

2: The unexplained mysterious lights in the sea

THE LUMINESCENCE in wakes and bow waves is easily interpreted, but some phenomena are real enigmas. Two dramatic examples reported by seafarers are "milky sea" or "white water" and "phosphorescent wheels". Milky sea luminescence occurs almost exclusively in the Arabian Sea area in July-September. Eyewitnesses report that "The sea was one sheet of glowing light, the colour of milk, reaching from horizon to horizon, giving the impression we were proceeding across a huge flat field of snow" and "The sea . . . appeared to be illuminated from beneath. The effect was that of a snow-covered field". Luminous bacteria are the only marine organisms that glow steadily, and they might be responsible. Bacteria in *dilute* populations do not luminesce; only when the bacteria are present at high densities is the luminous system switched on. It is doubtful whether such conditions ever

occur in the open sea but it is just possible that they might arise in the presence of a surface scum of organic material following a phytoplankton bloom. Such blooms do occur in this area at this particular monsoon period, so it remains a plausible explanation.

"Phosphorescent wheels" are even more dramatic. Bands of light, either in parallel or as spokes radiating from a hub, sweep past the vessel at great speed (several metres per second). The "wheels" so formed may range from a few metres in diameter to several hundred metres. Several may be seen at once, and they may rotate in different, and variable, directions. Again, in the words of eyewitnesses, "At first (the bands of light) appeared in perfectly parallel lines . . . passing the ship about once every second, but after five minutes they wheeled round . . . and approached the ship from all points of the compass. The shafts

occasionally formed into a rotating radial movement. On one occasion two distinct wheels were visible. The whole effect was of great weirdness and eeriness, so much so that the lookoutman came on the bridge quite scared, believing he was suffering from hallucinations." Another observer noted that "the Chinese quartermaster became panic-stricken, left the wheel and did not return until he had been called three times". One hypothesis is that the luminescence is caused by seismic activity beneath the seabed. The patterns observed are interpreted as interference patterns between multiple shock waves stimulating the luminous plankton. Another author regarded the "wheels" as optical illusions caused by problems of perspective. Neither theory adequately explains all the features of the sightings, and phosphorescent wheels remain one of the unsolved mysteries of the sea. □