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FRANKINCENSE AND MYRRH IN ANCIENT SOUTH ARABIA

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UNTIL THE EARLY nineteenth century, our knowledge of frankincense and myrrh and of their role in the economy of ancient South Arabia was wholly based on references in the Bible and Greco-Roman literature. Biblical writers made it clear that incense trade was one of the pillars of South Arabian economy, and to this general picture, classical authors added a wealth of information, as we shall see below. Unhappily their testimonies are not equally reliable and often conflict—owing to the fact that their sources contained legendary material and were received second- or third-hand—and these conflicts could not be resolved until new data had been brought to light.

Important evidence bearing on the production and distribution of incense was discovered by a number of explorers and investigators in the nineteenth and early twentieth centuries. Although a number of scholars touched on various aspects of this material, the first thorough-going evaluation of the ancient sources in the light of modern data was made by Adolf Grohmann, and his study, which appeared in two parts in 1922 and 1933,¹ remains the standard work in this field. Since that time, new information has come to light which enables us to correct some earlier mistakes and to lay the groundwork for a new synthesis. All problems are by no means solved, and some questions must remain unanswered until more evidence is forthcoming.

DESCRIPTION AND GEOGRAPHICAL DISTRIBUTION OF THE TREES

The frankincense tree belongs to the genus *Boswellia*, and of the five species, only *Carterii*, *Frereana*, and possibly *Bhua Dajiana*, produce frankincense of commercial value. To date, only *Carterii* has been described in detail and photographed. In general, this species resembles a shrub more than a tree; it has no central trunk—

the branches emerge near the ground—and it grows to a height of seven or eight feet.² Its gum-resin, which is pale-green to amber in color, is obtained by cutting the bark in the summer. After exuding from the incisions, it is collected and stored in the autumn and brought to ports for shipment during the winter.³ This description agrees with that of Theophrastus, the *Periplus*, and with parts of Pliny's discussion of the appearance of the tree.⁴

The geographical distribution of the frankincense tree—, and this applies to the myrrh tree as well—, can be described with a measure of confidence, although some doubtful areas must be explored before we can attain certainty. We class

² Bertram Thomas, *Arabia Felix* (New York, 1932), p. 122. For a full botanical description, see H. J. Carter, "A Description of the Frankincense Tree of Arabia with Remarks on the Misplacement of the 'Libanophorous Region' in Ptolemy's Geography," *Journal of the Bombay Branch of the Royal Asiatic Society*, 2 (1848), 380-90. Note that R. E. Drake-Brockman (*British Somaliland* [London, 1912], p. 258) reports that both species *Carterii* and *Frereana* reach a maximum height of about twenty feet in the interior of Somaliland. Unlike his full description of myrrh trees, his description of frankincense trees is so sketchy that it is doubtful if he ever visited the groves in this area, basing his description instead on native reports. Until more detailed information is forthcoming, we must use this particular description with caution.

³ Thomas, *op. cit.*, p. 122. The same collecting-storing-shipment schedule prevailed in antiquity, see Pliny, *Natural History*, Loeb Edition (London, 1945), XII. xxxii. 58-60. All subsequent references to this work are abbreviated: Pliny.

⁴ Theophrastus, *Enquiry into Plants*, Loeb Edition (London, 1916), IX. iv. 2-3, hereafter referred to as Theophrastus; *The Periplus of the Erythraean Sea*, trans. and anno. by W. H. Schoff (New York, 1912), par. 29, hereafter abbreviated: *Periplus*; Pliny XII. xxxi. The conflicting descriptions in Pliny probably reflect the general confusion regarding the appearance of the tree in the classical world, a confusion no doubt fostered by Arab merchants and traders seeking to guard the location of their most precious product. Of course it may be that Pliny's sources describe different species of the tree; but until all species have been properly studied, classified, and photographed, we cannot evaluate these sources with confidence.

¹ Adolf Grohmann, *Südarabien als Wirtschaftsgebiet I, in Osten und Orient* (Vienna, 1922); II, in *Schriften der Philosophischen Fakultät der Deutschen Universität in Prag*, 13 (Brünn, 1933), 101-31.

these areas as doubtful because the existence of incense trees is known only from hearsay and not from actual observation.

In Arabia, the species producing frankincense of commercial value grows only in Dhofâr between longitude 53°00' and 55°21', and from the coastal plain to the lower north slopes of the Qara Mountains. The best variety grows at an elevation between 2000 and 2500 feet.⁵ Bent reported that he saw a tree between Mukalla and Wadi Ḥadhramaut, and that Arabs told him that frankincense still grows in the Mahra country farther east. He added, however, that western trees produce frankincense of inferior quality and are no longer tapped.⁶ It may be that the tree is of a different species and perhaps of a different genus altogether; in any case, Bent's report has never been confirmed by other observers. Bertram Thomas emphasized that the growth of the tree is probably conditioned by the unique summer rain belt of Dhofâr (resulting from the southwest monsoons),⁷ and H. J. Carter noted that the tree grows out of crevices of limestone in an area where the soil is red and clayey.⁸ Taken together, these reports suggest that the geographical distribution of the frankincense tree is governed by definite rainfall patterns and soil factors.

The same general area is described by Pliny, the *Periplus*, and Claudius Ptolemy. Pliny notes that the frankincense-producing area is located an eight days' journey beyond (eastward or southward) Sabota [Shabwa] (XII. xxx. 52). While Dhofâr is more than an eight days' journey from Shabwa, and Wadi Ḥadhramaut is somewhat less, the figure is perhaps as correct as can be expected. The *Periplus* describes Cana [Qana'] as the first Arab port (going eastward) where frankincense is exported, and notes that it is transported to Cana on rafts and in boats.⁹ The author then states that

beyond Cana is a deep bay called Sachalites and the frankincense country. He notes also that frankincense is stored at Syagrus [Ras Fartak] and shipped from Moscha [identification unknown, but see below] (*Periplus* pars. 29-30). Claudius Ptolemy explicitly states that Sachalites is located beyond Syagrus, and he places the frankincense forests in this general area.¹⁰ That the *Periplus* and Claudius Ptolemy correctly preserve the ancient name of the coastal region of Dhofâr is shown by the discovery of inscriptions at Khôr Rôri during the 1952 excavations of the American Foundation for the Study of Man, which call this country *s'kl*.¹¹

Theophrastus (IX. iv. 5), Diodorus Siculus (III. 46. 1-3), and Strabo, (based on Artemidorus),¹² are responsible for much of the confusion regarding the location of the frankincense region, because they claim that the country of the Sabaeans produces frankincense. If this region contained the extensive forests described by these authors, we could reasonably expect to find some vestige of them today, since the climate has not changed appreciably in the last 2000 years. In view of the fact that no modern observer has reported frankincense trees in this region,¹³ we are forced to conclude that frankincense never grew in the western mountains of South Arabia. Thus the phrase "country of the Sabaeans" must refer not to the mountains of Saba' proper, but to the area

¹⁰ *The Geography of Claudius Ptolemy*, trans. by E. L. Stevenson (New York, 1932), Book I, XVII, p. 37, and the sixth map of Asia.

¹¹ For details, see W. F. Albright's review of J. Ryckmans, *L'institution monarchique en Arabie méridionale avant l'Islam*, in *JAOS*, 73 (1953), 39, note 7, and the writer's study, "Ancient Frankincense-Producing Areas," *Archaeological Discoveries in South Arabia* (Baltimore, 1958), p. 141. The latter contains a more detailed discussion of the distribution of frankincense than the present paper.

¹² *The Geography of Strabo*, Loeb Edition (London, 1930), 16. 4. 19, hereafter abbreviated: Strabo. Note also that Strabo's statement (based on Eratosthenes, 16. 4. 4) that Qatabân produces frankincense and Ḥadhramaut produces myrrh conflicts with all other classical sources as well as with the results of modern investigation. This is an obvious error in which the names of the states (or the products) have been transposed. See also the writer's study cited in note 11.

¹³ Note that Hugh Scott, who led the first expedition to Yemen, the primary purpose of which was the study of natural history, nowhere mentions the growth of frankincense or myrrh in this area (*In The High Yemen* [London, 1942]).

⁵ Thomas, *op. cit.*, p. 123. His description of the distribution agrees almost exactly with that of H. J. Carter which was made over 100 years ago (*op. cit.*, pp. 387 f.) and Theodore Bent (*Southern Arabia* [London, 1900], p. 253).

⁶ Bent, *ibid.*, pp. 89, 252.

⁷ Thomas, *op. cit.*, p. 123.

⁸ Carter, *op. cit.*, pp. 380-90.

⁹ Pars. 27-28. Frankincense destined for Indian ports was transported westward to Cana by coastal vessels in order to place it in the major sea lanes. It will be remembered that Cana was the last Arabian port-of-call on the sea route from Egypt to India (see below and *Periplus* par. 57, Pliny VI. xxvi. 104).

dominated by the Sabaeans or over which they exercised a virtual monopoly of the frankincense trade.

In Somaliland, two species of frankincense, *Carterii* and *Frereana*, grow in areas which are topographically similar to Dhofâr.¹⁴ In particular, these species are found in the maritime range from a point about eight miles east of Berbera [ancient Malao] to an undetermined point eastward, and on the great inland plateau.¹⁵ This distribution corresponds exactly to that described by Strabo and the author of the *Periplus*. Strabo reports that frankincense trees begin to appear at Pytholäus [probably Ras Khanzira], in an area where myrrh is also grown, and that eastward there are riverlands where frankincense grows exclusively (16. 4. 14). In listing the exports of the far-side (Somaliland) ports, the *Periplus* states that frankincense was shipped in increasing quantities from the ports on the north coast beginning at Malao and ending with the Market of Spices (pars. 8-12), which indicates that the areas of production were confined to the eastern half of northern Somaliland.

The myrrh tree, *Balsamodendron Myrrh*, Nees, is wholly unlike the frankincense tree, except for its production of aromatic gum-resin. Near the Somali coast, it normally grows to a height of about six feet, but at higher elevations, it is reported to reach a height of about fifteen feet, its central trunk to measure about one foot in diameter, and its branches to circumscribe an area about twenty feet across. The tree is in leaf for only a short time after the rainy season; during the remainder of the year, it is leafless, and its long thorns are clearly visible. Its gum-resin, which is red in color, is harvested during the dry season in much the same way as frankincense.¹⁶

¹⁴ Drake-Brockman, *op. cit.*, p. 240. Regarding *Frereana*, see also C. L. Collenette, "Appendix II—Botany," in J. H. Stafford's, "The Anglo-Italian Somaliland Boundary," *GJ*, 78 (1931), 120.

¹⁵ Drake-Brockman, *op. cit.*, pp. 256, 258.

¹⁶ *Ibid.*, pp. 243-50. For a photograph of a myrrh tree, see D. van der Meulen, *Aden to the Hadhramaut* (London, 1947), pl. 22. A wealth of information about myrrh is contained in the excellent study by R. O. Steuer, *Myrrh und Stakte* (Vienna, 1933). It should be noted in this connection that the debate over the identity of the incense trees of Punt pictured on the middle colonnade of the south wall at Deir el-Bahari (E. Naville, *The Temple of Deir el-Bahari* III, pls. 78, 79) can now be settled in favor of the myrrh tree. The representation of these trees, which reach a height of about

The description of the tree growing in the coastal regions generally corresponds to those of Theophrastus (IX. iv. 3) and Pliny (XII. xxxiv).

Modern sources for the distribution of myrrh trees in Arabia are meager. Bent informs us that he saw myrrh trees in the Qara Mountains of Dhofâr, and between Mukalla and Wadi Hadhramaut.¹⁷ But his report remains unconfirmed by those who have explored these areas more thoroughly, and it is possible that his identification is wrong. Doreen Ingrams states that natives told her of myrrh trees in the Hajar Province (north-east of Bîr 'Ali),¹⁸ but this information also requires confirmation. On the other hand, van der Meulen photographed a tree growing in the mountains southwest of Nişâb,¹⁹ and Bowen reports a tree which may have been myrrh in the mountains bordering Wadi Beihân.²⁰ But more important, in studying the ancient irrigation system and silt deposits in Beihân, he discovered a series of discolored circles on the ancient silt which indicate an ancient grove of trees. By studying the flora of the area, and by a careful survey of the classical sources, he has shown that these circles probably mark the location of ancient myrrh trees.²¹

Classical sources fill out this rather sketchy picture. Pliny lists several kinds of myrrh, all named after the district in which they grew: Minaean [Ma'in], Astramitic [Hadhramaut], Gebbanitic [Qatabân],²² Ausaritic, [i. e., 'Ausân to the

twenty to twenty-five feet and have a central trunk, corresponds closely to the description of the myrrh trees which grow on the inland plateau of Somaliland. Lucas, quoting Schott ("Notes on Myrrh and Stacte," *JEA*, 23 [1937], 29), emphasizes that some of the piles of incense figured in the same painting are red in color, indicating that the gum-resin is myrrh rather than frankincense. The fact that some of the trees are represented in foliage and others are shown leafless, which led Lucas to assume that two different trees are pictured, can be more readily explained as two representations of the myrrh tree at different seasons of the year, one showing it in leaf after the rainy season, and the other representing the tree without foliage during the dry season.

¹⁷ Bent, *op. cit.*, pp. 89, 254.

¹⁸ "Excursion into the Hajar Province of Hadhramaut," *GJ*, 98 (1941), 131 ff.

¹⁹ D. van der Meulen, *op. cit.*, pl. 22.

²⁰ R. LeBaron Bowen, Jr., "Ancient Trade Routes in South Arabia," *Archaeological Discoveries in South Arabia* (Baltimore, 1958), p. 41.

²¹ R. LeBaron Bowen, Jr., "Irrigation in Ancient Qatabân (Beihân)," *Archaeological Discoveries in South Arabia*, pp. 60 f.

²² The existence of a tribe known as Gab'an is well

south and southwest of Qatabân], and Sambracene [southern Tihâma?]; as yet we cannot definitely identify the areas where two other varieties, Dianite and Dusirite, were grown.²³ Pliny also states that the myrrh growers pay one-quarter of the yield as a tax to the king of Qatabân (XII. xxxv. 68), which suggests that the myrrh areas were located sufficiently close to Qatabân for the king to control them. Strabo reports that when Aelius Gallus attacked Mârib in 24 B. C., he was told that he was a two days' journey from an incense producing region (16. 4. 24). By incense here, we must understand myrrh, since frankincense was not grown in this region, as we have seen. Strabo's statement also rules out any possibility that myrrh was grown in the vicinity of Nejrân and Mârib, because the Roman general would certainly have known of incense trees in the areas of his military operations if there were any. In view of the evidence discovered by Bowen and cited above, Qatabân, with its capital at Timna' (about forty miles southeast of Mârib), is probably meant. At the time of the *Periplus*, the only South Arabian port exporting myrrh was Muza [Mocha] (par. 24). Since we may assume that trade moved to the nearest outlet, it is probable that the myrrh districts were located inland from that port. Claudius Ptolemy also places the inner and outer myrrh-producing regions precisely in this area.²⁴ Thus classical sources, as well as modern investigation, indicate that the production of myrrh was confined to the southwest corner of Arabia.

In Somaliland, myrrh is grown in the coastal region between Zeila [ancient Avalites] and Heis [probably ancient Mundus], and inland on the higher plateau as far east as the Nogal Valley.²⁵ The myrrh district, then, is centered in the west and west central part of Somaliland; in the middle of the country, it slightly overlaps the frankincense district, which is confined to the east and east central region as we have seen.

Strabo and the *Periplus* confirm this distribution. Strabo speaks of myrrh production in the first country after Deire (just opposite Ocelis) as

attested in inscriptions dating in the last centuries B. C. The name of this tribe was apparently confused with that of Qatabân by classical authors.

²³ Pliny XII. xxxv. 69. See also A. Grohmann's discussion in *Südarabien als Wirtschaftsgebiet* I, p. 149.

²⁴ *Op. cit.*, the sixth map of Asia.

²⁵ Drake-Brockman, *op. cit.*, pp. 241-45.

one sails south along the African coast (16. 4. 14), in full agreement with the area described above. According to the *Periplus*, the first port along this coast that exported myrrh was Avalites, and it is followed in order by Malao, Mundus, and finally Mosyllum (pars. 7-10). The fact that our author specifically states that only small quantities of myrrh were shipped from Avalites and Mosyllum suggests that these ports were on the fringe of the myrrh-producing region and roughly marked the east-west limits of the myrrh groves.

ANCIENT TRADE ROUTES

The universal demand for incense in antiquity gave rise to a flourishing trade between South Arabia and the rest of the known world. From the above-mentioned areas of production, frankincense and myrrh were transported to a number of distribution centers, not all of which are known at this time. One of these centers was Alexandria; there incense was processed and distributed to Rome and presumably to the entire Mediterranean area as well during the Hellenistic-Roman period (Pliny XII. xxxii. 59). Although we do not know the location of processing stations where incense destined for Mesopotamia and India was prepared, we do know some of the centers of distribution for these regions during the last centuries B. C. and the early centuries A. D.; these include Gerrha (Strabo 16. 4. 4), Omana, Barbaricum, and possibly Barygaza and Muziris (*Periplus* pars. 27, 36, 39, 54). We can now examine some of the land and sea routes used to transport frankincense and myrrh to these centers of distribution.

Land routes fall into two classes: feeders and major overland routes. Feeders were used to bring incense to the nearest port for shipment by sea, or to inland depots for shipment overland. From the groves of Somaliland, frankincense and myrrh moved to the northern coastal ports for shipment by sea to the east and west, or across Bâb el-Mandeb for transshipment from Arabian ports (Strabo 16. 4. 19, Pliny XII. xxxiii. 66). Similar routes existed in Arabia. From the Qara Mountains of Dhofâr, frankincense was carried either to ports on the Bay of the Sachalites [Qamr Bay] where it was shipped in coastal vessels (*Periplus* pars. 30, 32), or overland to Ḥadhramaut where the major land route began.²⁶

²⁶ For routes in mediaeval times, see Grohmann, *op. cit.*, II, pp. 126 ff.; F. Stark, *The Southern Gates of*

Feeder routes were also used to transport myrrh to the Arabian coastal ports Ocelis, Eudaemon Arabia [Aden], and Muza. The extent to which these feeder routes were used varied with the importance of the ports. In turn the use of these ports depended on the shifting political patterns in South Arabia. A route certainly linked Ocelis with Timna', in view of the prominence of Ocelis and the fact that it was controlled by the king of Qatabân in Pliny's time (XII. xlii. 88, 93). Similarly a route extended from Beihân to Aden, as shown by ruins along its line, e. g., Im'âdiya,²⁷ and by Bowen's study of modern routes in this region.²⁸ In the time of the *Periplus* (par. 24), other feeders linked the myrrh groves with Muza, then the principal myrrh port.

Major overland routes were also used to transport frankincense to centers of distribution. In the late first millennium B. C. and probably earlier, the principal route in Arabia began at Shabwa and included stops at Timna', Mârib, Ma'in, Yathrib [Medîna], Dedan [el-'Olâ], and Gaza, a journey made in sixty-five stages from Timna' according to Pliny (XII. xxxii. 63-64). Alternate points at the north end mentioned by classical authors include: Aelana [Elath], according to Strabo who quotes Eratosthenes (16. 4. 4), or Leuce Come, Petra, and Rhinocolura [el-'Arîsh] according to Strabo (16. 4. 24) and the *Periplus* (par. 19), though the latter makes no mention of Rhinocolura. During the first century A. D., the southernmost section of the route ran from Qana' to Shabwa, as noted in the *Periplus* (par. 27). The probable existence of a cut-off route from Ḥadhramaut to Nejrân crossing the Ramlet Sabatein and by-passing Qatabân and Saba' has been suggested by Bowen,²⁹ following the work of Philby and Freya Stark. At the north end in earlier periods, there were probably several branches: one to western Palestine, another through northern Trans-Jordan, and one through Teimâ to Mesopotamia.³⁰ The impor-

tance of each branch probably varied with the status of the markets, which in turn depended on the political situation of the time. We may safely conclude that myrrh was also carried northward along this route, since it passed through the myrrh-producing states.

Strabo reports that a journey from Gerrha to Ḥadhramaut required forty days (16. 4. 4). This suggests the existence of an overland route across the middle of the Arabian Peninsula, since a course skirting the sands of 'Omân or a coastal voyage around eastern Arabia would require more time.³¹ Presumably this route was primarily used for the transport of Dhofâr frankincense to the north. From Gerrha, frankincense was distributed to Mesopotamia and to Palestine, according to Strabo (16. 4. 18; 16. 3. 3.) and Diodorus Siculus (III. 42. 5).³² The relationship between Gerrha and South Arabia is gradually being brought into sharp focus. It will be remembered that Gerrha was inhabited by Chaldaean exiles from Babylon, according to Strabo (16. 3. 3). While his source—probably Eratosthenes in this instance—goes back only to the third century B. C., Gerrha must have been a Chaldaean stronghold for some centuries earlier. W. F. Albright has shown that the probable source of the "Chaldaean" script is southeast Arabia.³³ Since Ḥadhramaut was generally oriented toward its eastern neighbors, including the Mahra country and Dhofâr, in the first century A. D. (*Periplus* par. 27) and possibly throughout its entire history, the existence of a route connecting Gerrha and Ḥadhramaut is not at all surprising.

That frankincense and myrrh were transported by sea in early times is known from Egyptian records which describe trade with Punt [Somaliland]. From at least the Eleventh Dynasty, incense moved to Egypt over one basic route: Somaliland to Quseir, to Coptos, and northward on

Arabia (New York, 1936), pp. 310 ff. Modern routes are noted by W. Thesiger, "A New Journey in Southern Arabia," *GJ*, 108 (1946), 139, note 1.

²⁷ S. Perowne, "Im'adiya and Beihan, Aden Protectorate," *Antiquity*, 13 (1939), 133 ff.

²⁸ Bowen, "Ancient Trade Routes in South Arabia," *op. cit.*, pp. 36 f.

²⁹ *Ibid.*, p. 39.

³⁰ The last two may have been the routes used by Sabaeen traders who, according to Strabo (16. 4. 19), transported incense to both Syria and Mesopotamia. With regard to the importance of Teimâ as a center of

commerce, see Berta Segall, "The Arts and King Nabonidus," *AJA*, 59 (1955), 315-18 and references.

³¹ B. Thomas' crossing of the Rub' el-Khalî from Dhofâr to the Qatar peninsula required a total of 58 days, of which 45 were spent in actual traveling. See "The First Crossing of the Rub' al-Khalî," *GJ*, 77 (1931), 361. See also Grohmann's remarks (*op. cit.*, II, p. 120).

³² For additional details, see G. F. Hourani, *Arab Seafaring* (Princeton, 1951), pp. 13 f.

³³ "The Chaldaean Inscriptions in Proto-Arabic Script," *BASOR*, 128 (1952), 44 f.

the Nile.³⁴ This route seems to have been used until the middle of the first millennium B.C., when ports farther north replaced Quseir. One of these was Myos Hormos, which was still used in Roman times, according to Strabo (16.4.24). Pliny lists alternate branches at the north end: (1) Berenice to Coptos (VI.xxvi.102-3), and (2) Arsinoe to Alexandria over one of three different routes (VI.xxxiii.166-67). To the Egyptian evidence for sea trade with Somaliland and almost certainly with South Arabia also, we must add the Biblical account of Solomon's Phoenician-built merchant fleet which operated out of Ezion-geber.³⁵ In spite of the fact that incense does not appear among the commodities entering into trade with Ophir [probably Somaliland],³⁶ it is reasonable to assume that Solomon's ships called at ports on both the African and the Arabian sides of the Red Sea. We do not know the details of the visit of the Queen of Sheba to Solomon, but there can be no doubt that it was an economic mission, the primary purpose of which was to secure an agreement concerning the distribution of frankincense and myrrh that would be beneficial to both parties. It is not improbable that arrangements were made covering the shipment of incense over both land and sea routes.

There can be little doubt that Arab fleets also carried on extensive trade along the coasts of Africa, Arabia, the Persian Gulf, and perhaps India from early times. The *Periplus* occasionally refers to commercial contacts between Arabia and these areas which must go back to the middle of the first millennium B.C. and probably earlier. With regard to Africa, it states that Arab merchant fleets based at Muza and Cana traded with the "far-side" ports of Somaliland (pars. 7, 27), and with East Africa including that section known as the Ausanitic coast³⁷ and as far south as

Rhapta.³⁸ It is also clear that the Arabs traded along the coasts of the Arabian Peninsula and with the islands off-shore. The *Periplus* notes that Leuce Come, controlled by the Nabataeans (par. 19), was primarily an Arab merchant town; that Eudaemon Arabia [Aden], was the point of transshipment where ships from Egypt and India exchanged cargoes in early times (par. 26); that Dioscorida [Socotra] was settled in part by Arab traders, including people from Muza, and belonged to Hadhramaut (pars. 30-31); that ships from Cana regularly visited Moscha, Sarapis Island [Masira Island], and Omana (pars. 27, 32-33). It further states that Cana carried on trade with the coast of Persia, Scythia, and Barygaza (par. 27), and that the important South Indian port Muziris "abounds in ships sent there with cargoes from Arabia" (pars. 54, 57). While none of these references specifically states that these contacts originated in early times, the picture as a whole is one of highly developed Arab merchant fleets and well-established commercial relations which probably have long traditions behind them. If we consider this suggestion in the light of the evidence for early trade with Rhapta and other East African ports, it becomes highly probable that

Karib'il Watar of Saba' and his allies. It seems briefly to have regained an independent status shortly before the Christian era, but did not again become a major land or sea power. Since the adoption of a state name by a foreign country presupposes closer contact, either military, commercial, or colonial, than existed between 'Ausân and the East African coast in this period, it is most unlikely that the East African coast became known as the Ausanitic coast at that time. Thus the naming of this section of the coast of Africa presumably goes back to the period when 'Ausân was strong and independent, i.e., to the fifth century B.C. Furthermore, the persistence of the name into the first century A.D., nearly 500 years after the floruit of 'Ausân, indicates that the relationship—whatever its nature—was strong and long-standing, perhaps going back a century or two before the fifth century. In any case, it strongly suggests an early date for South Arabian trade with this region. For details, see M. Höfner and H. von Wissmann, *Beiträge zur historischen Geographie des vorislamischen Südarabien*, Mainz Akademie der Wissenschaften und der Literatur. *Abhandlungen der geistes- und sozialwissenschaftlichen Klasse*, 1952, no. 4, (Wiesbaden), 287-93, and J. Ryckmans, "Petits royaumes sud-arabes d'après les auteurs classiques," *Le Muséon*, 70 (1957), 92 f.

³⁸ Par. 16. Note in particular that the political and commercial relationship mentioned here is specifically described as "ancient." In all probability it goes back to the period of the domination by 'Ausân referred to above.

³⁴ Grohmann, *op. cit.*, II, 101-104.

³⁵ I Kings 9:26-28, 10:11-12, and II Chr. 8:17-18, 9:10-11.

³⁶ On the identification of Ophir, see W. F. Albright's discussion in *Archaeology and the Religion of Israel* (Baltimore, 1956), pp. 133 ff.

³⁷ Par. 15. The identity of the name of the Ausanitic coast with that of the South Arabian state 'Ausân points to domination of the former by the latter. But to what period should we assign this domination? At this stage in our knowledge of South Arabian history, we do not know when 'Ausân came into being. Epigraphic evidence shows that it was an independent state in the fifth century B.C., and that it lost its independence in the late fifth century following the successful campaigns of

Arab trade with these places—most of which are nearer and more accessible than Rhapta—had been in progress for centuries.

All that is known of the early cinnamon trade supports this view. The classical writers,³⁹ with the exception of Pliny (XII. xlii. 85-88), believed that cinnamon was native to Ethiopia, the Somali coast, and South Arabia. The fact that it does not grow in these areas proves that Arab and Indian fleets were bringing cinnamon from India and the Far East to these points of transshipment in such quantities that western traders were led to assume falsely that it was a local product; a better demonstration of the secrecy of Arab and Indian traders with regard to their sources of supply would be hard to find.⁴⁰ Since the classical reports go back to the fourth century B. C., it is certain that Arab and Indian traffic in this commodity was flourishing at least that early.

There can be no doubt that Arab and Indian traders knew and made use of the annual alternation of the southwest and northeast monsoons long before it was discovered for the west by Hippalus in the first century A. D., and that they guarded this secret carefully for centuries from the Greek and Roman merchant marine.⁴¹

³⁹ Theophrastus IX. iv. 2, v. 1-2; Strabo 16. 4. 4, 14, 19, 25; *Diodorus Siculus*, Loeb Edition (London, 1935), III. 46. 3, hereafter abbreviated: *Diodorus Siculus*; *Periplus* pars. 8, 10, 13. See also W. H. Schoff's notes on the *Periplus*, *op. cit.*, pp. 82-4.

⁴⁰ Such trade secrets must have been exceedingly common in antiquity. Note, for example, that the Phoenicians did everything possible, even grounding their ships, to guard their source of tin and lead in the islands off the northwest coast of Spain (Strabo 3. 5. 11).

⁴¹ For a different interpretation of the use of the monsoons in early times, see G. F. Hourani, *op. cit.*, pp. 24-8. Hourani is probably right in saying that Hippalus only discovered how to use the southwest monsoon for making faster, though more dangerous, voyages to India. But he is almost certainly wrong in thinking (1) that since classical writers describe Hippalus' feat as a *discovery*, the Arabs did not use the southwest monsoon before his time, (2) that the Arabs could not have kept the alternation of the monsoons a trade secret, since Greek traders, who were scattered around the Indian Ocean, would have certainly discovered it, and (3) that the Arabs were unable to build ships that would survive the force of the southwest monsoon in the open sea. Space prohibits a detailed discussion of these points, and the writer will limit himself to a few observations here. The fact that classical writers designated Hippalus' work as a *discovery* in no way proves that the Arabs and Indians did not use the southwest monsoon before his time. We must remember that the classical authors were writing from a *western* point of

Greek and Roman sailings from Egypt to ports along the Red Sea and as far as the Arabian port of Cana began no later than September (*Periplus* pars. 6, 24). That a part of the merchant fleet based in Egypt specialized in incense trade and made regular rounds of the incense ports is suggested by these paragraphs in the *Periplus* and implied by Pliny (VI. xxvi. 104). But voyages to Somali and East African ports and to points beyond Cana were undertaken no later than July (*Periplus* pars. 14, 39, 49, 56; Pliny VI. xxvi. 104). According to the *Periplus*, there were two major sea routes to the south and east. One led to ports on the African side of the Red Sea (pars. 2-6), to the myrrh and frankincense ports on the

view and, from that point of view, Hippalus' successful use of the southwest monsoon was an important *discovery*. But this tells us nothing about Arab and Indian achievements before the time of Hippalus. It is incredible that Arab and Indian seamen, who had been plying this ocean for many centuries, would not have discovered and used the southwest monsoon in their voyages. This of course brings up the question of trade secrets. Doubtless some early Greek traders, who were settled in ports around the Indian Ocean, did know of the alternation of the monsoons, and probably also knew that the Arab and Indian fleets used the southwest monsoon to advantage. While it is one thing to *know* of the practice, it is quite a different matter to *learn* the principles of navigation that made such voyages possible. It is precisely in this area of knowledge that secrecy ruled. Furthermore, the lack of knowledge of places in the Indian Ocean beyond the Gulf of Aden among classical authors as late as Strabo's sources, together with abundant evidence that Aden and neighboring ports on both the Arabian and Somali coasts served as points of transshipment clearly indicate that Greek fleets did not yet sail beyond the Gulf of Aden. It is reasonable to suppose that the Arabs made a concerted effort—perhaps involving various forms of intimidation—to keep the Greeks out of the Indian Ocean and to guard their trade secrets; only in this way could they maintain their monopoly over this lucrative trade. With regard to ships, it is difficult to believe that the ancient Arabs lagged seriously behind other nations in knowledge of ship construction. Apart from the fact that the Arabs living on the shores of the Indian Ocean were inevitably involved in fishing and trading on the sea throughout their history, from at least the tenth century B. C. onwards, they were in more-or-less constant contact with countries which boasted of skilled shipbuilders, and if their own country lacked good materials, such materials were available in Ethiopia, East Africa, and lands with whom they enjoyed favorable trade relations. Because of their coveted incense, they were in a position to secure both materials and man-power necessary to build fleets equal to any afloat. That they also used vessels of inferior construction is also clear, but these appear to have been used for local voyages.

Somali coast (pars. 7-14), and to markets farther south in Azania (pars. 15-18). Ships using this route often sailed to India from the Market of Spices [probably near Cape Guardafui] (par. 57).

The principal route, however, was aimed at Arabian and Indian trade. Ships engaged in this traffic called at Muza (par. 24), Ocelis or Eudæmon Arabia in earlier periods,⁴² where they took on Arabian myrrh and probably Somali frankincense and myrrh brought there by local ships; Cana (*Periplus* pars. 27-28; Pliny VI. xxvi. 104), the principal Arabian frankincense port; and then sailed either to (1) the Persian Gulf, a route which included a stop at Omana where frankincense was imported (*Periplus* pars. 30, 32-37), (2) northwest India, including calls at Barbaricum, where frankincense was also imported (*Periplus* pars. 39, 41-49, 57), and Barygaza, or (3) southwest India with stops at a number of ports including Muziris (*Periplus* par. 57; Pliny VI. xxvi. 104). To go to northwest India, ships hugged the Arabian shore for three days after leaving Cana—roughly to Syagrus [Ras Fartak]—and then held course into the open sea. Ships bound for Muziris and other southwest Indian ports set out from Cana for the open sea, heading considerably off-wind (*Periplus* par. 57; Pliny VI. xxvi. 100-101). Although frankincense is not specifically listed as an import at Muziris, we can safely assume that it was one of the commodities which made up the “cargoes from Arabia,” described by the *Periplus* (par. 54).

The return voyage from India began between early December and the middle of January, according to Pliny (VI. xxvi. 106). Again several routes were available: (1) from both northwest and southwest India direct to Ocelis, the normal route with favorable winds (*Periplus* par. 25), (2) from India to Moscha, where ships making a late departure from India wintered and traded merchandise for frankincense which was then taken to Egypt (*Periplus* par. 32), and (3) from India to Dioscorida [socotra] and the Somali coast, although the *Periplus* implies that this route was primarily used by Indian shippers who called at ports on the Somali coast to exchange cargoes (pars. 14, 31).

The relative importance of the major land and sea routes cannot be determined with certainty at

this time. Probably the major share of incense traffic moved over land routes in early times, but Egyptian voyages to Punt, Solomon's Phoenician-built fleet operating from Ezion-geber, and Arab trade indicate that sea routes were also used. In the Greco-Roman period, the bulk of frankincense and myrrh seems to have been transported by sea, though the continued use of the major land route is clear from Pliny and Strabo (see above). A number of variable factors, including the comparative security of the routes and the costs of shipment, determined the merchant's choice of carrier. For example, piracy on the high seas was common at times, according to Pliny (VI. xxvi. 101) and the *Periplus* (par. 20), and no doubt more than one caravan was raided in the course of its long overland journey. Until more information is forthcoming, we can only conclude that both land and sea routes were used in all periods, and that their respective importance varied from time to time depending on political and economic conditions.

ECONOMIC EFFECTS OF THE INCENSE TRADE

That trade in incense brought great wealth to South Arabia is clear from the classical sources. According to Strabo, the South Arabian cities were prosperous (16. 4. 3), and the Sabaeans lived in effeminate luxury (16. 4. 19). He notes that they had great quantities of silver and gold articles, including vessels, tripods, and couches, and that they decorated the doors, walls, and ceilings of their houses with silver, gold, and ivory, inlaid with precious stones (16. 4. 19). Diodorus Siculus echoes this description and adds to the list gilded columns, capitals with silver figures, and recessed panels of gold set with precious stones (III. 47. 5-7). While these descriptions may be exaggerated, it was South Arabia's wealth that caused Augustus to send Aelius Gallus on the abortive Arabian campaign in 24 B. C.; his aim, according to Strabo (16. 4. 22), was to win wealthy friends or to conquer wealthy enemies.

Pliny describes the South Arabs as the wealthiest race in the world, and attributes their opulence to the fact that they receive the vast riches of Rome and Parthia and buy nothing in return (VI. xxxii. 162). This supposed parsimoniousness is not supported by the lists of Arabian imports preserved in the *Periplus*.⁴³ An analysis of these lists

⁴² Pliny VI. xxvi. 104. That these ports had been superseded by Muza by the middle of the first century A. D., is clear from the *Periplus* pars. 25-6.

⁴³ See Schoff's convenient lists on pp. 284-88.

shows that Arabian imports compare favorably in value with those of India and the African coast. Pliny also tells us that, conservatively estimated, trade with Arabia, India, and China cost the Roman Empire 100 million sesterces annually (XII. xli. 84). He notes elsewhere (VI. xxvi. 101) that Indian trade alone was valued at 50 million sesterces annually, or about one-half the above figure. Since most of the trade with China was channeled through Indian ports (*Periplus* par. 64) and should probably be included in this figure, we can assume that the other half, about 50 million sesterces, was spent for Arabian commodities. Presumably not all of this sum went to South Arabia, since a portion must have been used to pay for pearls and other exports at Persian Gulf ports. But even with allowances for the Persian Gulf trade and for the purchase of imports, South Arabia's income, derived largely from its incense trade with the Roman and Parthian Empires, was staggering.

The American Foundation's excavations in South Arabia⁴⁴ confirmed the extent of trade and the high level of prosperity enjoyed by the region during the last centuries B. C. and the first century A. D. Several examples of Italian Sigillata and other foreign fabrics were found at Timna', and have now been studied in detail by Howard Comfort;⁴⁵ they occur in sufficient quantity to suggest that they were fairly common imports. A number of Hellenistic bronze statues and other objects were also discovered, which were either imported direct from a center such as Alexandria, or more probably were cast locally from imported molds, as noted by Berta Segall.⁴⁶ On the other hand, a bronze statuette of a dancing girl found at Khôr Rôri⁴⁷ [possibly the site of Moscha of the *Periplus*],⁴⁸ which has been identified as Indian in origin and dated about the second century A. D.

⁴⁴ For details, see Wendell Phillips, *Qataban and Sheba* (New York, 1955); R. LeBaron Bowen, Frank P. Albright et al., *Archaeological Discoveries in South Arabia*; and other forthcoming volumes in the Publications of the American Foundation for the Study of Man.

⁴⁵ "Imported Pottery and Glass from Timna'," *Archaeological Discoveries in South Arabia*, pp. 199-207.

⁴⁶ "The Lion-Riders from Timna'," *ibid.*, pp. 155-64; "Sculpture from Arabia Felix; The Hellenistic Period," *AJA*, 59 (1955), 207-14.

⁴⁷ F. P. Albright, "From South Arabia," *Archaeology*, 7 (1954), 254.

⁴⁸ G. W. Van Beek, "Ancient Frankincense-Producing Areas," *Archaeological Discoveries in South Arabia*, p. 141.

by Ludwig Bachhofer, is clear evidence of trade with the east. These and a number of other objects, coming as they do from the excavation of relatively small areas of only a few sites, give us a glimpse of the wealth of the ancient South Arabs and the east-west range of their trade, the foundation of which was largely the production and distribution of frankincense and myrrh.

It is probable that the economic strength of South Arabia was equally great through most of the first millennium B. C. Aside from the evidence for early South Arabian trade cited above, the discovery of several pieces of South Arabian sculpture, which are strongly influenced by sculpture from the north—specifically from Syro-Phoenicia—can hardly be explained apart from commercial relations.⁴⁹ While the demand for incense was probably less in early times as Pliny suggests (XII. xxxii. 58), the revenue derived from the exchange and transshipment of Indian and African merchandise at Arabian ports may have largely compensated for the lower income from incense traffic.

POLITICAL EFFECTS OF THE INCENSE TRADE

The flourishing incense trade must have led to a constant struggle between the various South Arabian states for control of the frankincense- and myrrh-producing areas, and for mastery of ports and trade routes. We are not suggesting that the political history of ancient South Arabia should be interpreted solely in terms of contention for the monopoly of incense traffic; we are emphasizing that it was one of several decisive factors that played a role in the rise and fall of states.⁵⁰

The location of the myrrh- and frankincense-producing areas of Arabia, which are separated by several hundred miles of difficult terrain, and the multiplicity of sea and land incense routes made absolute control of all incense traffic by any South Arabian state extremely difficult, though not impossible. The inevitable result was a division in the control of incense between the western states, i. e., Saba', Ma'in, Qatabân, and 'Ausân, on the

⁴⁹ See Berta Segall, "Problems of Copy and Adaptation in the Second Quarter of the First Millennium B. C.," *AJA*, 60 (1956), 165-70; "Sculpture from Arabia Felix: The Earliest Phase," *Ars Orientalis*, 2 (1957), 35-42.

⁵⁰ For a similar interpretation, see J. Ryckmans, *L'institution monarchique en Arabie méridionale avant l'Islam* (Louvain, 1951), pp. 134 ff., though we place greater emphasis on early sea trade, for reasons discussed above.

one hand, and the eastern state, Ḥadhramaut—which apparently included Dhofār throughout much if not all of pre-Islamic history—on the other. Thus one of the western states might monopolize the myrrh region of southwest Arabia, the frankincense and myrrh ports of the neighboring Somali coast, the important western overland route to the north, and the ports in the southwest corner of the peninsula, Muza, Ocelis, and Eudaemon Arabia [Aden]. The eastern state would then be left in control of the frankincense-producing area of Dhofār, the overland track from Ḥadhramaut to Gerrha, and the sea routes to the Persian Gulf and India. Of course, this division was not hard and fast; there were crossings of the line at different times through conquests or commercial agreements.

As yet we do not have enough information to write a detailed and connected political history of ancient South Arabia along the lines of the histories of Egypt, Palestine, and Mesopotamia. Annalistic and narrative texts from South Arabia are few and, owing to its peripheral location, South Arabia was not a sufficiently strong force in the political life of the north to figure prominently in historical texts of that region. But classical sources and some South Arabic texts do contain material that enables us to illustrate the shifting control of the incense regions in several periods.

In the fourth century B. C., Theophrastus reported that the Sabaeans controlled the frankincense regions of Arabia and adjacent islands; the latter should perhaps be interpreted as the Somali coast, since no islands off Arabia produced incense, as far as we know (IX. iv. 5, 10). If the sources used by Theophrastus are correct—and this is not altogether certain—they must go back to the second half of the fifth century when Karib'il Watar, the last Mukarrib and first King of Saba', controlled as vassals or through conquest Ma'in, Qatabân, 'Ausân, Ḥadhramaut,⁵¹ and perhaps Dhofâr. By holding sway over these states, Saba' was able to exercise a monopoly over the incense traffic, and thus reassert its domination of South Arabian trade.⁵² Discoveries in Ethiopia⁵³ show that the

Aksum Plateau was also under Sabaeen control during this period, and, in view of Sabaeen expansion to the east and west, there can be little doubt that Saba' dominated the more accessible coast of northern Somaliland and its frankincense and myrrh production.

But the Sabaeen monopoly was short-lived; by the end of the fifth or early in the fourth century B. C., Ma'in and Ḥadhramaut had become more powerful and were linked together under the same royal family.⁵⁴ This union enabled these states to open a route through the Ramlet Sabatein, bypassing both Qatabân and Saba'⁵⁵ and depriving them of revenue from trade in Arabian frankincense. Here we have a rough east-west division of South Arabian incense trade, except that Ma'in was allied to the eastern state. To the western states remained the myrrh-producing region of Arabia and possibly the frankincense and myrrh regions of Somaliland. It seems probable that with the northern overland route in the hands of Ma'in and Ḥadhramaut, the western states, Saba' and Qatabân, channeled their trade through ports in the southwest corner of the peninsula; if future excavation discloses that one or more of these ports flourished in this period, we shall have strong support for this suggestion.

A similar division of control over the incense areas prevailed in the early first century B. C. Pliny, whose source in this instance must go back to this period,⁵⁶ makes it clear that Qatabân was the most powerful of the western states. He notes in particular that all frankincense had to be exported through Qatabân (XII. xxxii. 63-64), and that Qatabân not only controlled the port of Ocelis (XII. xlii. 88), but also held an absolute monopoly over the cinnamon trade (XII. xlii. 93). The fact that Pliny did not know of the frankincense-producing area of Somaliland (XII. xxx. 51) may indicate that Qatabân also dominated that region

bessiniens, Deutsche Aksum-Expedition II [Berlin, 1913]), and by the more recent French Expedition (A. Caquot, A. J. Drewes, "Les monuments recueillis à Maqallé," *Annales d'Éthiopie*, 1 [1955], 17-32), belongs to the fifth-fourth centuries B. C., and points to control of the region by this energetic Sabaeen ruler.

⁵⁴ Höfner and von Wissmann, *op. cit.*, pp. 328 f.

⁵⁵ For a discussion of this route and relevant bibliography, see Bowen, "Ancient Trade Routes in South Arabia," *op. cit.*, p. 39.

⁵⁶ The apparent conflicts in Pliny are probably due to a conflation of sources, see Höfner and von Wissmann, *op. cit.*, pp. 329 f.

⁵¹ For an excellent summary of these campaigns, see M. Höfner and H. von Wissmann, *op. cit.*, pp. 293-95.

⁵² See W. F. Albright, "The Chaldaean Inscriptions in Proto-Arabic Script," *BASOR*, 128 (1952), 45.

⁵³ Although space does not permit a detailed discussion here, much of the material recovered by the German Expedition (see D. Krencker, *Ältere Denkmäler Norda-*

and its trade. This view agrees with that obtained from other sources. For about two centuries, the power of Qatabân had been increasing, and it reached its zenith in the first century B. C. At that time Saba' was weak, and Ma'in was a vassal to Qatabân; Qatabân therefore was able to extend its control over the entire southwest corner of Arabia to Bâb el-Mandeb, and almost certainly over the incense ports on the Somali coast also. While Qatabân monopolized western incense production and channels of distribution, Ḥadhramaut presumably controlled the eastern frankincense forests of Dhofâr, the overland route to Gerrha, and the sea routes to the east. The fact that eastern (Dhofâr) frankincense moved westward to Sabota [Shabwa] and then to Thomna [Timna'] (Pliny, XII. xxxii. 63-64) suggests that a mutually beneficial trade agreement had been worked out between the principals, Qatabân and Ḥadhramaut.⁵⁷

At the time of the *Periplus*, about the middle of the first century A. D., the east-west division remained, though control of western incense production had once again changed hands. Saba' replaced Qatabân—the eastern part of which had been conquered by Ḥadhramaut about the first quarter of the first century A. D.—as the principal power in the west,⁵⁸ while Ḥadhramaut continued to rule the east. That Saba' controlled the major

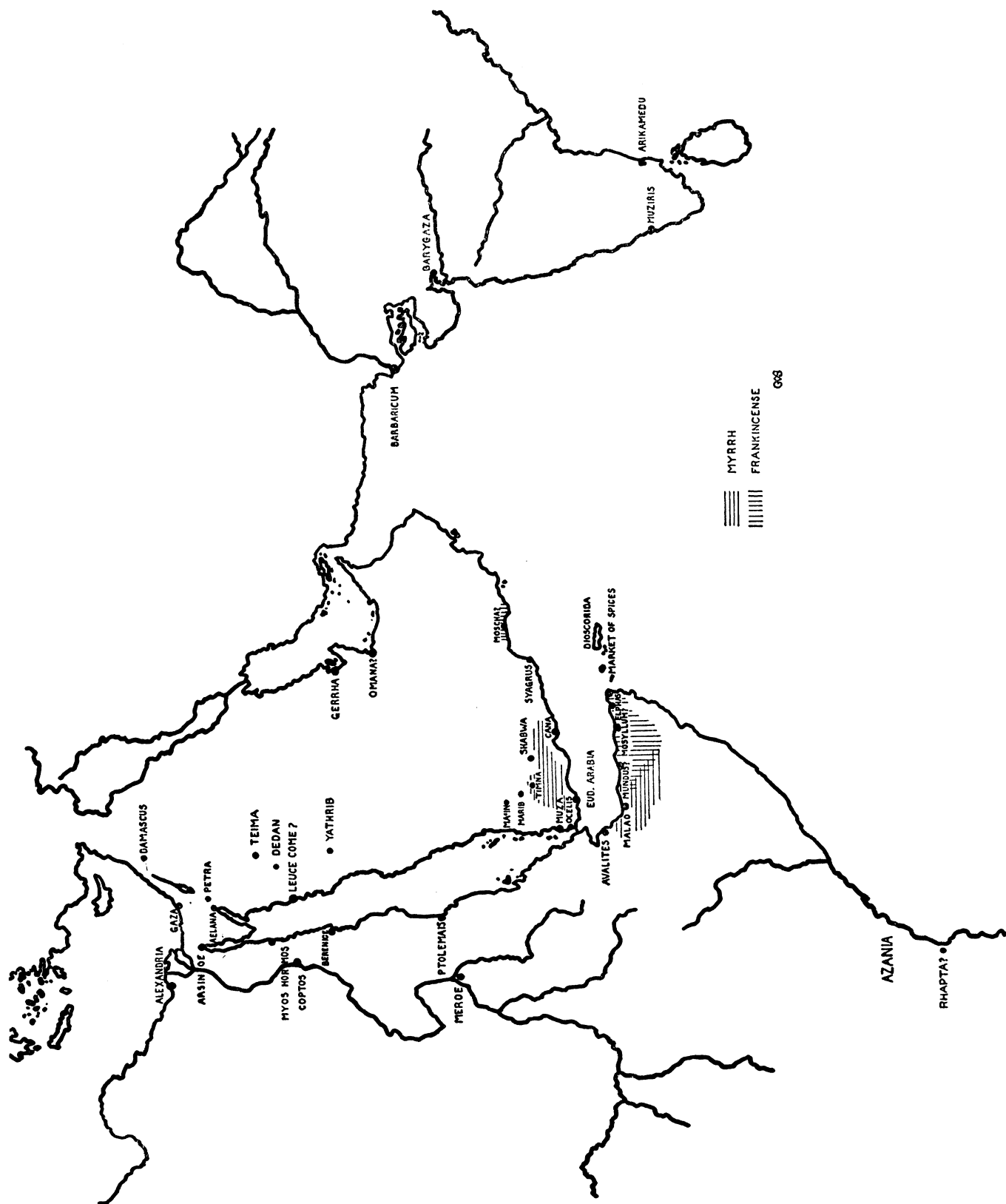
portion of the myrrh-producing area of Arabia is clear from our sources. According to the *Periplus* (par. 24), only one Arabian port—Muza—exported myrrh, and it belonged to the kingdom of Saba'. The fact that the Sabaeans were able to channel all myrrh destined to be shipped by sea through Muza is a strong indication that they held much if not all of the Arabian myrrh groves. It is also quite probable that Saba' controlled the major western land route to the north after the end of Minaean independence late in the first century B. C. The *Periplus* also indicates that Saba' largely dominated the trade of Somaliland, although the latter was shared by Greeks, Romans, Indians, and Ḥadhrāmīs (pars. 7, 8, 14, 27). Ḥadhramaut, on the other hand, controlled the Arabian frankincense area in Dhofâr, as stated in the *Periplus* (pars. 27, 29, 32), and confirmed by Ḥadhrāmi inscriptions and bronze coins found at Khôr Rôri by F. P. Albright for the American Foundation in 1952.⁵⁹ In spite of the competition of Greek and Roman merchant fleets, Ḥadhrāmi ships shared in the trade of the Persian Gulf and India (*Periplus* par. 27), with frankincense as their principal bartering commodity.

Whether desire for control of the incense regions and routes was the chief cause of the above-mentioned shifts in the political scene is not known. The various states were certainly aware of the economic advantages to be derived from possession of the areas of incense production and from control of ports and trade routes. For this reason alone, the incense traffic must have been a powerful force in determining the course of the political history of ancient South Arabia.

⁵⁷ We assume here that Ḥadhramaut was an independent state during this period, in spite of the fact that Pliny earlier describes it as a district of the Sabaeans. Among other reasons for this assumption, it is difficult to believe that a strong Qatabân, whose territory was situated between Saba' and Ḥadhramaut, would have permitted Sabaean control of the capital of Ḥadhramaut, Shabwa. Perhaps Pliny's source describes the situation at an earlier period.

⁵⁸ It should be noted in this connection that the new Louvain chronology, by which the foundation of Saba' and Dhû-Raidân is placed in the second half of the third century A. D., is a completely erroneous reconstruction and has seriously vitiated the otherwise excellent paper of J. Ryckmans, "Petits royaumes sud-arabes d'après les auteurs classiques," *Le Muséon*, 70 (1957), 76-96.

⁵⁹ See F. P. Albright, "Explorations in Dhofar, Oman," *Antiquity*, 113 (1955), 38. The coins, not yet published, are identical with a group acquired by Freya Stark between Shihr and Tarim in Ḥadhramaut, and published by John Walker, "A New Type of South Arabian Coinage," *Numismatic Chronicle*, series 5, 17 (1937), 260-79.



Sketch map of Arabia and adjacent lands, with probable locations of frankincense and myrrh forests indicated by hatching.