(4,1) bands are considerably weaker than the Q branches. This effect seems, however, to be a consequence of the more rapid convergence of the lines of the R branch of a $\Delta v = 4$ band compared with the $\Delta v = 3$ bands. There is no evidence that the (0,2) atmospheric oxygen band (9967 A.) is present with any intensity, since this band should give rise to maxima near 9948 and 9986 A.

It is also satisfactory to note that there is no sign of the (10,6) band, which would fall in this region if it were present.

In view of the general appearance of the bands and of the excellent agreement between observed and calculated wave-lengths, there can be little doubt that the night-sky emission in this region is almost entirely due to the OH rotation-vibration system.

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Identification of Water-Masses by their Suspended Matter

In the often very difficult task of following the movements of coastal and oceanic water masses, much use has been made of the temperature, the salinity and the amount of oxygen in solution. In special cases the concentrations of silica or of hydrogen ions may give useful information.

The transparency is important, and Jerlov's brilliant work on the Swedish Deep Sea Expedition of 1947–48, and in Swedish coastal waters, has shown the great value of the visual determination of the scattering of light in the Tyndall beam as a guide to the amount and type of suspended matter. Poole and Atkins, too, have studied this scattering using a photomultiplier tube, set at various angles to the beam, the light of which they found was mainly scattered forward.

During September 1951–July 1954 we filtered water, usually two litres, from station *E*1, 10 miles south-west of the Eddystone, through collodion ('Gradocol') disks. Photographs of such disks were prepared[1], and we pointed out that the diffuse reflexion (albedo) of the disks relative to a similar disk treated with distilled water was a good measure of the amount of suspended matter. Save during a phytoplankton outburst, the intensity and colour of the disks were only slightly influenced by the living cells, which if necessary can be decolorized in 80 per cent aqueous acetone.

The basis of the suspension was an amorphous mud, usually some shade of grey. The albedo was determined photoelectrically; and using blue, green and red light filters we obtained colour factors also[2]. But with the aid of colour charts, such as those of Klincksieck and Valette, or of Ridgway, such as could quite easily be used at sea, we were also able to describe the grey, yellowish or even chocolate colour of the disks, various samples matching Klincksieck's[3] Nos. 115–120, 128, 142, 147, 153*D*, and Ridgway's[4] Plate 3, Nos. 12, 15, 18, 19, 20, 23. In October 1952 and 1953, the light buff to chocolate tint was observed when the water had become isothermal. This is probably due to a ferruginous suspension, such as might have come from the Lower Old Red Sandstone of the nearest land or—as it appeared infrequently—from the Permian Red Sandstone between Torquay and Exmouth.

The petrological examination of the suspended matter has been undertaken by Dr. A. G. Lowndes, who kindly identified some of the particles for us. Especially important was his finding of the very insoluble microcline on disks from station *E*1, on March 29, 1954. Its refractive index is low, 1·52. It was most abundant on the 5-m. disk; this suggests that it had come out in fresh water and was slowly settling. He directed our attention to the fact that this mineral has one cleavage plane developed more strongly than the other two, and so tends to split into small plates which settle only slowly. Such suspended matter may therefore be carried very far from land, as may also the fine amorphous suspension, which Dr. Lowndes found to be kaolin.

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Antioxidant Activity of Redox Dyes

Further evidence has been obtained to support the hypothesis that certain redox dyes, having partial vitamin E activity, can inhibit the catalytic action of hæmatin in the oxidation of unsaturated fats[1].

It has previously been shown[2] that methylene blue inhibits *in vitro* hæmatin-catalysed oxidation of unsaturated fats. In the present work the effect of new methylene blue, malachite green, rosaniline, Bindschedler's green and methyl violet on the rate of cod-liver oil oxidation catalysed by 5×10^{-4} *M* hæmatin, at 37° C., was determined by this same method[2]. The concentration of each dye causing inhibition of the oxidation reaction is given in Table 1. These results demonstrate that all these

Table 1. Inhibition of Hæmatin-catalysed Oxidation of Cod-Liver Oil by Redox Dyes

Redox dye	Conc. of dye, $\times 10^{-4}$ *M*	Inhibition (per cent)
Malachite green	12·5	26
Rosaniline	9·2	50
Methyl violet	8·7	50
New methylene blue	6·5	50
Bindschedler's green*	6·4	50

* Dissolved in 25 per cent (vol./vol.) aqueous pyridine.