GEOGRAPHY AND COMMERCE

Were we to draw a map of the political condition of Europe, Africa, and western Asia about the middle of the tenth century of our era, we should see that by far the greater part of that 'inhabited world', which the Greeks called the 'oikoumene', was occupied by countries possessed of an Islamic government and an Islamic civilization. They no longer constituted a strict political unity, but they were connected by such strong ties of common religion and culture that their inhabitants—and not only their Muhammadan inhabitants—felt themselves citizens of one vast empire, of which Mecca was the religious, and Baghdad the cultural and political centre. This vast empire had grown in the three foregoing centuries from a series of conquests that started originally from Medina. Arabia was its centre. To the west it comprised Egypt with the entire northern coast of Africa, including the Atlantic coast as far as the Anti-Atlas and, further, nearly the whole of Spain (with the exception of Asturia), and the islands of Sicily and Crete. Sardinia and Cyprus, too, were constantly exposed to Muhammadan attacks; so was also the southern Italian coast, where some towns, like Bari, were actually under Islamic rule, while others, like Amalfi, belonged to its sphere of influence. To the north of Arabia, Syria with Armenia and the south-east of the Caucasus belonged to the permanent possessions of Islam; and, farther to the east, Mesopotamia with 'Iraq, followed by the whole of the territory of modern Persia with Afghanistan. Northward of these countries, again, Transoxania belonged to Islam, including in the west the delta region of Khwarizm, and, in the east, the valley and the mountains of Farghana. The Indus had been crossed already in the eighth century; the regions on its lower course belonged, with Sind, to the Islamic Empire. Only in the southward direction did the territorial
extension of Islam in Africa scarcely exceed the latitude of Aswān in Egypt.

'The length of the Empire of Islam in our days extends from the limits of Farghāna, passing through Khurāsān, al-Jīhāl (Media), 'Irāq and Arabia as far as the coast of Yaman, which is a journey of about four months; its breadth begins from the country of the Rūm (the Byzantine Empire), passing through Syria, Mesopotamia, 'Irāq, Fārs and Kirmān, as far as the territory of al-Manṣūra on the shore of the sea of Fān (the Indian Ocean), which is about four months' travelling. In the previous statement of the length of Islam I have omitted the frontier of the Maghrib (northern Africa) and Andalus (Spain), because it is like the sleeve of a garment. To the east and the west of the Maghrib there is no Islam. If one goes, however, beyond Egypt into the country of the Maghrib, the lands of the Sūdān (the Black) lie to the south of the Maghrib and, to its north, the Sea of Rūm (the Mediterranean) and next the territory of Rūm.\(^9\)

These are the words of the geographer Ibn Ḥauqal, writing about A.D. 975.

Although the regions enumerated above do not coincide at all with, and are even smaller than, the countries now inhabited by a Muhammadan population, the fact that they constituted not only a religious but also a politically powerful block, brought together and kept together by force of arms, enabled them to hold the position of a strong central power in the world then known.

If we consider, on the other hand, the geographical and political conditions of the Christian European world of those days, we immediately realize to what extent in reality the latter must have been dependent on the huge Islamic Empire. To the south the Mediterranean, at that time under the domination of the rulers of the Muhammadan shores, formed an insurmountable barrier; to the east the Byzantine Empire stood face to face with Islam in Armenia; the northern Caucasus and eastern Europe were the home of half-civilized nations that were at least as much under Muhammadan as under Christian influence. Only in the north of Europe the heathen Northmen were at the beginning of their powerful extension, which was largely to contribute, in the twelfth century, to the annihilation of the political and economic hegemony of Islam.

The relative geographical position of the pilgrimage centres of the two rival religions was quite different. Jerusalem, the ideal religious centre of Christian Europe, had since A.D. 638 been under the control of the Muhammadans, but the Muhammadan conquest had not put an end to the pilgrimages undertaken by European Christians to the Holy Sepulchre. The first pilgrims of whose travels accounts have come down to us, were the Frank Arculf (c. 680), the Saxon Willibald (c. 725) and a certain Bernard, who started c. 870 from Rome on a pilgrimage. No doubt they were not the only ones that contributed to the maintenance of knowledge about the countries conquered by Islam. The relations of the Christians in the Byzantine Empire with their co-religionists in Egypt, Syria, and Mesopotamia must have been very important in this respect.

In the Islamic world matters were quite different. Mecca, the centre of pilgrimage, occupied a central geographical position in Islam itself. The pilgrimage or ḥajj to Allah’s house was one of the five ‘pillars of Islam’, according to the Sacred Law, and Muhammadans from all parts of the Islamic Empire met at that place. So the ḥajj became not only a powerful factor in promoting religious unity, but it also materially assisted in strengthening the ties of commerce between all Muhammadan countries, and disseminated among Muhammadans a fairly good knowledge of all parts of their world. To the ḥajj was due the compilation of a number of itineraries, in which the stations and stages of the roads leading from different countries to Mecca were indicated. There was, however, a great ignorance of, and lack of interest in, the non-Muhammadan parts of the known world.

Nearly a millennium has passed since the cultural horizon of
Christian Europe was bounded in nearly all directions by Islam. In the meantime Europe has circumnavigated and pierced the barriers that separated it from the southern and eastern parts of the known world, not to speak of the unknown world. Europe owes much to its own force and initiative, but it has also largely profited by the knowledge and the experience of those who were at one time the masters of the world. Therefore Europe ought to look upon them as its cultural ancestors in the domain of geographical knowledge, of discovery, and of world trade. The influence which Islam has exercised on our modern civilization in these spheres of action can be seen in the many terms of Arabic origin which are to be found in the vocabulary of trade and navigation. The measure of this influence can only be proved by studying the historical development of the domain over which our actual geographical knowledge extends. For modern geography is a science so positive and independent of tradition that it all but excludes the more or less correct views of former ages; I say 'all but', for it is only just to remember the fact that, when Jahnert in 1840 edited his French translation of Idrīsī, it was thought not unlikely that this edition might increase geographical knowledge of the world, and especially of Africa.

The study of the historical influence of our Islamic cultural ancestors on our knowledge of the world is not without its difficulties, because it is not always easy to ascertain how far the geographical knowledge of the Muhammadans was based on personal observation, how far they actually went on their voyages, and what was the extent of their commercial relations. This statement may cause surprise in view of the fact that from the ninth to the fourteenth century a considerable and important geographical literature was produced in Arabic. But what the bulk of this literature has to offer us is only the official science of scholars and literary men. However observant these writers may have been of the regions and peoples which they visited, and with however much interest they may have listened to the travellers and sailors from whom they derived their information, they were still more or less captivated by ideological religious and traditional views, which prevented them from seeing certain facts in their true light, even if their opinion was much less prejudiced than that of the Christian scholars of the 'Dark Ages'. Apart from this official and literary science there was the great naval and geographical experience of seafarers and merchants. The literary men certainly profited by their knowledge, but it appears sometimes from their own writings that the less pretentious traders and navigators were less prejudiced than themselves. Now it is this more humble kind of people whom we must consider as the principal mediators and teachers in the relations between Islam and medieval Europe. The big Arabic geographical works appear to have had practically no immediate influence on medieval geographical views, except in so far as astronomical geography is concerned.

We must not omit, however, to give a survey of the way in which the vast geographical knowledge of the Muhammadans was reflected in Arabic literature. In the first 150 years of Islam geography as a science was certainly not superior to what we observe in the Christian world. Curious opinions are reported, on the authority of contemporaries of the Prophet, concerning the length of the world and its parts, the sources of the Nile, and so on. Among them we meet with the comparison of the world to a bird, whose head is China and whose tail is north Africa. The Qurān itself contains a geographical indication in the twice recurring statement that God has separated the two seas by an insurmountable barrier (xxv. 55; lv. 19, 20). These words are interpreted by the scholars as alluding to the Mediterranean and the Indian Ocean, including the Red Sea, which interpretation is probably correct. There is little doubt that this theory of the two seas is of Persian origin, and its
occurrence in the Qurān has elevated the theory to a dogma, which has dominated to a great extent all Muhammadan geographical literature and cartography.

The scientific study of geography in Islam began under Greek influence. One result of the widespread activity in translating Greek works, which, at the beginning of the ninth century—especially in the reign of the Caliph al-Ma’mūn (813–33)—made the Muslims the spiritual heirs of Hellenism, was that they became acquainted with the geographical work of Ptolemy; and Ptolemy’s doctrine of the prolongation of the east coast of Africa to the East fitted very well into the theory of the two seas. We possess no early Arabic translation of the text of Ptolemy, but there exists an adaptation of this work, made about 830 by the astronomer al-Khwārizmī; the map which must have accompanied his text is lost. Al-Khwārizmī’s longitudes and latitudes go back for the greater part to Ptolemy, but the book gives also the geographical positions of such places as originated after the conquest of Islam. It is not certain if the latter indications are due to new astronomical observations; we only know that the Caliph al-Ma’mūn had ordered the measurement of a geographical degree in the Syrian desert and that the same caliph had caused to be executed by seventy scholars—amongst whom was al-Khwārizmī—an ‘image of the earth’, of which a description is still extant in a work of rather late date. So we may assume that al-Khwārizmī’s book already contained the results of the research of Islamic scholars. It bears, moreover, traces of other influences, such as the division of the inhabited world into seven zones or climates, which does not appear in Ptolemy. Traces of the doctrine of the seven climates are no doubt to be found among Greek scholars, perhaps as early as Eratosthenes. It is probable, however, that this theory of the division of the inhabited world was of Persian-Babylonian origin and this may account for the predominant place it has occupied in much of the geographical literature of the Muham-

madans, who were more receptive of Eastern traditions than the Greeks.

But the world image, that had made its entry with Ptolemy into the Muhammadan world, did not accord very well with the idea which the citizens of the new Islamic Empire must necessarily have formed of the world. They had no objection to the spherical form of the earth—then denied by many Christian theologians—neither did they see the necessity of affirming it. This explains the fact that very soon Islamic geography and Islamic astronomy went their own ways. The astronomers, such as al-Farghānī (c. 860), al-Battānī (c. 900), Ibn Yunus (c. 1000), and the great al-Birūnī (c. 1030), continued to give geographical tables of longitudes and latitudes, following the division of the seven climates, but they added little or nothing to the actual knowledge of countries. Such knowledge was gained from a description of countries and itineraries, so useful for the administration of the Empire, of which those to Mecca have already been mentioned. Thus, already in the course of the ninth century, several descriptions of countries came into existence under such titles as ‘The Book of Countries’, or ‘The Book of Roads and Kingdoms’. The chief writers of that epoch were Ibn Khurradādhbeh (c. 870), al-Ya‘qūbī (c. 890), Ibn al-Faqīh (c. 905), and Ibn Rūstā (c. 910). In a more or less systematic form they give an administrative and topographical description of the different countries belonging to Islam, in which the itineraries occupy a prominent place. In these works considerable attention is still paid to non-Muhammadan countries, such as the countries and islands in the Far East and also the Byzantine Empire; on the other hand they give a large place to all kinds of legendary stories. To the same period belong the accounts of the sea-captain Sulaimān of Sirāf of his voyages to India and China.

In the tenth century we observe the development of a literary geographical school, which was to exert a lasting influence on
the geographical views of the Muhammadans. The contents of these books are based to a large extent on the earlier works, but they are enriched by the knowledge of Muhammadan countries which had been gained meanwhile; most of the authors of this epoch were travellers themselves. This new school is distinguished from that of the foregoing period, in that it paid very little attention to countries not belonging to Islam, and in its systematic treatment of the geographical matter, accompanied by a number of maps, of which the text is meant to be a description. The first of these maps is a map of the world, circular in form, Mecca being the centre. The world is surrounded by the 'encircling ocean' and from this two gulfs enter the continent, so as to approach very close to one another at one point, the isthmus of Suez. These gulfs are the Mediterranean and the Indian Ocean (the Sea of Rûm and the Sea of Fârs), in accordance with the Quranic tradition. After the map of the world, Arabia is treated as being the centre of the world, and next north Africa, Muhammadan Spain, Egypt, and Syria; this part is completed by the description of the Sea of Rûm. The second part of the geographical description treats of eastern Islam, beginning with Mesopotamia and finishing with Transoxania.

The first author who is said to have composed a geographical treatise of this kind is Abû Zaid al-Balkhî (d. 934), who was a famous scholar at the court of the Samanid dynasty, the rulers of Khurasân and Transoxania (822–999). Al-Balkhî stood in high favour with the vizier al-Jâhînâ, who is likewise the writer of a voluminous geographical treatise, of which the text is not yet known in Europe. Balkhî's book itself is not preserved either, but some of the principal geographical works are elaborations of the system established by him. These are the books of al-Iṣâkî (c. 930) and Ibn Hauqlî (c. 975), and the somewhat more independently composed work of al-Maqdishî (c. 985). It is very probable that this geographical school partly inherited
older Persian traditions from the time of the Sāsānids—as appears, for example, from the naming of the Indian Ocean ‘the Sea of Fārs’. The maps (fig. 13) certainly show a more exact notion of geographical reality than those which circulated at the same time in Europe, founded chiefly on the world-map of the Spanish monk Beatus (c. 730–98). We never find in these Muhammadan maps pictures of men and animals, owing no doubt to the prohibition against the pictorial representation of living beings. The addition of pictures makes most European maps, such as the famous map of Hereford, appear still more fantastic. But, on the other hand, we can observe already in the Islamic maps of the tenth century a tendency to represent the coast-lines and the rivers under conventionalized forms; thus many Iṣṭakhri maps show the Mediterranean in a circular or elliptical form.

In other works of a geographical nature written at this period only one special region is treated. The best known are the description of the Arabian peninsula by al-Hamdānī and the famous description of India by al-Birūnī. Several works of this sort have not come down to us intact, but are known from later compilations, such as the report given by Ibn Faḍlān of the embassy sent in 921 by the Caliph al-Muqtadir to the Volga Bulgarians. A special place is held by the work of al-Maṣʿūdī. Al-Maṣʿūdī was a globe-trotter of the Muhammadan world and collected on his travels a large amount of geographical and ethnographical knowledge. He wrote several works, two of which, finished in 956, are preserved. In geographical matters they show a remarkable lack of system, but they are important in that they display the great difference between ‘imperial’ Islamic geography and the independent geographical notions of travellers and sailors; thus, after giving in one place a survey of the views prevailing among Islamic scholars as to the extension of the Indian Ocean, he cannot help remarking that the seafaring people from the ports on the Persian Gulf, who
are well at home in those seas, do not agree at all with the measurements given by the scholars, and that they even claim that those seas have no limits at all in certain directions. This was totally opposed to the prevailing dogma, that the ‘Sea of Fārs’ was a gulf of the ‘encircling ocean’, and that it had a rather narrow entrance, like the Mediterranean. Similarly the above-mentioned author al-Maqdisi, while discussing the shape of the Indian Ocean, says that some people represent it as a ‘tillasān’ (a kind of semicircular Persian coat), and other people as a bird, but that after long investigations a certain sheikh, who was one of the experts in the matter, had drawn for him in the sand the shape of this sea. It did not resemble either a ‘tillasān’ or a bird, but was full of irregular forms for gulfs and peninsulas. Al-Mas‘ūdī seems to have visited China and to have known a good deal of the east coast of Africa. On the other hand, he seems to have had little grasp of astronomical geography; for we find in one of his books the curious view that in one climate all important towns must necessarily lie on the same latitude.

The eleventh century continues, but less brilliantly, on the lines of its predecessor: the best-known author of this time is the Spanish Muhammadan al-Bakri (wrote c. 1067), of whose voluminous work only the part concerning Africa has been edited. Here we find a still more elaborated knowledge of itineraries and especially of the coast-line with its numerous ports and inlets. From about the same time there is an account of the travels of the Persian Nāṣir-i Khusrau, who came from Khurāsān and visited Egypt and Mecca; this man, while showing himself a keen observer, held very erroneous views as to the structure of the world in general.

The eleventh century had witnessed events which were to deal serious blows to the ideal unity of the Islamic world. The eastern half was invaded about 1050 by the Seljūq Turks; while, in the west, the island of Sicily, a good deal of Spain, and even some places on the African coast had been conquered by Christian rulers. At the same time Europe was preparing itself for the Crusades. This was also the time when the exclusiveness of the Islamic world towards the Christian world began to break up. By disintegration it had lost its political strength, which was to reappear, only for a short time, under the hegemony of the same Seljūqs and the Ayyūbids in their fierce struggle against the Crusaders. These events did not affect the prevailing geographical views in Muhammadan literature: only a slight approach towards astronomical geography is perceptible. We find, for example, that in a later extract from Ibn Hauqal’s geographical treatise of about 1164, the world-map is no longer round, but elliptical, in conformity with the astronomical representation of the inhabited world.

The most brilliant author of this time is al-Idrīsī, formerly called Edrisi. Al-Idrīsī has, more than any other Islamic geographer, a claim on our attention, first because he worked at the court of a Christian ruler, the Norman King Roger II of Sicily (1101–54), at the very meeting-point of the two big cultural areas, and secondly because he long passed for the sole representative of Islamic geographical knowledge. From the study of earlier Arabic geographical texts we know that al-Idrīsī was to a great extent dependent on his predecessors. But the fact that King Roger entrusted the composition of a description of the known world to a Muhammadan scholar indicates clearly how far the superiority of Muhammadan learning was acknowledged at that time.

It is well known that the Norman court of Sicily was half oriental; Roger’s desire to have a geography made for him was itself oriental in character. Since olden times it had been considered as the prerogative of great monarchs, such as Alexander the Great and some Persian kings, to have a synopsis made for them of the world that lay at their feet. A similar idea had been at the bottom of the Caliph al-Ma‘mūn’s geographical interest,
and even of the tenth-century geographical school which had started at the court of the Sāmānid. According to al-Idrīsī’s preface, King Roger had sent in all directions for information to be incorporated in the book; he had also ordered, just like al-Ma’mūn, the construction of a big world-map. Al-Idrīsī’s work, too, contains maps, and the maps are in a way its most important part, as the text is a commentary on them. In the best known of its two editions there are seventy maps (actually in all manuscripts one is lacking), each representing the tenth part of one of the seven climates into which he divides the world after the fashion of the Islamic astronomers. If put together, these seventy maps constitute an oblong quadrangle, much after the Ptolemaic pattern. But the specific Islamic conception of the two big seas is strictly maintained, whereas the details, especially the coast-line of the Mediterranean, answer much better to the reality than any of the previous Islamic maps.

Al-Idrīsī’s text shows the author’s indebtedness to the earlier geographers, and the work as a whole is a good illustration of the reconciliation between descriptive and astronomical geography. It is doubtful, however, if the result of the measurements of great astronomers, such as al-Bīrūnī, have been used. For in the second, abridged, edition of al-Idrīsī’s book, the so-called ‘small Idrīsī’, we find, in addition to the seven climates, an eighth climate, to the south of the equator. Moreover, the world-map, which in the ‘big Idrīsī’ precedes the other maps, is round, after the traditional fashion.

It is difficult to believe that al-Idrīsī’s work, composed as it was at the chronological and geographical point of contact between the Islamic and the Christian civilizations, remained wholly unknown to Christian scholars in Sicily, Italy, or other Christian countries. At present, however, there is no certain trace of its influence. The first translation known of al-Idrīsī was published in Rome, in 1619, after an incomplete abridge-

ment of the work; the translator did not even know the author’s name.

The geographical literature after al-Idrīsī cannot claim any great originality, except the narrations of travellers, which become more numerous about this time. Among the best known are the Spaniard Ibn Juzait, who went in 1192 to Mecca and Mesopotamia; and, more than a century later, Ibn Battūta, a man from Morocco, who journeyed all over the Muhammadan world and farther eastward to Ceylon and the Maldives, visiting also Constantinople; his last travels brought him, in 1353, far into the interior of Africa. Another traveller, who had left a valuable description of this part of the world, about 1250, was Ibn Fāṭima; we do not possess his book, but it was utilized by the author Ibn Sa’īd, about A.D. 1274. The work of this last writer is of great interest, because it treats its subject in the same way as al-Idrīsī and, though less detailed in description, it shows how greatly Muhammadan knowledge of Africa had grown. Moreover, it approaches still closer to astronomical geography in that it gives very exact indications of the geographical position of the principal towns and places. Ibn Sa’īd, again, is one of the chief authorities for Abū’l-Fidā, prince of Ḥamā in Syria. Abū’l-Fidā’s ‘Table of Countries’ (1327) was, about 100 years ago, the best-known geographical work in Arabic next to al-Idrīsī; it is, however, a rather poor compilation of earlier sources.

A much more valuable compilation, for our purpose, is the big geographical dictionary of Yaqūt (1228); it contains all geographical names in alphabetical order. This work owed its existence as much to biographical as to geographical interest, the compiler’s aim being to explain the surnames of well-known people, named after their birthplace or the place where they lived. Another kind of compilation was that of al-Qazwīnī (c. 1275). This writer has been styled the Pliny of Arabic literature; he wrote a cosmography and a geography and gave
in the latter many curious and fabulous details about the places he mentioned; he has also some information about the German countries. A better and more original geographer was al-Dimashqī (c. 1325), although his general tendency is the same as al-Qazwīnī’s.

The great number of Islamic geographers after al-Idrisī shows clearly that the knowledge of geographical matters was still widespread at that epoch, but we can no longer speak of an Islamic school of geographers. After the Mongol invasions the Muhammadan world lost for ever its ideal and even its cultural unity. It is true that by this time the faith of Islam had made new progress—in Asia Minor and Central Asia by Turkish aggression, and in inner Africa by the more peaceful way of trade and preaching. Arabic as well as Persian literature still continues to give us much information about those countries, but the Christian peoples themselves, in the first place the Italians, were already active in travel and discovery. An Egyptian author of the fourteenth century, al-‘Umārī, quotes a Genoese as his authority in describing Asia Minor. We now find more specialized geographical descriptions of one country and its institutions. Thus the Egypt of the early Mamlūk period was fully described by a series of authors; the best known is al-Maqritī’s voluminous description of Egypt (c. 1420).

As has already been said, literary Islamic geography does not seem to have left much direct impression on European thought in the Middle Ages. One of the few proofs of the acceptance of Muhammadan geographical views by Christian writers is the world-map to be found in the *Opus Terræ Sanctæ* completed by Marino Sanuto in 1321 and dedicated to the Pope. This map is round, Jerusalem being its centre, and shows clearly the two big seas derived from the ocean and the prolongation of the African coast to the east. Thus this indefatigable reviver of the crusading spirit showed himself one of the few students of the lore of the people he wanted to destroy.
this doctrine of the highest importance; amongst the latter were Adelard of Bath, who translated in 1126 the trigonometrical tables of al-Khwārizmī, Gerard of Cremona (1114–87) and, in the thirteenth century, Roger Bacon and Albertus Magnus. The Arin (or Arim) theory was still later to be found in the *Imago Mundi* of Cardinal Peter of Ailly, published in 1410, and it was from this book that Christopher Columbus learnt the same doctrine, which had developed in the meantime so far as to make Columbus believe that the earth was shaped in the form of a pear, and that, on the western hemisphere, opposite the summit of Arin, there was another centre, much more elevated than the one on the eastern side, so as to form the shape of the lower half of a pear. Thus Islamic geographical theory may claim a share in the discovery of the New World. We find the influence of the same theory in quite another domain. It is highly probable that it induced Dante, whose indebtedness to Muhammadan traditions has been established in many respects, to localize his *Purgatorio*, in the shape of a mountain, in the western hemisphere, by combining with it, in an ingenious way, the ancient Christian belief that the terrestrial paradise was situated in the extreme east of the world, behind the sea (as shown on the different world-maps of Beatus).

Islamic navigation had already reached its widest extent in the ninth century. But, while navigation on the Indian Ocean derived its chief importance from the commercial relations with the non-Islamic coasts of Asia and Africa, commercial navigation in the Mediterranean was limited to the parts under Muhammadan rule, the relations with Christian ports being of a military and predatory character.

The Indian Ocean, consequently, was the only field of great enterprise. Its base was the Persian Gulf, where ports like Strat and Başra, with its suburb al-Ubulla, and those on the Omān coast had been, even in pre-Islamic times, very important centres of trade and navigation. The coming of Islam, however, and especially the establishment of its political centre in 'Irāq, encouraged the spirit of enterprise. About the middle of the tenth century Muhammadan ships had already reached the Chinese town of Khanfu, now Canton. There was then a considerable Islamic colony in that town, which had become an emporium of the trade with China. From here some Muhammadan traders and sailors went even farther north, and it is probable that they knew Corea and Japan. This early commercial prosperity seems to have been brought to an end in 878 by certain disturbances, in which the port of Khanfu was destroyed. From that time regular navigation did not extend farther than a town which the Arabic authors call Kala, famed especially for its tin mines, the position of which must be sought on the western coast of Malacca. Kala was politically dependent on the ruler of Zābaj, which name is the early Arabic rendering of the name Java. But at that time Zābaj stood in the first place for Sumatra, and particularly for the centre of the then flourishing empire of Shrivijaya; with these regions trading connexions existed. It appears from such authors as Ibn Rusta (c. 900), Sulaimān (c. 850) and his continuator Abū Zaid (c. 950) that the Muhammadan navigators were quite at home in those seas, though the texts do not give a very clear account of the sea-routes which were followed. The ships of Islam kept up an equally lively traffic with the ports of Ceylon (Sarandi) and with the west coast of India; a prosperous Arabic colony inhabited the town of Saimūr in the neighbourhood of Bombay. Daibul, situated in Sind on Muhammadan territory, was an important emporium for these regions. On the eastern coast of Africa—where, on the whole, trade was less important—they reached, in the beginning of the tenth century, the country of Sufāla, known for its gold. This region was on the African coast, opposite Madagascar, and the island itself was known to the Muhammadans as the isle of Wāqwāq. Now the authors knew also another Wāqwāq, which
was opposite China, and the description of which seems best to answer to that of Japan. The result was, of course, a fatal confusion in the accounts given in geographical texts, caused, no doubt, by the geographical dogma that the east coast of Africa ran in an eastern direction to reach, somewhere in the neighbourhood of China, the mouth of the 'sea of Fārs'. The knowledge of the sea-captains was not hampered by traditional views, as has been shown; stories of their voyages are very popular in Arabic literature and were soon invested with a romantic hue which has survived in the well-known tales of Sindbad the Sailor in the Arabian Nights.

The age-long seafaring tradition which centres in the Persian Gulf prepared the way for the nations that afterwards sailed and ruled those waters: Portuguese, Turks, British, and Dutch. When Vasco de Gama, after his circumnavigation of Africa in 1498, had reached Malindi on the east coast of Africa, it was an Arab pilot that showed him the way to India. According to Portuguese sources, this pilot was in possession of a very good sea-map and of other maritime instruments. Arabic sources of that time also knew the story; they state that the pilot, whom they knew under the name of Aḥmad ibn Mājīd, could only be induced to show the way to the Portuguese after having been made drunk. This probably fictitious story shows that the Muhammadans fully realized the far-reaching consequences of the coming of the Portuguese. The same Aḥmad ibn Mājīd is also known as the writer of a sailing-manual for the Indian Ocean, the Red Sea, the Persian Gulf, the South China Sea, and the East-Indian archipelago. According to a statement of Sir R. F. Burton it even seems that Ibn Mājīd was venerated in the past century on the African coast as the inventor of the compass.

The idea of piercing the isthmus of Suez is ascribed to some of the earlier Abbasid caliphs; it was never realized, however, and since the Crusades such an enterprise was justly considered a great danger to Islam. Islamic navigation in the Mediterranean has therefore always been isolated from that in the Eastern waters: trade in the Mediterranean was restricted to Muhammadan ports. Commercial relations with Christian countries were strongly opposed, both from the Islamic side—as early as the Caliph Omar—and from the Christian side. The result was the decay of the port of Alexandria and the ruin of many other ancient seaports. Now Tunis became the new centre of the considerable traffic between north African and Spanish ports. Towards Christians Muhammadan navigators were often nothing but pirates, but it is only just to say that the same thing is true of Christian navigators.

From the beginning of the Crusades the Mediterranean ceased to be the almost exclusive domain of Islamic navigation. Islam had lost a great part of Spain, the island of Sicily, and its hold on the Italian coast; at the same time the Italian seaports of Genoa and Pisa began to develop. The traveller Ibn Jubair, in 1192, made use of a Christian ship to go from Ceuta to Alexandria. In practice this transition of maritime hegemony was much less violent. It only meant that the Christians, who had navigated before as sailors or slaves under Muslim control, now fully emancipated themselves and sailed and traded on their own account. The modern international maritime vocabulary contains not a few words of Arabic origin, which show the former Muhammadan supremacy on these seas, such words for example as admiral, cable, average, shallop (sloop), barque, and, in the maritime language of the Indian Ocean, monsoon.

Mention has already been made of the compass in connexion with the pilot Ibn Mājīd. This man himself supposes in his work that the inventor of the compass was King David. But it cannot even be proved that the Muhammadans were acquainted with this instrument at an earlier date than the Christians. It may be true that the Chinese knew this instrument and its use in the second century and that they transmitted it to the West.
But the first indubitable indication that Islamic sea-captains knew the compass is found in an author of 1282, and this is about the same time that a knowledge of it can be traced in France and Italy. Some terms of oriental but not Arabic provenance in the terminology relating to the compass make it probable that Europe received the knowledge of the qualities of the magnetic needle from the East, but it does not appear that the Muhammadans were the predecessors of the Christians. Their, in many respects, clumsy cartography makes us rather suppose that their ships could sail only in sight of the shore. So it is safer to assume that, even if the Muhammadans knew of the compass earlier than European Christians, their acquaintance with it does not go back beyond 1200 and that, soon after it became known to them, the knowledge of it was passed on to Christian navigators.

The problem connected with the appearance of the first sea-charts of the Mediterranean at the end of the thirteenth century closely resembles the problem of the compass. The oldest known portulan was probably made by the Genoese. The portulans give at once a much more exact image of the position of coasts and islands than all the earlier maps, and their construction was only made possible by the use of the compass. The portulans also show a very detailed design of the coastlines, and these details can hardly have been the work of one generation. Now we need only remember the exact description of the African coast in the work of al-Idrīsī and his predecessors Ibn Ḥauqal and al-Bakri, to realize that the experience of the Islamic navigators—reflected in the geographical treatises cited above—must have contributed considerably to the composition of those prototypes of modern cartography, the oldest portulans.

By the big water-ways of Mesopotamia the Persian Gulf was linked to Baghdād, the centre of the Islamic Empire. By this means the navigation of the Indian Ocean became the instrument of a world-trade. The great merchants of Baghdād obtained in this way the silks of China and the spices and aromatics of India, different kinds of wood, coco-nuts, muscat-nuts, and the tin of Kala. All these wares found their way from Islamic countries into Europe, then deprived of all direct traffic with those countries. A part of this sea-trade did not enter the Persian Gulf, but brought the products to Aden and the Red-Sea ports of Jeddah and al-Qazwīn (the ancient Clyisma near Suez), and, in the crusading times, to ‘Aidhāb, an ancient port for pilgrim caravans which lay about opposite Jeddah. From here the occidental part of the Islamic world was supplied. By the same way came also the African products, such as ivory; these were shipped from the Ethiopian seaport of Zaila, opposite Aden.

More typical than navigation of the traffic of Islam is the overland trade by the ‘ship of the desert’. Though, long before the appearance of Muhammad, trade caravans had crossed the steppes of Asia and Africa, we are accustomed to associate caravan trade with Islam. Even down to the last few years the Islamic peoples have not been surpassed by western civilization in the means of locomotion in the desert. The recently started motor traffic in the Syrian desert, in Arabia, in Persia, and in the Sahara, some railways in Central Asia, and the recently established air services have begun to follow the immemorial tracks of the camel. In the centuries when the Islamic Empire flourished, caravan traffic was the most common means of traveling and trading between the different Islamic countries, especially the pilgrim caravans to Mecca. At the same time there were some important overland routes that led out of the Empire, first those to India and China, secondly those to southern and central Russia and thirdly the African trade-roads. India and China could also be reached by sea; for this reason the caravan trade was not so important on this side as in other directions. The land-route to India was moreover hampered by the difficult roads in the mountains of Afghanistan. To
trade with China it was necessary to pass through the regions occupied by Turkish peoples; the chief Chinese product, silk, was produced, moreover, in Persia at an early period. After the fall of the Samanid Empire, in the eleventh century, political conditions became still more unfavourable for the Chinese overland trade. The great revival of the Asian trade routes in the thirteenth century was not the work of Islam, but of the Mongols.

For our knowledge of the extension of Islamic trade influence in a northerly direction we can rely not only on written sources, but also on the enormous number of Muhammadan coins which have been found in different parts of Russia, Finland, Sweden, and Norway, not to mention some isolated finds in the British Isles and in Iceland. On the middle course of the Volga, in the province of Kazan, great quantities of these coins have been found, but these are far surpassed in number by the Arabic coins found in the Baltic provinces. In Scandinavia the chief finds are on the south-western coast of Sweden and the southern point of Norway. The coins belong to the period from the end of the seventh to the beginning of the eleventh century. It is very unlikely that the Islamic merchants themselves advanced so far to the north as these places, for it appears from the written Arabic sources that the country of the Volga Bulgars, on the middle course of that river, was the final goal of their trade expeditions and their embassies; the faith of Islam, too, penetrated as far as those regions at an early date. The route generally followed by trade went from Transoxania to the Delta region of Khwarizm (Khiva) at the mouth of the Oxus; the way up the Volga from its mouth was less usual. The fact, however, that the coins are found over so wide an area is a symptom of cultural influence, and proves that the Muhammadans purchased in the Bulgarian markets a good many wares from the peoples living in the north-west. Amongst these the Scandinavian Russians were the most important. We know from geographical works, principally from al-Maqdisi, what were the wares that the Islamic merchants acquired in this way: 'sables, miniver, ermines, the fur of foxes, beavers, spotted hares, and goats; also wax, arrows, birch bark, high fur caps, fish glue, fish teeth, castoreum, amber, prepared horse hides, honey, hazel nuts, falcons, swords, armour, maple wood, slaves, small and big cattle'. Most of the slaves came from the Slavonic peoples, whose name still bears witness to the role they played in the civilized world and especially the Islamic countries. Another way by which slaves were imported was Spain, whence they came to the Maghrib and Egypt. This last category were chiefly eunuchs destined for the Islamic harems. It is well known that the slaves of different races so imported have contributed not a little to the spreading of Islamic cultural acquisitions in Europe. Apart from this far-reaching Islamic-Bulgarian trade—of which traces have been found also in Germany—there were also commercial relations with the empire of the Khazars, by the Caspian Sea and the mouths of the Volga, where was situated Itil or Attil, the capital of the Khazars. This trade was less important for the exchange of merchandise, but the Khazar Empire, constituting a kind of buffer-state between Islam and the Byzantine Empire, furthered the transmission of many Islamic and oriental products which found their way into Christian countries.

The African overland trade was divided into an eastern and a western area; on both sides the chief import was gold. In the country of the Buja, to the east of Aswan, beyond Islamic territory, lay al-'Allaql, the big trade-centre of the region of the gold mines, famous since ancient Egyptian times. In western Africa an active trade went on with the gold country of Ghana, the capital of which must have been on the Niger. The Muhammadan merchants from Morocco, Algeria, and Tunisia travelled several months' journey to the south and passed generally through Awagboshi, an oasis situated fourteen days' journey to the north of Ghana. As a proof of the importance of trade in those regions the geographer Ibn Hauqal (c. 975) alleges that he
saw in Awdaghesh an I.O.U. (the Arabic word is sakk, from which the modern word cheque has been derived), for an amount of 42,000 dinars, addressed to a merchant in the town of Sijilmāsa in southern Morocco. It is even said that in the preceding century the volume of trade had been still greater, as there existed then a straight road connexion between the western regions and Egypt, which road had been given up on account of its insecurity.

In later centuries, also, Africa remained a domain where Muhammadan enterprise and missionary zeal could display their activity without competition. The author Ibn Sa‘id, in the thirteenth century, is very well acquainted, through the travels of Ibn Fāṣima, with the Atlantic coast as far as the Senegal (which was thought to be connected with the Niger and even to belong to the same fluvial system as the Nile), and with the negro peoples living round Lake Chad; on the other hand, the Muhammadans never knew the sources of the Nile, for they only repeat the tradition of Ptolemy on this point. Still the Europe of the Renaissance had no information except from Muhammadan sources about the interior of the Dark Continent, for the description of Africa by the christianized Muslim Leo Africanus in 1526 was then, and for long afterwards, almost the only source of knowledge. The value attributed to Idrisi in the first half of the nineteenth century has already been pointed out.

The trade between Islam and Christian Europe showed at first a sharp contrast with the large commercial development previously described. There was as good as no direct commercial intercourse. What trade there was lay in the hands of Jewish merchants. At that time the Jews were almost exclusively a commercial people and only they could trade freely in both areas of civilization. Ibn Khurrajādhībbeh relates that Jewish merchants from the south of France crossed the sea to Egypt, traversed on foot the isthmus of Suez, and travelled by ship to India; others went overland from Ceuta to Egypt, and from

Syria to the Indus. They often visited Constantinople also. In this way the Islamic countries received from Europe slaves—of whom mention has already been made—silk (from the Byzantine Empire), furs, and arms, all of which came also by way of Russia. The same traders brought to Europe musk, aloes, camphor, cinnamon, and similar products; the names betray their oriental origin. Other routes by which oriental products could enter Europe were the Empire of the Khazars, between the Caspian region and Byzantium, and the half-barbaric peoples of Russia, that kept up a lively trade with central Europe. On the Byzantine frontier the town of Trebizond was in the tenth century an important emporium for the Islamic-Greek trade. A number of Muhammadan merchants lived there, and the Byzantine government profited largely by the levying of customs. There was also some direct trade on the Spanish border.

So we may speak, in a way, of a state of mutual commercial isolation between the Christian and the Muhammadan world. It is true that since the eighth century Muslim travellers and traders are to be found in Italian towns and in Constantinople, but these relations were only the germ of the lively commercial intercourse that began to develop in the eleventh century, to be interrupted only for a short time in the first period of the Crusades. After the barrier of former ages had broken down, trade itself subsequently became one of the strongest factors in promoting the transmission of cultural values to the European peoples, who, aided by their rulers (as Roger of Sicily) were eagerly seeking to benefit by them.

The manifold ways in which commercial relations led to close co-operation between Muslims and Christians—e.g. in the form of joint partnerships and of commercial treaties—cannot be treated here in detail. The great riches of material culture, which the Islamic world had gathered for nearly five centuries, were poured down upon Europe. These riches consisted not
only of Chinese, Indian, and African products, which the enterprising spirit of Islam had fetched from far-distant lands; they were in the first place represented by what the Muhammadan countries themselves yielded of natural and industrial products. Industrial production in Muhammadan countries had developed in a particular way; it was chiefly characterized by being completely under the control of the rulers, by its lack of capital, and by its organization of the craftsmen in guilds. This peculiar form of industrial development proved a great disadvantage to Islam when it came, in later times, into economic competition with European industry; but at the time of Islamic prosperity it had made possible a development of industrial skill which brought the artistic value of the products to an unequalled height. In the first place should be mentioned the products of the textile industry; a number of names, now commonly in use, shows which textiles were originally imported from Islamic countries: muslin (from Mosul), damask (from Damascus), baldachin (originally a stuff made in Baghdad), and other woven stuffs, which bear Arabic or Persian names, like gauze, cotton, satin, &c. The import of oriental rugs is likewise as old as the Middle Ages. It is curious to note, too, that the state robes of the medieval German Emperors bore Arabic inscriptions; they were ordered and executed probably in Sicily, where Islamic art and industry continued for a long time after the Christian reconquest. Natural products, which, by their name, betray their original importation from Muhammadan countries, are fruits like the orange, lemon, and apricot, vegetables such as spinach and artichokes, further saffron, and the now so important aniline. Likewise names of precious stones (lapis lazuli) and of musical instruments (lute, guitar, &c.), though it cannot be proved that the borrowing of these terms goes back directly to commercial intercourse. The same is to be said about so important a material as paper, the fabrication of which Europe learnt from the Muhammadan peoples in the twelfth century.

Finally, our commercial vocabulary itself has preserved some very eloquent proofs of the fact that there was a time when Islamic trade and trade customs exercised a deep influence on the commercial development in Christian countries. In the word 'sterling', for example, is contained the ancient Greek word 'stater', but it has reached the English language only through the medium of Arabic. The word 'traffic' itself probably is to be derived from the Arabic tarīq, which means distribution, and such a well-known word as 'tariff' is nothing but the good Arabic tarīf, meaning announcement. To the same origin belong the words 'risk', 'tare', 'calibre', and the everyday word 'magazine', from Arabic makhāzin, meaning stores (the French 'magasin' is still the common word for shop). The 'cheque' has already been mentioned in the description of the African trade, and the German and Dutch words for the same thing (Wechsel, wissel) are equally Arabic. So is also the term 'aval'. Next to the knowledge of the bill of exchange the conception of the joint-stock company was acquired by the partnership of Muslim and Christian Italian merchants. Muhammadan mercantile law was based only theoretically on the Sacred Law, derived from the Qur'an and the sacred tradition; practically it was governed by a developed system of trade customs, to which the instances cited above bear witness. One of these trade forms was also the feigned bargain called 'mohatra', which word has also passed from Arabic into European languages.

A largely used word like 'douane' is a reminder of the time when regular commercial intercourse had developed in different ports of the Mediterranean. It is well known that this intercourse has also reacted largely on the commercial organization of western nations. The treaties which they concluded with Muhammadan rulers, and the institution of consular representatives in eastern ports, have been important stages in the development of the rules that nowadays govern international trade.

As may be seen from the previous observations, the cultural
gain, which Europe has acquired from the Islamic world in the
domain of geography and commerce, is not the fruit of one
moment, but is based on the mutual relations that have gone on
since the beginning of the eleventh century and were especially
lively during the Mongol period in the thirteenth century. Also
the fact that Islamic civilization with its accretions has been
continued by States such as Turkey, Persia, and Muhammadan
peoples in India and the East Indies, has caused many Islamic
views and customs to become known and even practised in
European countries. But no period shows so clearly the once
enormous superiority of the Islamic peoples over the Christian
world as the tenth century, when Islam was at the summit of
its prosperity and Christian Europe had come to a seemingly
hopeless standstill.

J. H. KRAMERS

Fig. 14. A gold coin struck by Offa, King of Mercia (757–96), closely imitating
an Arab dinar. The words ‘OFFA REX’ are inserted upside down in the Arabic
inscription. The coin illustrates the wide influence and distribution of Muslim
coinage.

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