

Notwithstanding their frequent voyages in Indian seas, many of the Arabs continued to hold the erroneous idea enunciated by Ptolemy regarding the morphology of that ocean. That celebrated geographer, as we have seen, regarded the eastern coast of Africa as advancing towards the east beyond the peninsula of Malacca to the south of China, instead of taking a southern trend from the promontory of Rhaptum, near Zanzibar. Many Arabs, then, looked on the Indian Ocean as a Mediterranean—an enclosed sea; some of them even regarded the Indus and the Nile as branches of the same river. Cape Guardafui did not exist with them; from that point the African land turned to the east, the coast of Zanzibar was placed opposite the Indus, that of Sofala faced Ceylon, and Madagascar approached so closely to the islands of the Straits of Sunda as to coalesce with Java or Sumatra. Such are the features presented by the Indian Ocean on the planisphere of Edrisi, the best known of oriental geographers, constructed for Roger of Sicily in 1154. This false idea was perpetuated for a very long time among the Christian nations of the Middle Ages.

GEOGRAPHICAL
NOTIONS OF THE
ARABS.

While Greek theory continued to hamper the Arabs, some writers in the early part of the ninth century, for instance Ibn-al-Fakih, held just views.¹ The Indian Ocean was sometimes regarded as communicating with the all-encircling ocean by a strait in the extreme east, and sometimes widely continuous with the encircling ocean. Nearly all writers agree that there is a great sea to the east of Asia, Arab merchants having traded as far as Japan and the Corea. Yacut states that the Sea of Zanzibar and the Indian Ocean are identical, and communicate with the encircling ocean. Travellers had told him that they had gone so far to the south that the pole star and great bear were lost to sight, and the south pole and canopus were high in the heavens. All the seas, according to Yacut, except the Caspian, communicate with the encircling ocean which

nature, will probably be no more; and it will be then that mankind shall reap the benefit of the labours of such learned men as Friar Bacon, and do justice to that industry and intelligence for which he and they now meet with no other return than obloquy and reproach" (see Major, *Prince Henry the Navigator*, pp. 58, 59). Vivien de St. Martin (*op. cit.*, p. 247) says it is quite indisputable that the Arabs received from the Chinese the knowledge of the compass. He adds:—"It was through the Arabs that it arrived among the sailors of the Mediterranean at the time of the second crusade, although there is a want of precise information on the subject." Peschel (*op. cit.*, p. 205) is not so affirmative with respect to this matter; he says:—"That the magnet arrived in Europe from China directly or by the hands of the Arabs has never been thoroughly established." To demonstrate that the Arabs had been the intermediaries, it has been usual to found upon the fact that Albertus Magnus (*De Mineralibus*, lib. ii. tract iii. cap. 6: Lugd. 1651, tom. ii. fol. 243), employs the words *Aphron* and *Zoron* to designate the south and the north, and that these words are of Arabic origin. Peschel, relying on the authority of Reinaud (*Aboulféda*, p. cci.) and of Santarem (*Hist. de la Cosmographie*, tom. i. p. 295), holds that these expressions are borrowed from the Hebrew (see S. Ruge, *Geschichte des Zeitalters der Entdeckungen*, Berlin, 1881, p. 39). The magnet may possibly have been a Norman discovery. The Italian *bussola* and French *boussole* come, it has been said, from the Flemish *boxel*, hence the expression to box the compass. Flavio Giogo, of Amalfi, in 1307, probably first swung the compass on a pivot. The compass is mentioned as early as 1100 A.D. (see Hallam, *Middle Ages*, vol. iii. p. 394). Alexander Neckham, an English writer of the twelfth century, describes the compass carried by ships (see *Nature*, vol. xiv. pp. 147-148, 1876; Lindsay, *History of Merchant Shipping and Ancient Commerce*, vol. i. pp. xlii., xliii.).

¹ According to Ibn-al-Fakih (ca. A.D. 900), there are four seas,—(1) the Great Sea, which extends from Maghrib to Kolzom (Suez) and to the Wak-wak Islands of China (Japan); (2) the Mediterranean,—the Western or Roman Sea; (3) the Caspian; (4) the unnavigated sea of Thule, between Rūmia and Khawārezm (Ibn-al-Fakih, Leyden, 1885, p. 7).