ON THE ARAB SYSTEM OF NAUTICAL ORIENTATION.

BY

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THE CLASSICAL SYSTEM

The Arab system of navigation in essentially one based on sailing techniques used on the Indian Ocean and in the adjacent Waters. So different were the weather and sea conditions on the Mediterranean, and so dissimilar both the vessels and methods in use there, that the two traditions never converged.

The sailing directions, rules of navigation and astronomical observation, as well as theoretical knowledge necessary for determining the course and location of the ship are recorded in late fifteenth—early sixteenth century nautical manuals by the most celebrated of all Arab pilots Ahmed ibn Majid and his later contemporary Sulayman al-Mahri, of scholastic rather than practical inclination. That techniques of...
navigation described therein remained in popular use until the present century is attested by European travelers, colonial servants and army officers, etc. 3.

The most important feature of this traditional system of navigation which distinguishes it from the modern methods now widely accepted by the Indian Ocean seamen was the use of stars (in preference to the sun) for all purposes of orientation, including measurement of latitude 4. The latitude was customarily determined by the altitude of the Pole star; when sailing in equatorial waters or in the southern hemisphere, one had to substitute for it certain stars of the Great or Little Bear in culmination 5. The longitude could not be established from star observation with a great degree of precision, as stars give navigators no indication of longitudinal displacement. This could be to an extent compensated by a complex system of control measurements of the altitude of a number of well-known stars 6; usually, however, the change in longitude had to be computed trigonometrically, by estimating the bearing and distance made good. The bearing was determined by the rhumb of the Arab sidereal compass most closely corresponding to the chosen direction.


4 Modern practice of solar observation on the route to India previously described by Ahmad ibn MAJID is insisted upon by 'ISA AL-QITAMI, Dalil al-mukhtār fi ‘ilm al-bihār (Kuwayt, 1383/1963); see also M. KAPLAN, «Twilight of the Arab Dhow», National Geographic Magazine, September 1974, vol. 146, No. 3, esp. pp. 336, 343. The more recent Cargoes of The East by E. B. and C. P. MARTIN (Elm Tree Books, 1978) discusses dhow commerce in the western Indian Ocean but contains no information on the use of navigational techniques.

5 The use of the North Star, according to Marco Polo, began at Cape Comorin (8°5’ N); the use of the Guards and the Big Dipper is described in TIBBETS, 1971, pp. 331-339, and L. DE SAUSSURE, «Commentaire des Instructions nautiques de Ibn Majid et Sulayman al-Mahrî», Introduction, pp. 134-140.

6 About qiyas measurements, see TIBBETS, 1971, pp. 339-354. In Kitâb al-Fawâ’id Ahmad ibn MAJID names almost 200 stars; for practical purposes, it probably sufficed to know 50 to 60. Cases of confusion and ignorance of stars were not unknown (see TAYLOR, p. 126).