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## MARINE NOTE

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### PROBLEMS IN RESEARCHING HISTORICAL WEATHER AT SEA

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Arthur Blackham (1)

A recent case hinged on the set and drift of a helpless vessel. It was a tanker loaded with crude oil and she had suffered a major engine break-down which could not be repaired at sea. A tug was sent for and when it arrived the tanker was taken in tow and was towed to its destination without incident. However, the tug company later claimed that, had it not taken the vessel in tow, the tanker would have been driven on shore by prevailing winds, causing millions of pounds worth of damage from pollution to holiday beaches, etc. The vessel's owners and their insurers then asked for expert assistance to enable them to resist the claim. The analyst assessed the wind direction and speed, the set and drift of the current and calculated the drift of the tanker each day. His investigation found that, shortly after the tug took the tanker in tow, the wind direction changed and that beaching would not have occurred even if the vessel had not been taken in tow. The claim was dropped.

That case involved the probable pollution of beaches by a ship's cargo. Other cases involve damage to the cargo itself, or time charter penalties. When these cases depend on weather conditions it is then necessary to obtain an assessment, independent of the routine reports made by the vessel itself. Over the sea that assessment can call for a higher degree of skill than a similar assessment over the land.

There is a global network of weather stations over the land, reporting at regular pre-agreed times, with instrumentation for pressure, temperature, wind speed, cloud base and visibility. All these records are archived by State Services and can be readily retrieved. Over the oceans it is a different matter. Weather reports come from Data Buoys around the American coast, one weather ship to the west of Ireland, widely scattered Data Buoys off the European coast, and oil platforms and wave-rider buoys in the shallower water. Some assistance is also given by an American programme which estimates wind speed at cloud level from the movement of the clouds in the Tropics as seen from a satellite. Data from drifting buoys in the Southern Hemisphere can be obtained through Argos, the French system which uses satellites to access the data. But the main bulk of reports come from the Voluntary Observing Fleet. Ships from all nations participate in the scheme and while many ship's officers are conscientious observers there are several inherent problems with ship reports. Firstly, outside of the standard shipping routes, they are spatially random. Secondly, they tend to be made mostly during daylight. Thirdly, they suffer from the difficulty of measuring the three most critical parameters—wind speed,

wave height and wave period. Some ships do carry anemometers but readings are suspect due to the forward motion of the ship and to accelerations caused by the vessel's reaction to wave forces. So, usually, wind speed, wave height and wave period are subjectively estimated by the ship. Consequently the interpretation of a plotted, analysed synoptic chart requires a high degree of oceanographical and meteorological experience as well as a knowledge of marine practice. Wave heights and periods are a particular problem. A wind field can be estimated from the pressure pattern and speeds can be used to calculate wave height from wind/wave theory but another problem arises because there are a number of such theories, which yield different answers.

Marine weather investigations can be carried out by a number of private and state organisations both in the UK and abroad. At the forefront of these is Noble Denton Weather Services Limited. The name of Noble Denton has been known and respected at Lloyds and similar institutions around the world for the past quarter century. Operating as marine consultants and ocean engineers it is associated with quality and high professional standards in the field of marine loss prevention. Noble Denton Weather Services Limited, a prominent member of the Noble Denton Group maintains the same standards as its parent Company and follows its tradition by devoting much of its work to marine operations. It is in that field that they have the widest experience and in which they have day-to-day involvement with mariners, naval architects and ocean engineers in a wide variety of global projects, ranging from location moves of a mobile drilling rig to the tow-out and emplacement of a 1,500,000 tonne oil platform. The team which handles marine legal enquiries is qualified and skilled in meteorology, oceanography and climatology with at least ten years of experience of working in the marine environment.

#### NOTE

1. Captain Arthur Blackham has been with the Noble Denton Group since 1976, serving in various capacities from Associate to Managing Director to his current position as Consultant. Captain Blackham began his career in the maritime service, progressing from Apprentice to Master Mariner. In 1952, he left the marine service, to begin his work as a meteorologist in the British Met Service, where he served until 1976. Captain Blackham's specialties include forensic work involving shipping, ship routing and towing.