, but I had been drafted into the Cambridge group to do this. All that were needed were some rocks to work on. These proved very

elusive. The area was one of erratic and often strong currents, and neither the dredging equipment nor the techniques were as good as they have since become. After many attempts only three stations were successful, one bringing up seven pieces of basalt, one three blocks of manganese-encrusted gabbro, and one 21 small pieces of rock, none larger than 15 cm across. Maurice returned very apologetically to Cambridge, where I had stayed to get married, but when the rocks turned out to be spilites his apologies were unnecessary.

"I cannot explain in detail here the great spilite controversy to which this paper contributed. A book has since appeared on the theme, containing many views, mostly divergent from mine, and contributing a solid core of disagreeing citations.<sup>1</sup> Essentially the question is whether these rather unusual lavas, mostly erupted beneath the sea as their pillowed shape shows, were erupted already as unusual lavas, or whether their character has been formed by later alteration affecting quite ordinary submarine lava flows, as I argued. Because of the oceanic setting, and the results of other oceanic dredging operations, I could produce arguments that had not previously been applied in this long controversy, and this is probably why the paper is often cited on one side or the other, though many people are still firmly convinced that spilites are primary lavas.

"Though this paper has had a certain mild success, it is insignificant beside the other piece of work that was carried out in the same area of the Carlsberg Ridge. This was Fred Vine's work on the magnetic anomalies, which was the basis of his and Matthew's famous paper on magnetic anomalies and sea-floor spreading, and which played such a major part in the revolution in the earth sciences of the 1960s."<sup>2</sup>

1. Amstutz G C, ed. *Spilites and spilitic rocks*. Berlin: Springer, 1974. 482 p.

2. Vine F J & Matthews D H. Magnetic anomalies over oceanic ridges. *Nature* 199:947-9, 1963.