

Where are the wares? Eastern imports to Europe

IN THE DECADES around 800, European communications and commerce with the more developed economies of the south and east increased sharply. An accelerating rate of travel and developing new routes tell of tightening contacts among the trading worlds of east and west. In Italy, we have detected different clusters and axes of merchants and their movements; so too across the Alps, in Frankland. In Italy probably, in Frankland certainly, the geographic range of merchants and their goods expanded. Large regional zones of commerce constituted the dominant model. They sprang up along the main communications routes – the water routes are the most visible – and they interlocked. Frankland connected to the greater economies of Africa and the Middle East via Italy and Spain. Contacts were also taking place with the Middle East and Central Asia across the northern arc of Scandinavia and the Danubian corridor of the Slavlands. If these different observations are as well founded as they appear to be, then more proof should be forthcoming in terms of objects, wares that moved into the Frankish empire. We have already scrutinized two series of objects and the patterns of their movement into the Frankish ambit. Do they prove commerce?

The case is strong that whatever relics *were*, many came from the places they claim. Moreover, some relics were certainly bought and sold in a distinctively medieval form of commerce.¹ But their presence in a Frankish shrine does not reveal the circumstances of their acquisition. Some relics were purchased, but Charlemagne's ambassadors were charged with obtaining others. They directly show contacts, not necessarily commerce. Others may well have been obtained by pilgrims who were traveling on merchant vessels, but this too defies direct documentation. Coins? The proposition that they come from afar is less likely to offend twenty-first-century susceptibilities. But coins do not always move because of commerce.² For both relics and coins, aggregate patterns of movement create a

1 Herrmann-Mascard 1975, 339–54 and Geary 1990, 44–55.

2 Grierson 1959.

plausible context for reconstructing commerce; they do not prove it. To nail this case shut, goods imported from afar and mentioned in sources or still surviving today are indispensable. But the eastern goods so famously present in Merovingian Gaul, the papyrus, the spices and the silks, disappeared, did they not?

This chapter will argue that reality was more complex. Papyrus did disappear, in certain places and at certain times. But not in others. Spices became rare and expensive, and this changed the way in which people used them. Silks never disappeared, but the volume of importation changed, and probably more than once. We can add to these categories another ware, less studied but indispensable to early medieval culture in a way that these other goods were not: demand for papyrus, silk and spices was, after all, pretty elastic. The story that emerges involves issues of bulk transport, cultural change, and shifting patterns of supply and demand. In the end, that story of wares will confirm the reality of imports from the south and the east into Carolingian Europe.

The wares which crossed the Mediterranean are well known, although not always well documented. Only those which originated far from Frankland provide certain evidence of movement and probable evidence of exchange: spices, papyrus, silks are the classic goods. Incense too traveled from afar. Citrus fruits of some sort began to be imported, along with other exotic foodstuffs (Ch. 21.3). More ambiguous for now is the case of precious metals unless, like the coins we have tracked, they still bear the official stamp of Arab or Byzantine moneyers. One may hope that ongoing analysis of their chemical composition will create new insights. Certain kinds of textiles and clothing products are also not without ambiguity, the more so that their nomenclature still awaits its historian. What, for instance, is the story of Cordovan leather? The earliest reference I know comes in the seventh-century privilege quoted in Chilperic II's famous concession to Corbie. It mentions "ten Cordovan skins" collected by the royal customs house at Fos.³ Around 800, white and red Cordovan leather as well as Arab gold coins and textiles were imported into the southern French coastal zone between Narbonne and Marseilles, where they were offered as bribes to Charlemagne's personal representative.⁴ A generation later and much to the north, Abbot Ansegisus of Fontenelle (823–33) earmarked 3 lb. for the purchase of forty *cordebisus* for his monks. These skins were surely an expensive, high-quality product, since they cost half as much again as normal goatskin. Were they still being imported from Cordova? Or had the word already been transferred to local goatskins prepared in the Cordovan style? If the name still designated the place of manufacture, these forty

3 Corbie, no. 15: "cordevise pelles X."

4 Theodulf of Orleans, *Contra iudices*, 498.174–5, 499.211–16, 500.245–6, to

name only the objects explicitly identified by their origin.

Cordovan skins prove that trade with Muslim Spain was regularly reaching the Seine in the reign of Louis the Pious. After all, the item appears in a list of annual revenues and expenditures. If not, then it reveals more local technical innovation fostered by foreign goods.⁵ But before turning to the wares of indubitably distant origin, we must cast a glance at bulk transport inside the Carolingian empire, for it has implications for the movement of foreign goods beyond their port of entry.

I. Bulk wares inside Carolingian Europe

It is sometimes suggested that Carolingian commerce did not amount to much because it involved little transport of bulk goods.⁶ The polyptychs nonetheless show that estate systems moved large quantities of agrarian and craft products across great distances (see in general Maps 15.1 and 22.1). Even were we to repeat old errors and think these movements always excluded commerce, they signal the ability to ship bulk goods far and wide. But merchants and commerce also dealt in staples and bulk transports, as a few examples indicate.

Salt and bread were basic to life, and to Carolingian commerce. The indispensable condiment and preservative is unequally distributed across Europe, and has always figured prominently in early exchange systems connecting different ecological zones. Even around 700, at the nadir of trade, merchants from coastal Comacchio were peddling this vital commodity from their boats far inland (R88). Long after Venice became famous for more glamorous exports to Europe, salt underpinned the shipping of its more expensive goods.⁷ Along the Po river system, it remained the backbone of the trade of Venice's short-lived rival, Comacchio, into the ninth century.⁸ Efforts of Carolingian institutions to buy the salt they needed help us to see it traveling by the boatload up the rivers of Frankland, and by the wagonload over its roads. Indeed, the thrifty archbishop of Sens decided one year to buy inland at Toul: rainy weather had driven up the price at Sens of salt from his usual source of supply on the Atlantic coast, several hundred kilometers away.⁹ It is also one of the rare commodities for which we

5 Gesta Font., 13, 8, p. 122. The chronology suggests that this technique was a Visigothic innovation which was taken over by the Muslims, and provides a precious new hint that Cordova's early medieval economic development had begun before the Muslims arrived.

6 Fossier 1981, 269 is symptomatic.

7 Hocquet 1978-9.

8 E.g., Liutprand's *Pactum*, p. 124 (A.D. 715); DL II, no. 4 (5 October 851).

9 Boatload: Adrevald, *Miracula Benedicti* (BHL 1123), 19, ed. de Certain, pp. 46-7; Jeremiah of Sens, *apud Frotharius of Toul*, Ep. 8, MGH Epist. 5.281.27-35. See on the Carolingian salt trade in general, Ganshof 1959, 6; and esp. Johanek 1987, 29-30, with a thoughtful analysis of the decision of the archbishop of Sens; for salt production on the Seille, etc., Stoclet 1993, e.g., 80-4.

can discern smaller-scale commerce, from the story of a poor entrepreneur (Ch. 22.2).

Estate systems were not alone in ferrying grain around Europe: grain was commercially traded in different parts of the Carolingian empire and along its margins. We have already met the Mainz merchants who sailed up the Main to buy it; another Mainz house which probably belonged to a merchant bore the Old High German name "At the Granaries," while a bishop made handsome profits from selling grain in times of scarcity (above, pp. 655f). The Frisians whose slaves towed them up the Rhine as far as Strasburg bought grain which they "sold for a sea price," apparently a poetic expression for overseas trade and certainly implying that Alsatian grain reached the North Sea.¹⁰ Charlemagne was probably thinking of the Frisians and referring to grain when a shortage moved him to forbid food exports (*alimonia*), and we have noted at Hamburg the excavation of a ninth- or tenth-century dock covered with grain.¹¹ A historical romance written before the Arabs invaded Sicily depicted a papal convoy loading in Sicily for Rome. Although he does not specify the cargo, the author probably expected his reader to know that the ships were taking on grain.¹² We have already seen a later ninth-century indication of grain trading along the Tyrrhenian coast (Ch. 21.2).

Lumber and other building materials traveled the regional routes north of the Alps. Mentions of their movements come mostly from letters between great men, which means that when we see supplies changing hands, they tend to do so as gifts. The fact that medieval collections have preserved numerous examples of such begging letters is sometimes construed as evidence that markets were unable to supply the goods mentioned. But that deduction does not necessarily follow from a churchman's desire to obtain for free what other people paid for. One need look no further than Alcuin's elegant and witty entreaties to find an ecclesiastic asking for free wine, in an age when Frankland was exporting wine for anything but free into the North Sea trading zone.¹³ So too for building supplies: King Offa of Mercia solicited Charlemagne's help in obtaining long pieces of "black stone" (*petrae nigrae*).¹⁴ In this case, Charlemagne seems to promise to

10 Ermoldus Nigellus, *Ad Pippinum regem*, I, 107-9, p. 210, "Si non, Rhene, fores, mansissent denique nostra/Horrea, quae nobis gignit amoenus ager,/ Per te vecta quidem pretioque redempta marino," the point of this poetic bidding contest being that the Alsace would still have plenty of grain if there were no Rhine to transport it down to the sea for sale.

11 MGH Capit. no. 44, 4, 1.123.2-3; Jankuhn 1986, 140; for archaeological evidence of grain loading on a Hamburg dock, above, p. 610.

12 "Leontius," *V. Greg. Agrig.*, 61, 219.23-4; cf. *ibid.*, comm., pp. 381-2.

13 Alcuin, Ep. 192, 318.30-319.20. On Frankish wine exports, below.

14 Alcuin, Ep. 100, 145.36-9 (Charlemagne to Offa, 796). Charlemagne goes on to make his famous complaint about the (recent) shortening of the capes which the Mercians were exporting to the Franks. The reference to length, and to the dispatch of someone to pick out exactly the stones needed mean that Offa wished to use them in construction. I agree with

give the stone to Offa, and we cannot tell if there was commercial distribution of it beyond Frankland. But Hincmar of Rheims advised his diocesan priests that marble or *petra nigra* should be used for constructing altars. This suggests that both stones were available in Champagne, and presumably not due to generalized largess.¹⁵

That building materials were indeed traded is implied, for instance by the forests of lumber consumed at Dorestad (above, p. 653). It is proved by practical administrative records. When a benefactor gave a church two slabs of purple marble, he specified their price (£4).¹⁶ He also notes that he paid 8 d. at Boulogne-sur-Mer for construction material, probably lumber.¹⁷ Ermold Nigellus' poetic debate over the economy states outright that Alsace exported lumber for the gold dust and gems that the Rhine supplied in exchange: "You've got wooden canopies, we've got gold dust, / For hardwood lumber comes a shiny gem."¹⁸ Alsatian raw materials attracted gold and gems up the Rhine, perhaps even from the North Sea trading zone. Lumber was surely not carted across the Alps, but it floated easily downriver.

Frankish and Anglo-Saxon metal production concerned more than coinage. The silver-bearing lead mines at Melle in Poitou explain the large number of pennies struck at the mint there, and the mines were bustling under the Carolingians.¹⁹ But scientific analysis proves that even many coins made in that mining region drew their silver from other, unidentified sources.²⁰ The best-documented sort of metal concerns the prestigious projects of the elite, not the indispensable iron of daily life, and lead leads the way in establishing increasing Carolingian metal production and shipment. The mines at Melle may have supplied some of the lead which reappears suddenly and broadly on the roofs of high-status buildings. In addition to Charlemagne's chapel at Aachen, his son-in-law's monastic showpiece of St. Riquier received a lead roof.²¹ Around 800,

Footnote 14 (cont.)

Levison (1946, 111): the stones were certainly not the Rhenish millstones which Francia exported to England and Scandinavia; cf. Johanek 1987, 32n119. More probably they were a black construction stone, perhaps like the one still called "pierre noire" in Belgium and quarried around Tournai, from where transport down the Scheldt to the sea would have been easy.

15 *Capitula synodica* III, 3, PL, 125-794C.

16 *Diplomata belgica*, no. 37.

17 *Ibid.*, "ad materiam altaris."

18 Ermoldus Nigellus, *Ad Pippinum*, I, 125-6,

p. 212: "Lignea tecta tibi, nobis est aurea harena/ Robore pro secto lucida gemma venit."

19 Grierson and Blackburn 1986, 235-9. Traver 1938, 23-7, on what his contemporaries knew about the mines; cf. 29-39 on the Carolingian occupation; Stoclet 1993 has much valuable information on Carolingian mining and metal production.

20 Barrandon and Dumas 1990.

21 Aachen: *Ann. regni Franc.*, a. 829, p. 177; St. Riquier: Hariulf, *Chron. Centul.*, 3, 26, p. 149.

lead also covered the shrine of St. Martin at Tours.²² Some tin (*stannum*) apparently crossed the Alps as a royal gift. At least Charlemagne and the abbot of St. Martin of Tours had each promised the pope half a ton.²³ Hadrian I's request that the king require each of his counts to transport 100 lb. of the metal certifies that there was no thought of floating this cumbersome material down the ancient Rhône route. Nothing could make clearer the changed circumstances of that river. Although there may have been some delay, St. Peter's did get a new roof. At the very outset of his reign, the next pope took credit for it, a fair indication that Hadrian had started the massive project.²⁴ Fortunatus of Grado noted in his will that the lead with which he had roofed his church had been a gift of the "Holy Empire" and his own efforts. He was probably referring to a similar gift of Charlemagne.²⁵ In the next reign, Ansegisus covered the tower and apse of the church of St. Peter at Fontenelle with lead sheathing.²⁶ The monastery of St. Denis seems also to have had a lead roof. In the 830s, the monk who invented the fabulous acts of King Dagobert states that, every other year, an unspecified mine produced four tons of lead as dues for the king. He claimed that the ancient king had ordained that the lead (apparently all 8,000 lb.) should be delivered to the abbey's agents or treasurers every other year, in perpetuity, for the roof. Once again, this historical fiction tells us nothing about the seventh century, but much about the era of its composition, when Abbot Hilduin, the man behind the *Gesta*, was well placed at court to know the details of royal revenues. Whether or not this scheme actually produced the desired effect on Louis the Pious, it is hard to imagine that the abbot actually meant to replace the roof every twenty-four months. Surely, like the wine of St. Germain, the plan was to sell it.²⁷ Lead roofs

22 *Vita Alcuini* (BHL 242), 19, MGH SS

15.1.194.12-17. The building went back to the 5th C., but this was not likely to have been the original roof. On the basilica, Pietri and Biarne 1987, 32-4.

23 *Cod. Car.*, 78, 610.2-30.

24 *Liber pont.*, Duchesne, 2.1.21-4: "Sarta tecta . . . a summo usque ad summum, omnia et in omnibus noviter restauravit." The pope restored the roof over the main nave, the transept, the portico of the vast atrium, the fountains, and the bell tower. Leo III also took credit the same year (792-3) for redoing the roof of the titular church of St. Anastasia; see Geertman 1975, 38. Other roofs were repaired the next year: *Liber pont.*, 2.11-15. In 809-10, Leo III restored the roof of Santa Maria Maggiore: *ibid.*, 27.28-9. In 779-80, Hadrian I had repaired

the roof of a titular church: *ibid.*, 1.507.3-4; cf. Geertman 1975, 12.

25 *Documenti di Venezia*, no. 45, p. 76: "Et coperii ipsam ecclesiam de plumbo de dono sancti imperii et in meo certamine."

26 *Gesta Font.*, 13, 5, p. 106.

27 *Gesta Dagoberti*, 40, 419.3-11, "Denique eodem tempore plumbum, quod ei ex metallo censitum in secundo semper anno solvebatur, libras octo millia ad cooperendam eandem supradictorum beatorum martyrum ecclesiam eo ordine concessit, ut . . . in alio semper anno adduceretur et agentibus vel thesaurariis ipsius venerandi monasterii traderetur . . ." On the work and Hilduin, see Wattenbach et al. 1952-90, 319; cf. 302n30. Lead and construction wood were shipped up the Seine, apparently to St. Denis, and may have been

continued to be added even in mid-century, after the civil wars and the first Viking incursions. When Hincmar finished the great basilica at Rheims, he topped it with a lead roof.²⁸ St. Bertin got one in 854.²⁹ Lead also crossed the Channel, since Lupus of Ferrières was hoping for royal help when he asked an English king for a gift of lead to roof his church. He also wouldn't object if it were transported to Etaples free of charge.³⁰ In the late ninth century, Anglo-Saxon merchants may have been hauling tin across the Alps to sell in Italy (above, p. 680). One wonders whether the innovative tin decorations on the Carolingian pottery known as Tating ware are symptomatic of a new and broader availability.

Although the history of medieval metal production is still in its infancy, this shipping and selling points to resurgent metal extraction and processing. Even before the archaeologists began to sift their evidence, the written record led some to conclude that estate systems expanded metal making at least modestly, including in the crucial arena of iron production.³¹ Carolingian industrial waste is beginning to redraw the contours of our knowledge across the empire. Those wastes evince expansion, for instance in France, Germany, and Holland.

French highway builders recently uncovered 2,500 iron pits at Vert-Saint-Denis, near Melun, about a kilometer from a tributary of the Seine. Mining began in the eighth century and expanded rapidly; it continued into the eleventh.³² Two-man teams seem to have dug the pits, true to the small-scale model that had come to prevail in the west at the end of antiquity (Ch. 2.1). Annual production at this particular site may not have been enormous, but it was new.³³ So too an extensive mining and smelting operation from the eighth and ninth century has emerged to push the origins of Lorraine iron production back four hundred years.³⁴ Iron smelting appears or reappears in southwestern Germany in the eighth century and, apparently on a significant scale, in Bavaria, a little later.³⁵ The deepening

Footnote 27 (cont.)

loaded on the banks of the Rhine. The St. Denis formula collection, compiled under Abbot Fardulf (793–806), contains a letter from a prelate to an abbot arranging for a ship to deliver lead and, apparently, lumber for construction (*materiamen*) to the mouth of the Seine ("Signa"): *Collectio S. Dionysii*, 17, *MGH Formulae* 505.20–4; on which see Buchner 1953, 54; on this document, Stoclet 1993, 151–4.

28 Flodoard, *Hist. Remensis eccl.*, 3, 5, *MGH SS* 36.198.9.

29 Folcuin, *Gesta abbatum Sithiensium*, *MGH SS* 13.618.26.

30 Lupus, *Ep.* 13–14 (84–5), pp. 21–3.

31 Lombard 1974; Sprandel 1969, 305–6.

32 The 2,500 small pits are crowded into the 2 hectares excavated: Daveau and Goustard 1997.

33 Each pit produced some 160 kg of high-grade ore (c. 80 percent ferrous oxide). Assuming a uniform rate of exploitation over the three centuries of operation yields an annual average of production of c. 1.6 tons of ore for the excavated area: Daveau and Goustard 1997, 48. The excavation map (*ibid.*, 47) leaves no doubt that mining continued in the non-excavated area to the west.

34 Leroy 1988.

35 Szöke 1990 and Frei 1966.

history of the lead and silver mines of the Harz mountains in northern Germany appears symptomatic when compared, for example with the Rhineland kilns. Down to the eighth or ninth century, men mined the argentiferous Harz lead deposits continuously, but on a small scale. Then things changed: a centralization of the smelting process brings with it the presumption of higher productivity. This reorganization paved the way for the very visible Ottonian expansion in the tenth century, when Harz mining finally breaks through into the written records, and makes its mark in the ancient lead pollution scientists have recently measured in Switzerland and Greenland.³⁶ In the Netherlands, a small area north of Dorestad has disclosed three major iron production centers. Two were operating in the ninth century, one newly; the volume of production was considerable, and seems to have outstripped local needs.³⁷ In the Jura, the first of the numerous small sites to be explored showed considerable production in the late Merovingian period.³⁸ The tempo of metal production was up. Were dynamic great estates fanning production? In any event, the archaeology of metal extraction meshes with the written evidence for exchange.

Higher value per weight characterized the textiles traded among regions of the Frankish empire. Charlemagne's complaint about recent changes in the size of English textile products exported to his empire makes perfectly clear that fabrics were traded across the Channel in standard lengths. Indeed, the wording implies that the kingdom of Mercia was exporting finished garments (*sagi*, cloaks), to Frankland.³⁹ The Frisians were famous for their textiles, which were remarkable apparently both for their fabric and for their dye qualities. These wares traveled at least as far south as Strasburg and, although the debate continues on whether it is the famous Frisian cloth, the archaeological data accumulates for a quality textile diffused in eastern England, around the southern North Sea, and up the Rhine to the foothills of the Alps.⁴⁰ Wealthy institutions that had ready access to the markets fed by the North Sea traders purchased part of their textile needs. Others had the good fortune to see large quantities come to them each year as rent from their Frisian holdings. This was the case of the 855 textiles supplied to Fulda, or those owed to St. Bavo's of Ghent.⁴¹ Where they were

36 Klappauf 1995; Shotyk et al. 1998, 1638.

37 The third ceased production in the 4th C.: Joosten et al. 1997.

38 Two furnaces (assigned to c. 550–650 by C_{14} and archaeomagnetic dating) which apparently produced c. 1,000 kg of iron in about two years of operation: Eschenlohr et al. 1991, 13–15 and 120–1. The smelting operations have been hypothetically linked with early medieval population growth deduced from place-names.

39 Alcuin, *Ep.* 100, 145.39–41.

40 Lebecq 1983, 1: 131–4; Ermold, *Ad Pippinum*, I, 123–4, p. 210; Steuer 1987a, 170–2.

41 Thus Fontenelle allocated c. 40 lb. annually for buying clothing, the details of which Abbot Ansegisus spelled out: *Gesta Font.*, 13, 8, pp. 122–3. Fulda and St. Bavo: Lebecq 1983, 1: 132–3.

getting it is not clear, but the landless Venetians traded linen up the Po.⁴² And high-value goods like wine were apt to travel long distances in the ninth century, from the Seine or Rhine rivers or along the Tyrrhenian coast (Ch. 22.3–4; 21.2).

2. The problem of papyrus and the Alps

So even cumbersome goods like salt, lead or grain ranged long distances, especially, but not exclusively, when water transport was available. Some goods surely went as gifts. No less surely, some traveled as commercial wares. Einhard makes this explicit about grain; Ermold does the same for wine, and Wandalbert for pots. Even bishops paid for their salt. Men, carts, beasts, and boats moved wares like these along the rivers, roads, and coasts of Frankland and Italy, and their movements breathed new life into transport and commercial infrastructures. Two of the most active routes, the Po and the Rhine rivers, led to opposite edges of the Alps. But there is little reason to think that the grain, ceramics, wine, salt, or other bulky wares regularly left the relatively inexpensive water transport systems behind and crossed the Alps overland, from one transport zone to another. When bulk goods like the papal tin did cross the Alps, typically, cost was irrelevant since commerce was not at issue, and transport was organized *ad hoc*.⁴³

The changing seasonality of papal communications has confirmed the accuracy of anecdotal evidence for a shift. Predominantly seaborne links between Italy and Gaul were replaced by predominantly overland ones by the eighth century (Ch. 3.3). The shift illuminates – and explains – one of the most striking facts Pirenne adduced to prove the impact of Islam on trade to Frankland. In Pirenne's view, the disappearance of papyrus from Gaul established that the Islamic supremacy cut off distribution of an indubitably Egyptian product. In fact, he mistook a regional change in the transport infrastructure for an international economic change. A look at Map 24.1 makes this clear.

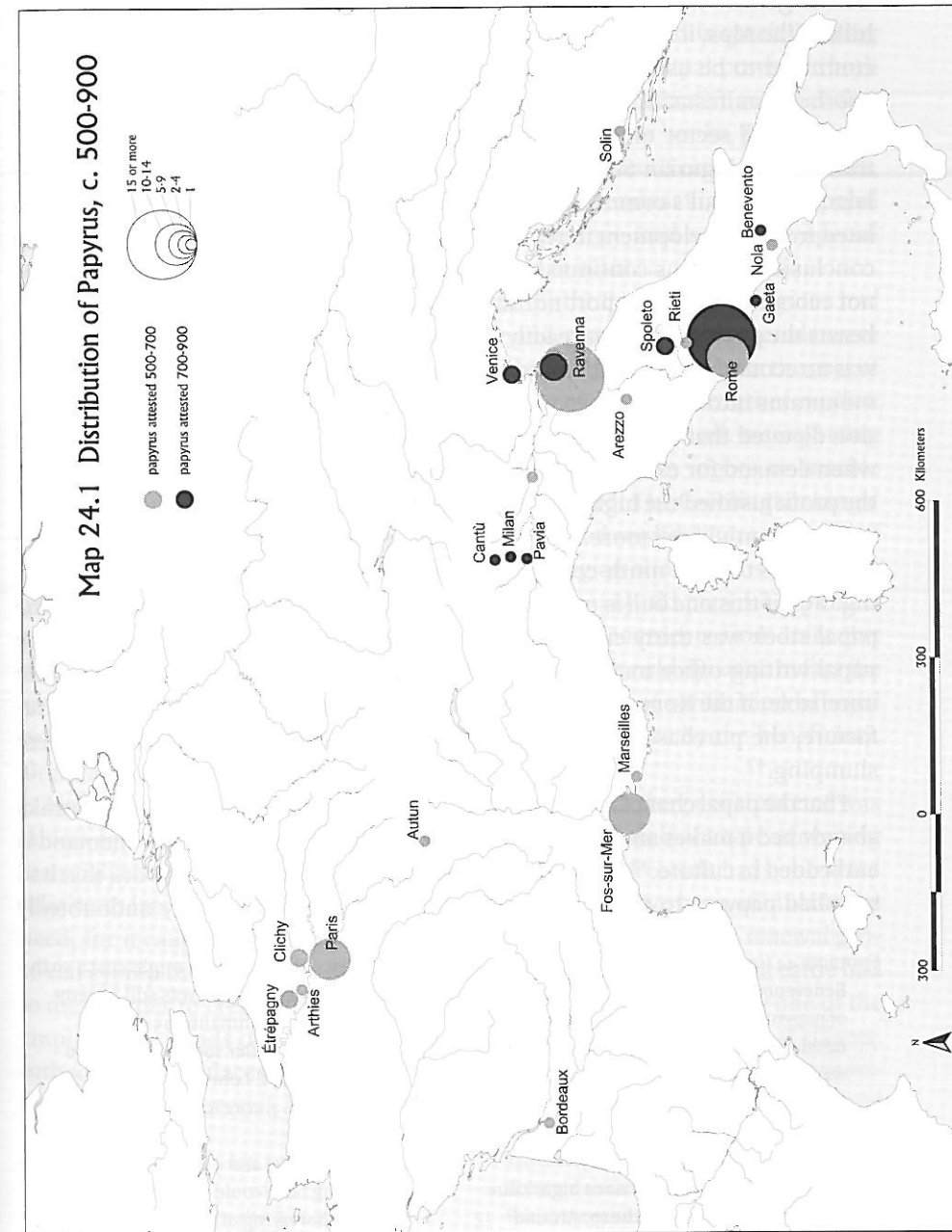
What changed around 700 was not the production of papyrus in Egypt, nor its export across the Mediterranean to Europe. What changed was only that the northernmost leg of its distribution into Frankland ceased.⁴⁴ Papyrus remained

42 Bobbio Polyptych of 862, 138.18–19. Egypt, where the Venetians certainly traded, was a major producer of linen: Mackie 1989, 82.

43 In the opposite direction, Charlemagne sent beasts of burden (“vehicula fortia et multa”) to bring marble and columns from Rome and Ravenna for his son-in-law's monastery at St. Riquier as well as for his own palace: Hariulf, *Chron. Cent.*, 2, 6,

p. 63, which makes explicit that Charlemagne sent the beasts; Einhard, *V. Karoli*, 26, 31.1–3; cf. *Cod. Car.*, 81, p. 614.

44 The occasional statement that papyrus was still used in France as late as 787 (e.g. Lewis 1974, 92) is groundless. The papyrus letter of 788 preserved in Paris, Archives Nationales, K7, no. 9 (ChLA 16, no. 629) was sent to Charlemagne by his ambassador in



readily available in Italy: as far north as Rome, writers on the west coast consumed appreciable quantities of the Egyptian import until an era when the Carolingians were but a memory. On the Adriatic side, practically up to the foothills of the Alps, it remained in common use throughout the ninth century. It also continued to be used in Spain. In other words, the story of papyrus is simply another manifestation of how shifting regional communications affected one relatively small sector of the Mediterranean, the sea link running north of Rome through the Ligurian Sea to the mouth of the Rhône. Pirenne's argument that Islam killed Gaul's commerce with the Middle East is misleading: it has extrapolated from a development in regional transport a Mediterranean-wide economic conclusion. Papyrus continued to be produced and exported. But it simply was not economical to transport northward across the Alps on the backs of men or beasts the papyrus that was readily available in Venice.⁴⁵ By the same token, there was no economic justification for carrying Rhine wine and grain south across the mountains into the fertile Po valley. The shifting infrastructures of communication dictated that only high-value, low-bulk goods be imported into Frankland when demand for exotic goods began to grow again north of the Alps. For them, the profit justified the higher cost of transalpine transport.

Papyrus might tell more. One piece which still bears its Arabic manufacturing mark hints that the ninth-century papal writing office may have started stockpiling. But, if this one bull is typical and the reading of the Arabic correct, in 876 the papal stock was thirty-eight years, not centuries, old.⁴⁶ This suggests that the papal writing office may have reckoned around 840 that supply networks were unreliable; if the Roman officials had bought the papyrus shortly after its manufacture, the purchase occurred precisely when peaceful communications were slumping.⁴⁷

That the papal chancery continued to use papyrus for centuries after the Franks abandoned it makes another important point. We too easily forget that demand is embedded in culture.⁴⁸ The collapse of the part of the transport network that had supplied papyrus to the Frankish elite in the late seventh century undoubtedly

Footnote 44 (cont.)

Benevento. The problem of the distribution of papyrus within Egypt may be complicated. 9th-C. papyri suggest that the supply was more abundant at the capital, Fustat (Old Cairo), than in the Fayum, a great production center: *Marchands d'étoffes*, 2, no. 3.17, p. 11 and no. 9.20-1, p. 25.

45 For its bulk, papyrus was not a high-value item. But it was not dirt cheap. Around 800, a roll (probably twenty sheets) of the highest quality cost one-and-a-half dinars

in Egypt. Inferior grades might cost a sixth of that or less, but that was still a pretty price to pay: Grohmann 1954, 1: 69.

46 JE 3052, Santifaller 1953, 50; Bresslau 1912-60, 2: 491; Lohrmann 1968, 187.

47 See Chart 14.3, core movements and Arab coins.

48 Lopez 1943, 35 and 37 pointed out that changing taste could have affected Frankish wearing of silk and use of spices, although he emphasized other factors at the producing end of the circuit.

explains why the north ceased writing on this particular material. But it remained available in the Mediterranean. Even in the eleventh century, the papal writing office still clung tenaciously to the papyrus that had become extinct elsewhere in Italy. The reason is simple, and it is not economic. The use of this special writing material was part of the conservative symbolic culture of papal power. It both embodied and reflected an unbroken continuity of administrative routines that went back to antiquity; so too certain papal internal service books, probably the registers, continued to be written on papyrus into the eleventh century.⁴⁹ Besides, the writing material served as one among many independent signals of a papal document's authenticity, alongside the Byzantine-style lead seals, the special handwritings, and the rhythmic formulas known as *cursus*.

North of the Alps, the situation was different. By the time the Carolingians had seized power, the economy was rebounding and more writing materials were needed in general. The new rulers certainly had enough wealth to bear the cost of importing papyrus across the Alps and restoring its use in their rather modest writing office, if they had perceived an imperious need. After all, transporting rolls of papyrus would have been easier than dragging tin ingots or marble columns across the mountains. But things had changed. The Carolingian kings' writing office grew out of the household clergy who had served them as mayors of the palace. In other words, it broke with the Merovingian one in terms of personnel and organization. The new kings certainly saw many old papyrus diplomas when they confirmed old privileges or received new documents from Italy. But those who drew up their records felt no need to imitate the old dynasty; in fact the writing material played so small a part in the apparatus of verification of royal privileges that it was sometimes supplied to the royal office by the beneficiary, along with the text of the charter.⁵⁰

No less important, in the meantime, parchment (with the persistence of wax tablets for ephemera) had become the normal and predominant type of writing material, even as the social base of literacy and its written records had contracted relative to late antiquity. Production of parchment must have been stimulated by need, for it caught up with demand. It kept pace as the Carolingian renewal provoked a jump in the quantity of parchment consumed. Many sheep and cattle had to die in order to create the small liturgical libraries required for every one of the empire's thousands of parish priests, as well as the growing libraries of abbeys, cathedrals, and palaces.⁵¹ In fact, for several centuries, there is little sign of shortages of writing material, for instance recourse to palimpsests, which recycled old

49 Santifaller 1953, 35-49; Lohrmann 1968, 185-94.

50 Tessier 1962, 109-11: this was manifestly true of privileges written up outside the royal writing office and subsequently

validated by it, a habit which can be detected as early as Louis the Pious.

51 For some estimates and the economic aspects of book production, see McKitterick 1989, 135-41.

manuscripts. This includes the eleventh and twelfth centuries, when the economy and population soared, along with the generation of records and of more learned tomes. A *contrario*, the same point is made by the rather slow penetration of paper, whose price might have been cheaper and whose quantities were, ultimately, more infinitely increasable than parchment. In the Italian peninsula, the vanguard of western economic (and record-generating) growth, paper did not become common until the later 1100s, while Europe north of the Alps lagged by more than a century, despite the advent of new cities, royal governments, universities, and a culture of writing whose social base was incomparably larger than it had been in the early Middle Ages.⁵² In a word, once a changing transport infrastructure interrupted the transalpine supply of papyrus, shifting cultural and institutional patterns joined to insure that northern demand for papyrus never returned to earlier levels.

3. Drugs: the spice of life

If demand for a material which had once seemed indispensable for the orderly conduct of daily business was so elastic, what are we to think of goods whose superfluous luxury was even more pronounced? In some respects, spices are not so dissimilar to changing attitudes toward writing materials. Those of us who remember the American table of the 1950s or earlier will recognize that the use of spices in cooking is a culturally conditioned and fluid kind of demand.

As we have seen in Rome, Venice, and the Po valley, exotic spices and fragrances were available on the Italian side of the Alps. Pepper was reckoned in pounds or sacks (presumably a multiple of pounds). Cumin also was counted in pounds; cinnamon and *costus* were measured in ounces. Notwithstanding occasional assertions to the contrary, these very high-value, low-volume goods certainly reached the north. But the additional transport and, perhaps, the more dispersed geography of demand raised cost and diminished volume. Tellingly, south of the Alps, the casual vocabulary of exotic substances tends to be richer and more precise: one hears of *serostyrax*, *cozumber*, and *olibanus*. North of the Alps, it is often simply "spices" (*pigmenta*) or "incense" (*incensum*), implying that the supply offered less choice and variety.⁵³

52 Paper: there is a fine summary in J. Irigoin, "Paper, Introduction of," *Dictionary of the Middle Ages* 9 (New York, 1987): 388–90.

53 *Serostyrax* and *cozumber* (the derivation of the latter is unclear to me; cf. also below, 1104): Boniface, *Ep.* 85, 191.17 (A.D. 746–7), and 65, 128.22; Bishop Ursus' will:

San Lorenzo, no. 1 (February 853) mentions 600 lb. of silver and three sacks, one of pepper, one "de alivano," and one unspecified (p. 9). The second sack's contents were incense: this is a slightly deformed version of the Greek loan-word *olibanum*, from <τ>δ λιβανον, hitherto first attested

Nonetheless, signs are unmistakable that availability improved north of the Alps. In the spring of 735, the great and venerable Bede lay dying in his monastery, a stone's throw from the Tyne river and the North Sea. On his deathbed, he distributed to the priests of Jarrow his personal stash of fancy stoles, pepper, and incense.⁵⁴ Four generations later, things had changed. Pepper and incense ceased being once-in-a-lifetime gifts for the ranking clergy of a great monastery. On the other side of the North Sea, the eight clerics of every level who staffed a minor church belonging to St. Bertin received a present every year on the founder's anniversary, 5 November. It consisted of an ounce of pepper, a second ounce of cumin, and a third of cinnamon, galingale (a type of ginger), or cloves.⁵⁵ The fact that the document specifies different options for the third spice probably implies that in any given year, one could be certain of obtaining one of the three, but not all of them. Pepper and cumin posed no such problems. At Fontenelle, to care for sick monks, the abbot assigned a pound of silver per year to buying "spices" (*pigmenta*) for mixing with honey.⁵⁶

Spices were available, but they were not the sort of thing one could expect in every country priest's home. In 877 Hincmar admonished his suffragans not to demand from their hosts unnecessary things like spices and other sorts of (expensive) goods when they traveled through their diocese preaching and confirming the baptized. After all, Hincmar added, even their own palaces might not have all the things the bishops were demanding from their priests. Clearly, however, some bishops were demanding spices as part of their country subordinates' hospitality. In fact, it was a fairly complicated world, since Hincmar goes on to imply that bishops were living off supplies unduly demanded from subordinates, and were getting rich by selling their own stores.⁵⁷ Walafrid Strabo mentions the high price

in 10th-C. Rome: Kahane and Kahane 1970–6, 369. If the copy is reliable, the first letter suggests that Venetians mistook the Greek word for Arabic. This was an entirely plausible slip, since the ancient Greek word derived from a Semitic root; and it is telling for the geography of supply.

Pigmentum is the usual Carolingian word for spices: see e.g., Christian of Stavelot, *Expositio in Matthaeum*, 2: "Thus . . . quia . . . hoc pigmentum Domino fuit oblatum . . ." PL, 106.1284A. See following notes for further examples. For *incensum*, see further below. Physicians, however, were relatively precise on either side of the Alps: below.

54 Cuthbert, *De obitu Baedae*, p. clxiii, as Paul Meyvaert has pointed out to me.

55 According to a charter of 867: *Diplomata*

belgica, no. 37. The revenues of the properties of the Holy Savior church are specified to feed and clothe eight clerici every year. The triple option could simply mean that all were available and a selection was possible, but the character of the document inclines me to suspect that this interpretation is less likely. Battisti 1961, 639, thought galingale first appeared in the west in the 13th C.

56 *Gesta Font.*, 13, 8, p. 122. The abbey's estates supplied large amounts of honey, so the 20 s. were presumably spent on the spices. Honey, e.g. *ibid.*, pp. 120–1: Ansegisus enumerates dues totaling 13 sextarii.

57 In the same sentence: *Epistola* 52, PL, 126.274D: ". . . praecipiat ut, intrantes in domos eorum quibus pacem praedicant, illa edant et bibant quae apud illos sunt, per

of a heap of pepper in Frankland ("apud Gallos").⁵⁸ Spices were indubitably luxuries, even gifts fit for a king, and, in keeping with the kind of literary documents produced by the Carolingian renaissance, that is when we hear about them. That Harun al Rashid sent a remarkable selection to Aachen is well known.⁵⁹ But members of the Carolingian family also exchanged such presents among themselves, to judge from a royal letter which mentions them in the same breath as a fine horse, a saddle, and a large curtain intended to decorate the palace.⁶⁰ A bishop who had disobeyed his king sought to assuage the royal ire by sending him a heap of extraordinary gifts ("small favors," *parva xeniola*). The bishop was probably Salomon II of Constance, writing to King Louis the German, before 876. When the prelate says he had recently acquired these "foreign or overseas" little gifts, it is worth remembering that Constance stands athwart the great Rhine route to Italy. The "small favors" included two fine textiles, one of a shade of green whose name (*prasini*) evokes a class of Byzantine purple silk from the imperial workshops and one of damask (*polimitum*), branches of (date?) palm with their fruit, cinnamon, more galingale, cloves, a packet of mastic and pepper, figs, pomegranates, and an ivory comb.⁶¹

So spices certainly reached the Carolingian empire north of the Alps. Bishops might demand them from country priests or send them as gifts. But in contrast with Merovingian times they were expensive and rare. Not unlike papyrus, a kind

Footnote 57 (*cont.*)

parochiam praedicando ac confirmando pergens episcopus, non debet superfluas pensiones in pigmentis et aliis quibusque a presbyteris quae non habent requirere, et talia, quae forte in domo sua non accipit, voluptati potius serviens quam necessitati, exigere et suis parcens opibus, et superflue acceptis et venditis ditescere."

58 *De cultura hortorum*, 302-4, MGH *Poet.* 2.346: "Hoc puleium [pennyroyal, a mint], apud Indorum tanti constare peritos/ Fertur, apud Gallos quanti valet Indica nigri/ congeries piperis." The price of pennyroyal in India was a proverbial expression; it seems to have come to Walafrid from Isidore, *Origines*, 17, 9, 59, Lindsay; cf. ed. André, p. 197 with n483, a passage which may represent a Spanish interpolation. But the comparison with the price of pepper in Gaul is Walafrid's own.

59 *Ann. regni Franc.*, a. 807, p. 123.

60 *Collectio Sangallensis*, 27, MGH *Formulae*, 412.20-3, which looks as if it is addressed

by the younger Louis, son of Louis the German, to Louis the Stammerer, king of west Francia. The editor suspects (*ibid.*, 393n3) that this may be a fictitious letter that has slipped into the real letters used in the collection. Even so, it would show what the author, who may have been Notker the Stammerer, thought about kings and spices.

61 *Coll. Sangall.*, 29, 415.15-19: "palliolium coloris prasini et aliud polimitum, spatulas palmarum cum suis fructibus, cynamomi, calangani, cariofilii, masticis et piperis fasciculum, Caricas ficorum, malogranata, pectinem elefantinum, vermiculos, cicadas, aves psitacos, merulam albam et longissimam spinam de pisce marino." See also Dümmler 1857, pp. 123-6, with further parallels. On the nomenclature of the forbidden class of imperial purple silk, in which color terms refer to "different shades of murex [purple]," and *prasinodi-blatta*, see Muthesius 1997, 28.

of cultural shift had occurred. Spices, whose salutary qualities had always been esteemed, were now prized mainly for their medicinal value. When Notker of St. Gall summarized the marvelous and exotic substances Harun al Rashid had sent to Charlemagne, he calls them "most varied spices, perfumes, or medicines."⁶² A letter from his monastery (which he may have authored) concludes: "And, in order that you may know how solicitous we are of your longevity, we are sending you aromatics, unguents, and medicinal spices ("aromata et unguenta et pigmenta medicabilia"), so that you might delight by smelling, daubing, and tasting them and enjoy long life . . ." ⁶³ So too, spices were purchased for sick monks at Fontenelle. The choice of spices for their founder's anniversary was also not accidental, since 5 November was close to the beginning of the season for winter colds and other respiratory infections. A medical compendium compiled at Lorsch prescribes a potion of cloves and pepper to be drunk, apparently prophylactically, in October. November's potion was based on cinnamon.⁶⁴ From Louis the Pious' early years, a Bavarian letter shows one abbot, who is sick, asking another to send him "some spices and oil and Greekish wine along with some balsam to make a preparation to care for our infirmity."⁶⁵

The supply of spices north of the Alps had constricted dramatically by around 700. But to argue that, around 800, spices still were not reaching them because Carolingian kitchens used fewer condiments than the Merovingians', overlooks the history of taste and the formation of cooking traditions. In an age of orally transmitted techniques and recipes, who, two or three generations after 700, would have remembered the full gamut of ancient spices that once were indispensable to Frankish cuisine? A gradual process of culinary rediscovery (and concomitant slow rising demand) seems more likely to me, once supply resumed.⁶⁶ This kind of cultural shift in the meaning and use of spices must have narrowed need for them. In any case, arguments that spices were absent from the Carolingian scene collapse as soon as one opens its medical books.⁶⁷

The leading books of medical recipes came from Italy, or at least were transcribed by Italians. Within decades of their compilation, they found new homes north of the Alps. This aspect of the Carolingian cultural renewal is barely noted

62 Notker, *Gesta Karoli*, 2, 8, 61.15-18, "pigmenta, odoramenta vel medicamenta diversissima."

63 *Coll. Sangall.*, 27, 412.20-3.

64 Das "Lorscher Arzneibuch," "Varia," p. 76.

Similar or identical diets are attested in other Carolingian medical MSS: cf. e.g., Chartres, B.M. 70, s. ix¹, in Wickersheimer 1966, 25; Paris, B.N., lat. 2825, s. x, *ibid.*, 59.

65 *Salzburger Formelbücher*, 2, 20, 41.8-10. This

particular collection contains material from the late 8th and early 9th C.: *ibid.*, pp. 13-15.

66 Lopez 1943, 37-8, allowed the hypothesis that early medievals had "coarser taste" and so liked spices less, but was inclined to attribute the decline of spice consumption (which he assigned to the 8th C.) to upheavals in India and China.

67 See in general Riddle 1965; cf. Stannard 1974 and Voigts 1979, esp. 259-61.

but it is fundamentally important.⁶⁸ More than just late antique medical lore was transferred to the north. The very first reception of new Arab drugs occurred centuries before the earliest evidence of a Salernitan school. The crucial fact of the Italian origin of most of these manuscripts appears moreover to have escaped medical historians. The books surprise by the variety and quantity of exotic spices and drugs they require. Pepper, for instance, was very widely used for medicinal purposes. It occurs more than twenty-one times in the *Liber botanicus* (*Sangallensis*). This medical manual was compiled in northern Italy in the opening years of the ninth century and carried across the Alps soon thereafter.⁶⁹ Pepper occurs constantly in ninth-century Italian medical recipes.⁷⁰

But pepper is equally well attested in the north. For instance, a remarkable physician's handbook written at Lorsch around 800 (Bamberg, Staatsbibl., Medic. 1) requires it for many potions, and it occurs also in Old High German recipes.⁷¹ That particular kinds of pepper are specified, e.g. "white" or "long," suggests that supplies were varied as well as regular.⁷² Although many recipes specify the quantities in grains, as one might expect for potions concocted for one patient, others presume substantial quantities of pepper in combination with other spices. Thus a general recipe for colds, stomach aches, and other maladies requires in addition to an ounce of pepper, two ounces each of "overseas spicum," cloves, cinnamon, spikenard, and ginger, to mention only the most obvious exotic drugs and spices. These were mixed in with three measures of wine and 16 lb. of honey, to be drunk frequently on an empty stomach until the sufferer felt better which, one imagines, could have taken some time.⁷³ The

68 Bischoff 1984, 189–90.

69 I have counted only the recipes which were not copied from Ps.-Apuleius, an earlier remedy book: *Botanicus sangallensis* (St. Gall, Stiftsbibl. 217, pp. 275–322), 2, 1 and 5, p. 122; 5, 1, p. 124; 13, 2, p. 128, etc. Pepper is flanked by ginger, balsam, and galingale. This physician's handbook seems to have continued to travel in the north since, when it was still unbound, it apparently was folded over for convenient transport in its new home. On the origin of the manuscript and the folding in its new home: Bischoff 1966–81, 1: 99.

70 E.g., Jörmann Treatise A (St. Gall, Stiftsbibl. 44, pp. 337–54, also in a 9th-C. Italian hand and already at St. Gall in that century: Bischoff 1984, 178n22), 23, p. 13; 37, p. 15; 66, p. 19, etc.

71 Das "Lorsch Arzneibuch," pp. 442–3, s.v.

(several dozen occurrences); cf. the OHG recipes, below, n79. For the script, Bischoff 1977, 23. Notwithstanding the broader point that these manuals were really used and that their contents in general reflect what was really available (see below), the *Arzneibuch* in particular appears to me also to include many bookish recipes containing ancient, obsolete lists of ingredients. The author indicates as much e.g., 1, 30, 118.1: "Item supra dicta iera aloetica de alio codice sumpta conficitur sic . . ." For specific recipes within this handbook whose modernity and Frankish application are nonetheless indubitable, see below.

72 *Botanicus sangallensis*, 22, 5, and 54, 1, pp. 132 and 143; Das "Lorsch Arzneibuch," pp. 442–3, s.v. piper album, longum and nigrum.

73 E.g., Jörmann Treatise B ("Dicta Aristotelis archetri," St. Gall, Stiftsb. 44, pp. 337–54),

evidence from the northern medical books is just as overwhelming.⁷⁴ It would be easy to multiply the citations for pepper as for other substances necessarily imported from distant climes.⁷⁵ But such handbooks are usually compilations. Can their testimony be taken seriously to evince the availability of drugs and spices in Carolingian Europe?

Some believe that the early medievals' medical books mindlessly recopied ancient works with no thought to the availability of ingredients or real use of the treatments. It is true that some works are more "learned" than others, and mix more scholarly materials with the stuff of practical experience.⁷⁶ But the general rejection of the treatises' testimony is no more compelling here than it would be for early medieval canonical collections, which edited the ancient and modern laws of the church in view of contemporary needs. It will certainly convince no one who has held in his or her hands one of the dirty and well-worn medical manuscripts of convenient pocket size.⁷⁷ It is undermined by the compilers' acts of choice, addition, and subtraction.⁷⁸ It is confounded by the efforts to translate such recipes into the vernacular, for instance, the Old High German and Latin recipes from Basle.⁷⁹ The intrusion of the vernacular Frankish term for "cup" (OHG *stauf*, i.e. *staup* before the Second Sound Shift) makes clear, for instance, that the Lorsch physician composed or reformulated recipes which he actually used, and that he had access to some very exotic substances when he did so.

POTION AGAINST A SMALL STROKE. 1 ounce myrrh, 1 ounce frankincense, 1 ounce of the juice of the laserpitium plant (*Ferula tingitana*), 1 ounce of ammoniac, 2 ounces sage:

80, p. 21, "Remedium ad omnes tribulationes corporis forasticas et extrinsecus egritudines liberandas."

74 As it emerges from even a cursory examination of the MS descriptions, e.g., of Wickersheimer 1966, 49, 56, 65, 69, 77, 98, respectively for Montpellier, Faculté de Médecine 362, s. ix/x; Paris, B.N., lat. 2796, lat. 5543, both s. ix; lat. 6862, s. ix^{2/4}; lat. 7021, s. ix¹; lat. 10251, s. ix^{med}. etc.

75 It would be rewarding to push beyond these preliminary indications about the diffusion of imported substances to refine our understanding of the spread of old and new drugs, and so to determine, e.g., which milieus were most open to the new Arab knowledge.

76 At least so it appears to me, on the basis of the early medieval treatises I have read. The

Lorsch book is precisely such a "learned" treatise, as one grasps immediately from its theoretical defense of the monastic practice of medicine (Das "Lorsch Arzneibuch," *Defensio artis medicinae*, pp. 48–62), and its sometimes explicit recopying of ancient recipes (above, n71). Yet it too incorporates a new Arab drug, and it uses the local measure for some recipes (below, n80). The Jörmann Treatises look more uniformly practical.

77 E.g., the filthy little book, from northern 8th-C. Italy: Vatican, B. Apost., Pal. lat. 187.

78 E.g., Riddle 1965, 186–92.

79 Thus pepper, myrrh, etc. in the Old High German and Latin Basle Recipes, *Die kleineren althochdeutschen Sprachdenkmäler*, 39.1 and 7.

you crush them in a mortar and mix them with 9 staupe[n] of wine and you make (the patient) drink it nine times . . . and every day . . . that he doesn't drink this potion, let him drink water mixed with chicory (*Cichorium intybus*) and pepper.⁸⁰

The example could be multiplied but it makes the point that, even in the learned Lorsch handbook, some of the recipes at least were administered to suffering Franks.⁸¹

The medical treatises prove that more than the old spices were newly available in Carolingian Italy and Frankland. These humble manuscripts brandish new words and new drugs. In Charlemagne's lifetime, the new Arab pharmacology – itself the issue of the new economic and botanical world that stretched from Africa to the Indian Ocean – was beginning to make headway among medical practitioners on both sides of the Alps. Four examples make this clear. *Azarum* occurs in ninth-century medical recipes for various ailments, and seems to refer to a kind of resinous gum. It comes from Arabic 'anzarūt.⁸² Ambergris occurs under its Arabic name *ambar* in another contemporary treatise and, it would appear, in an eighth- or ninth-century rhythmic poem from the Po valley.⁸³ But perhaps the most surprising of all is the appearance, via Arabic, of a Malay word – and surely the substance too – a few kilometers from the middle Rhine around 800. The earliest appearance of camphor, "cafora" (from Malay *kāpūr* through Arabic *kāfūr*), in western Europe comes in two recipes of the Lorsch medical book.⁸⁴ Here the Lorsch manuscript confirms another element of Ibn Khurradadhbih's description of Carolingian trade with the Arab world.

80 Das "Lorscher Arzneibuch," I, 41, 124.1–7: "Myrra ÷ I, tus ÷ I, laser ÷ I, amoni-acvm ÷ I, saluiam ÷ II: teris in mortario et distempera cum uini staupe VIII et dabis bibere per nouem uices . . . et omni die . . . quando id est solsequia cum aqua et pipere bibet."

81 Other examples with *staupe* measures: *ibid.*, I, 42, p. 124; 2, 228, p. 228 (with aloe, myrrh, ammoniac, pepper, costus, ginger, etc.); 2, 260, p. 242; 4, 90, p. 314; cf. also the recipes which involve the therapeutic qualities of beer, e.g., I, 45, p. 126 (with pepper etc.).

82 Jörmann *Treatise A*, 74, p. 20; 146, p. 31; 154, p. 32; 164, p. 33 and 181, p. 35. Cf. Prinz and Schneider 1967, I: 1298. 7–10.

83 *Antidotarium of St. Gall* (Stiftb. 44, p. 247), p. 89, in a recipe for making incense

(described below, 1104). *Rhythmi aevi merovingici et carolini*, 136.3–4, MGH *Poet.* 4.721: "Nardei qui sedulo et ambaris odorem/Ore spirabas . . ."; cf. Prinz and Schneider 1967, I: 540 and 549.

84 Das "Lorscher Arzneibuch," 2, 209, p. 218; 4, 86, p. 312. Camphor also appears in the *Antidotarium of St. Gall*, p. 89, as well, apparently, as in the *Botanicus sangallensis* (St. Gall 217), 55, I, p. 144 ("caforo"). From the early 10th C., see the *Glasgow Antidotarium*, f. 168^v: *Glasgow, Univ. Libr., Hunterian MS T. 4. 13* (cf. Lowe and Brown 1980, I: 19 and 2: 46), p. 147 ("Collirio": "casfora penso denario medio"). Etymology of camphor: OED Online, 2nd edn, s.v.; cf. Riddle 1965, 190. I have not had the leisure to undertake the exhaustive philological and historical study these treatises – and their MSS – deserve: they may still hold some surprises.

Camphor, he tells us, was precisely one of the wares Jewish merchants purchased in southeast Asia for import to Frankland; the Muslim economy is in fact known to have drawn its supplies (and the word) from Sumatra and Borneo.⁸⁵ Whether early Radhanite merchants or Venetians carried the Lorsch physician's camphor we cannot know, but around 800 the recipe book clearly and precisely confirms the trade links between southeast Asia and the Carolingian empire that Ibn Khurradadhbih described a couple of generations later.

So, the quiet work of great palaeographers allows us to chart with precision the earliest stage in the European appropriation of Arab science. For that is surely what we are seeing in the new drugs. It is impossible to imagine that they were purchased across the sea and imported into Europe as unidentified substances for local users. At least a minimal oral indication of their properties must have accompanied them. If the earliest surviving manuscripts offer an accurate image, this first reception of the Arab drugs occurred in northern Italy, around 800 (St. Gall, Stiftsbibl. 217). Simultaneously, at least one of the drugs became known across the Alps, at Lorsch, a monastery 15 km from the Rhine and enjoying close ties to the court and its activities in Italy.⁸⁶ Already in the ninth century, the Italian manuscripts St. Gall 44 and 217 had crossed the Alps; the former was annotated in its new home.⁸⁷ As far as the future of Salerno is concerned, the south Italian reception begins in the early tenth century, with the Glasgow manuscript.⁸⁸

These new drugs go beyond illuminating the earliest, oral stage in the transmission of the new Arab science to Europe. They appear in the same place as the Arab coins. They do so in the years when we detect from other forms of communications a new Adriatic route linking Venice to the Muslim world. As their names attest, the new drugs and words were imported directly from that world.⁸⁹

Pomegranates and pepper were not the only exotic goods that the backs of man or beast carried to Carolingian markets. Others were present in smaller quantities, or more sporadically. Planning wall paintings for his new buildings, Bishop Frotharius of Toul sought orpiment (arsenic trisulphide), "folium Indicum" (presumably indigo), minium (i.e. cinnabar or red lead), quicksilver and other supplies from Aglemar, apparently the abbot of St. Claude, some 30 km northwest of Geneva. It may be that Frotharius knew of some recent project at the abbey. But one cannot fail to note that St. Claude lay just a day's travel from the

85 Tr. Jacobi, p. 252; sources of camphor: *ibid.*, p. 259.

86 Abbots Ricbod (784–804) and Adalung (804–37) were both very prominent at court.

87 Bischoff 1984, 190.

88 Above, n84. The earlier Beneventan medical MSS need to be studied in this

light. Bischoff 1966–81, 3: 18n61 observes that Visigothic script has heavily influenced the Glasgow codex.

89 There is no sign of a Greek linguistic intermediary, for instance. Cf. this with the apparent misidentification of the Greek word *libanos* as Arabic in a Venetian document, above, n53.

Great St. Bernard pass to Italy.⁹⁰ So too a writer reminds his audience in the Ardennes that they pay for a purgative which foreigners make from the roots of plants that grow wild and free far from the Frankish forest.⁹¹

4. A liturgical imperative

Cooking spices and date palms were exotic luxuries. In Frankish culture, demand for them was elastic. Their presence north of the Alps surely proves the existence of commerce with the more developed economies of the south and east. But the elasticity of demand for them means that their quantities do not necessarily demonstrate that that commerce was itself infrequent. Theoretically, demand should have been less elastic for medicinal drugs, but the quantities needed for the small proportion of the population that had access to physicians will not have been enormous. Nonetheless the medical texts prove that various spices were readily available on both sides of the Alps, and that the new Arab drugs became known in the Rhineland at the same time that they appeared in Italy.

But Frankish culture placed a premium on another item whose finest qualities came from furthest away. With some justice, the Carolingians' has been called a liturgical civilization. Pippin and Charlemagne devoted great resources to improving and rendering more spectacular the performance of the "divine work," the liturgy. Rome was the model.⁹² There, in the eighth century, to honor God and his saints, the most costly substance an underdeveloped world could imagine was conspicuously consumed, destroyed in fact, on the altars of shrines great and small. Burning incense was essential to the Roman style of liturgical performance. The gifts of incense sent across the Alps to Boniface by the cardinal deacon in charge of policy toward the Franks were laden with more than social meaning.⁹³

90 Ep. 24, MGH Epist. 5.293.1-5, datable c. 831-4. Frotharius promises to make good on the supplies. "Unde peto, ut nobis mittas ad decorandos parietes colores diversos, qui ad manum abentur [!], videlicet auri pigmentum, folium Indicum, minium, lazur adque prasinum et de vivo argento iuxta facultatem. Haec nobis dirigito et a nobis debitum servitium iterum exigito."

91 Christian of Stavelot, *Expositio in Matthaeum*, 56, PL, 106.1473C-D, about scamony: "Erat namque consuetudo in ipsa terra [sc. Palestina], et in multis terris, . . . ut medici facerent et unguenta et

theriacas, quia abundant eis herbae et pigmenta, et vendant his qui hoc non habent. Unde et vestrates scamoniam comparant, quod illi vendunt de vili herba conficiunt." Isidore quotes Pliny on the origin of high-quality scamony in Asia Minor and the unsatisfactory character of Syrian and Judaeae types: *Origines*, 17, 9, 64, Lindsay; discussion in ed. André, p. 200n488-90.

92 See in general Vogel 1965.

93 E.g., *Ordo romanus* I, 26, 41, 46; 59, 75.14, 80.12-14, 82.1-2, and 87.15-88.2, respectively. Cardinal's gift: Boniface, Ep. 65 (A.D. 745), 128.22.

Incense was indispensable for the liturgy to which the Carolingians devoted such efforts.⁹⁴ In fact, one of the characteristic ways in which the Carolingians transformed the Roman liturgy was by increasing the incense used in the Mass.⁹⁵ Carolingian church inventories are loaded with censers.⁹⁶ How and why incense was used in the liturgy excited discussion among contemporary theorists.⁹⁷ Its consumption expanded in the ninth century: Hincmar, for instance, required every diocesan priest to have a censer and incense, and to use them during the Mass.⁹⁸

Since earliest antiquity, Arabia and eastern Africa had furnished most of the incense used in the Mediterranean world, as well as part of China's needs.⁹⁹ Could the incense burned daily in Francia, at every Mass as well as in many extra-eucharistic ceremonies, have come from anywhere else? Frankincense and myrrh were imported into Constantinople in 911/12 along with other spices and exotic substances.¹⁰⁰ Certainly the Italian sources tend to use ancient and new technical names. As with spices, Carolingian administrative sources most frequently call the stuff by its generic name, *incensum*, rather than specifying particular kinds, e.g. thus or *olibanum* (frankincense) or *myrrha* (myrrh). For what it is worth, even Carolingian authors inclined to originality like Christian of Stavelot repeat Isidore, himself indebted to Solinus and Pliny, on the Asian origin of incense.¹⁰¹ Amalarius also quotes Isidore on the Indian and Arabian origins of aromatic substances, albeit with a significant change (see below). Although the general word "incense" is most common, a variety of grades that included frankincense and myrrh was certainly available north of the Alps, as the greater precision required

94 Incense: Atchley 1909, 102ff etc., has ample testimony on its early medieval use; see also Fehrenbach 1922 and Jungmann 1962, 1: 409-13; on the substances, Groom 1981, 96-164.

95 Jungmann 1962, 1: 101-2, 411 and 578.

96 A few examples from different parts of the empire's northern regions: Fontenelle, gift of Gerbold (c. 787-807), *Gest. Font.*, 12, 2, p. 88, and his personal censer, which he took with him during his travels, *ibid.*, 12, 3, p. 90; Ansegisus' (823-33) gift: 13, 4, p. 101. St. Riquier: Angilbert *apud Hariulf*, *Chron. Cent.*, 2, 10, p. 68 (four gilded silver censers) and 831 inventory, *ibid.*, 3, 3, p. 87 (eight gilded silver censers and one of copper). The description of the censers and incense boxes of the church of St. Michael on Staffelsee figure in Charlemagne's model inventory for fiscal and church

properties, *Brevium exempla*, 2 and 3, 251.9-13. Ghent, St. Bavo's, shortly after 851, *Schatzverzeichnisse*, no. 28, p. 39.7: "Turibulos ii de argento. Bustiam [i.e. pyxis, a small box] unam."

97 E.g., Jesse of Amiens, *Epistola de baptismo*, PL, 105.784A; Amalarius, *Liber off.*, Prooemium, 21, *Opera liturgica*, 2.18.13-14 and *Codex expositionis* II, 16, 3-4, *ibid.*, 1.276.25-277.2.

98 Hincmar of Rheims, *Capitula synodica* [I], 6, PL, 125.774A-B; cf. De Clercq 1936-58, 2: 341.

99 Groom 1981, 9.

100 Leo VI, *Liber Praefecti*, 10, 1-6, 110.454-77.

101 Christian of Stavelot, *Expositio in Matthaeum*, 2, PL, 106.1284B: "Est autem arbor Arabiae quod ipsum fert immensa atque ramosa . . ." from *Origines*, 17, 8, 2, Lindsay; cf. ed. André, pp. 140-11343.

by medical recipes makes clear.¹⁰² Carolingian liturgical practice gives no hint whatsoever that incense or its exotic ingredients were hard to come by.¹⁰³ One recipe, for instance, from that Italian *Antidotarium* which was already used at St. Gall in the ninth century, makes liberal use of a pound of *cozumbrio*, as well as frankincense, myrrh, spikenard, camphor, and ambergris, among other ingredients.¹⁰⁴

Amalarius the liturgist was concerned with balsam because it was equally indispensable for Frankish worship, although its use was much narrower than that of incense. Balsam came from the Holy Land or Arabia.¹⁰⁵ Judging by Willibald's efforts to smuggle it out (Ch. 5.1), the export of this odoriferous resin was heavily taxed, if not forbidden, by Muslim authorities. In the western church, small quantities of balsam were mixed with oil to make chrism, the holy oil used in baptism, ordination and church dedications.¹⁰⁶ Theodulf of Orleans wrote a poem to the Frankish queen, attempting to flatter her into giving him some balsam for his liturgical functions.¹⁰⁷ Was it hard to come by, or was Theodulf simply looking for a free source? The fact that Frankish royal inspectors found two small glass containers of balsam in the sacristy of the Bavarian church of St. Michael, on a royal island in the Staffelsee, may suggest the latter.¹⁰⁸ And balsam figures frequently in the medical books.¹⁰⁹

Nonetheless distribution became unreliable in western Francia around the middle of the ninth century. We know this because that colossal west Frankish forgery, the Pseudo-Isidorian Decretals, invented a letter of Pope Fabian (236–50), involving balsam. Historians agree that the False Decretals emerged out of very real conflicts among Frankish bishops and with their king, Charles the Bald. In this case, eastern bishops had supposedly written to the pope asking for

102 Thus, the Latin version of the prescription mentions "incensum tuos," i.e. frankincense, while the OHG recipes from Basle specify and distinguish red and white incense: *Die kleineren althochdeutschen Sprachdenkmäler*, 39.2 and 7. Although the OHG text also mentions "murra," it is not impossible that the red incense refers to a grade of myrrh, and the white to frankincense: Groom 1981, 122 and 137 (Pliny), but cf. 135, "semi-transparent . . . yellow or palish brown." Cf. e.g., the recipe from the Lorsch compendium translated above.

103 Numerous ancient efforts to grow frankincense and myrrh trees outside their native habitat seem to have had little success: Müller 1978, 773–5. Counterfeiting and adulterating had been

part of the industry since antiquity, but most of the additives were in any case from the Middle East, *ibid.*, 736–7. One might imagine that early medievals sought to "stretch" their supplies by adding flowers or spruce resin to their incense: cf. Fehrenbach 1922, 3.

104 *Antidotarium* of St. Gall, p. 89, "Confectio timiame."

105 Groom 1981, 126–31.

106 F. Cabrol, "Huile," *DACL* 6.2 (1925): 2777–91, here 2785.

107 *Carm.* 31, *MGH Poet.* 1.523.17–18.

108 *Brevium exempla*, 3, 251.15. Of course it was a royal possession, and stood at the Bavarian entrance to the Brenner pass.

109 E.g., *Das "Lorscher Arzneibuch"*, p. 420, s.v. "balsamum."

his advice. They reported that some of their colleagues refused to perform every year the ceremony of mixing and blessing chrism – one of the more grandiose ceremonies in the old Frankish ("Gallican") liturgy. The imaginary eastern bishops claimed that they could not always get balsam and it was wasteful to destroy what was left over each year. Rather, they purportedly argued, it was more practical to keep using the same chrism for two or three years. "Insane!" thundered back the pseudo-pope. Jesus Christ himself had started the custom of mixing the chrism on Holy Thursday; all left over chrism must be burned and new chrism mixed every year. Unless some west Frankish bishops were actually making the case that balsam was on the market only sporadically around 850, the fake is completely gratuitous.¹¹⁰ In fact, the issue of when chrism might be mixed arose several times around that time.¹¹¹ What this forgery illuminates is supply. Pseudo-Isidore reveals that the distribution of balsam in west Francia was irregular around 850: it might appear on the market only once every two or three years; and it was so expensive that some bishops hesitated to destroy what chrism they had not used. The pseudo-pope's reply was nonetheless categorical. He assumed the supply problems could be surmounted one way or another.

5. Silk

Although the demand for it could have been as elastic as for spices, the Frankish elite reveled in the luxurious feel, comfort, and look of silk. It was long ago noted that under the Carolingians, silk seems to appear in texts from the Frankish heartland at least as often as under the Merovingians.¹¹² Carolingian princesses and nuns flaunted their silk gowns, but they scarcely outdid male aristocrats.

110 Ps.-Fabian, Ep. 2, 8–11 (JE 93), *Decretales Pseudoisidorianae*, p. 160. On the chrism ceremony, Chavasse 1945.

111 E.g., *Conc. Meld. et Paris.*, a. 845–6, 46, *MGH Conc.* 3.107.1–2, with further references (*ibid.*, 1139) to Benedictus Levita and the Aachen Council of 836. The synods simply insist that it be mixed only on Holy Thursday and make no reference to supply difficulties or recycling old chrism.

112 The main texts are collected and discussed by Sabbe 1935; judgement on Carolingian and Merovingian silk, *ibid.*, 813. His list could be expanded. A definitive assessment of Carolingian trade will

require systematic analysis of the occurrences and (changing) meanings of the nomenclature of different textiles. The semantics will probably vary not only by time and place, but also by genre of the source. The *Liber pontificalis* would be the place to start. Muthesius 1997, 122, suspects, for instance, that "ex pallio" means "of silk" in the St. Riquier inventory. If correct, this would almost double the number of silk objects in the treasury, discussed in 1115. Close scrutiny of the Carolingian nomenclature of textiles would increase the number of positively and probably documented silks.

Charlemagne bestowed silk, as well as gold and silver, on his faithful grandees.¹¹³ Precious relics sat on silken pillows, while churches were draped with the luxurious textile.¹¹⁴ Some notion of quantities comes from inventories of the great and lesser shrines north of the Alps. In 831, the liturgical treasury of St. Riquier recorded at least forty-five silk vestments and furnishings.¹¹⁵ Fontenelle's treasury had nineteen such pieces.¹¹⁶ Even lesser foundations boasted substantial silk trappings. For instance, most of those at the royal estate church at Staffelsee were made of (ten) or decorated (thirty-four) with silk, rather than linen, wool, or unspecified stuff (thirty-three).¹¹⁷ The availability of silk, like that of incense, appears undiminished in the late ninth century. On the contrary, a bishop of Soissons commanded in 889 that every church in his diocese should have at least one silk chasuble ("casula serica"), as well as a censer.¹¹⁸

Italy also appears well supplied with silk. The two textiles (*panni*) worth 60 gold *mancosi* that the abbot of Farfa loaned (in addition to cash) to two brothers around 802 must surely have been of silk.¹¹⁹ Silks show up in the will of Fortunatus of Grado.¹²⁰ But the single greatest consumer was the papacy. Some precise quantitative data come from the records of papal gifts to the churches of Rome. I have tabulated the recorded textile gifts of Pope Hadrian I for the period from February 772 to August 779 (Table 24.1).¹²¹

- 113 E.g., the grandees who had not followed his son's revolt in 792: *Annales Laureshamenses*, a. 793, MGH SS 1.35: "... eos multipliciter honoravit in auro et argento et sirico et donis plurimis."
- 114 Garments: Sabbe 1935, 813-20; relics, 822-3; churches: 820-3.
- 115 Counting only the objects identified as *serici* or *ex cendalo* and erring on the side of undercounting in doubtful cases: Hariulf, *Chron. cent.*, 3, p. 88. *Cendalum* or *cendatum* is of uncertain derivation, according to Prinz and Schneider 1967, 2: 447; W. von Wartburg, *Französisches etymologisches Wörterbuch II* (Paris, 1964): 641-2, argues, rather unconvincingly, that it derives from Lat. *sendon*, itself a borrowing (via Greek) of a technical term for a fine cloth originating in an unspecified Oriental language. It seems to me more likely to be a new (second) borrowing, perhaps of the same Oriental root. Cf. Kahane and Kahane 1970-6, 385, who derive it from Byzantine Greek, *σενδές*, which word, according to Sophocles 1887, 984, s.v., derives from

- Persian "SNDS"; cf. also Constantine VII, *Imperial Military Expeditions*, comm., p. 214.
- 116 *Gesta Font.*, 13, 4, pp. 102-3. The technical vocabulary appears more precise there than at St. Riquier: three *fundata*, three *stauracin*, ten *ex cindato* and three *serica*.
- 117 *Brevium exempla*, 4, 251.17-22.
- 118 Riculf, *Capitula*, 9, MGH *Capit. episc.* 2.104.10 and 18-19.
- 119 Farfa, no. 175.
- 120 Certainly the three *damaschini*, *Documenti di Venezia*, pp. 75-6, and probably others as well.
- 121 Using the chronology worked out by Geertman 1975, 8-11. Hadrian's distribution of silks is concentrated in these years. It looks very much like the pope systematically refurbishing the city and its shrines: an initial period dominated by textile gifts, roof repairs, and the atrium and approaches to St. Peter's, was followed by reconstruction of the water supply system, and then lesser shrines, and finally the walls, a sequence which is in itself deeply revealing.

TABLE 24.1

Hadrian I's distributions of textiles, Rome, February 772 to August 779

Quantity	Textile designation	Object
557	<i>sirica</i> (including 440 <i>sirica</i> also qualified as "de stauracim seu tyrea")	<i>vela</i>
7	"de palleis quadrapolis"	<i>cortinae</i> ^a
174	"de palleis quadrapolis"	<i>vela</i>
2	"de quadrapolo"	vestes
65	"de stauracim seu quadrapolis"	<i>vela</i>
10	"de octapolum"	<i>vela</i>
22	"de stauracim seu octapuli"	<i>vela</i>
Subtotal 837	hangings and altar covers certainly of silk	
154	"de stauraci seu tyrea"	<i>vela</i>
14	"de stauracim"	vestes
65	"de palleis tyreis atque fundatis"	<i>vela</i>
22 + 7 ^b	"ex palleis i.e. stauracim seu tyreis"	vestes
Subtotal 255 +	additional hangings and altar covers probably of silk	
675	<i>linea</i>	<i>vela</i>
Total 1,767 +	textiles of all sorts	

Notes:

^a The text makes clear that curtains (to fit for instance the great main portals of St. Peter's) were considerably larger than *vela*. Cf. Beissel 1894, 358-60.

^b At Liber pont., 1.501.8-11, the biographer simply skipped the enumeration, recording only that at this time Hadrian gave such *vela* to all the titular and other churches, diaconies, and monasteries of the city of Rome. At 504.15, Liber pont. implies that there were twenty-two presbyteral tituli.

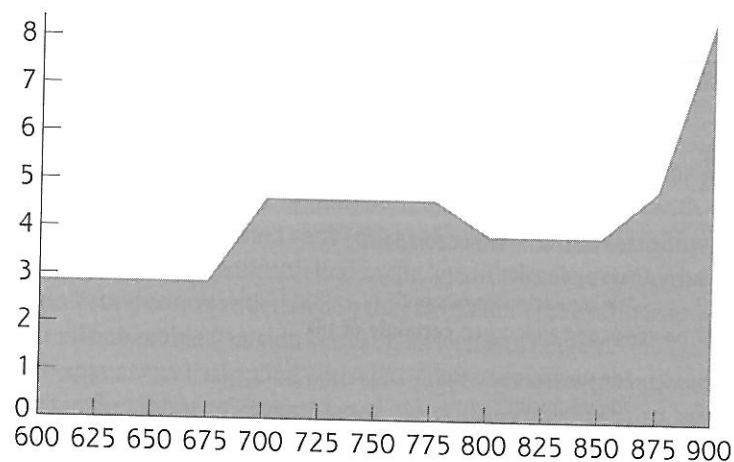
Source: Liber pontificalis, Duchesne, 1.499.13-505.26. Imprecision in the text leaves the nature of two textiles unclear: 500.1-2 and 500.23, although they were probably of silk, by analogy with the other similar objects. *Quadrapolum* and *octapolum* are calques of technical terms used by the Byzantine silk industry to designate qualities of silk (e.g. ὀκτάπυλον). The lower the number, the higher the quality. *Quadrapolum* will have been of very high quality indeed: cf. Muthesius 1995, 291-5.

The calculation could be repeated for other popes, but Table 24.1 will suffice to indicate the astonishing scale of papal acquisitions and distributions in the 770s. In the space of seven-and-a-half years, Hadrian I certainly acquired and distributed 837 (and probably over 1,100) silk textiles, some of which were huge and none of which were tiny. Gifts averaged at least 112, and probably 147 silks per year. Their total size has been calculated at over 3,000 square meters of silk.¹²² And this enumeration takes no account of the vestments, garments and residential use of the papal court. There is no denying that very large quantities

122 Beissel 1894, 360. Because the records for 772-6 are more or less collapsed into two

units, the actual time span for most of these gifts was probably even shorter.

Chart 24.1. Surviving silks per quarter-century, 600–900



This chart reflects the dating of surviving silks by Muthesius 1997, 163–203. She typically assigns silks to periods of up to 200 years. To create this chart, the numbers of silks per period were divided by the number of quarter-centuries in that period to yield a rate of surviving silks per quarter century. For example, thirteen silks dated 500–700 (i.e. divided by eight quarter-centuries) yielded a rate of 1.625 silks per quarter-century; ten silks dated 600–800 yielded 1.25 silks per quarter-century, hence 2.875 silks per quarter century in the 7th C.

of silk textiles flowed across the Mediterranean into Italy, at least in Hadrian's reign. This occurs precisely when Arab gold coins begin to appear in Italy. It does not look as if the balance of payments was much of a problem.

In future, putting early medieval sources into an electronic format that allows for quantitative analysis may allow answers to some important new questions. One could then ascertain whether the rate of attestation of silk garments is higher in Carolingian texts than in early Merovingian ones, and raise the issue of what such a rate might mean. Meanwhile we may turn to the recently published analysis of silks imported into Europe in the early Middle Ages and still preserved there. This pioneering study allows a provisional (and very rough) estimate of changing patterns of supply. The fabrics have been classified as to date and place of origin on the basis first of the technical details of their manufacture, and secondly on the grounds of their designs. In a number of cases, the datings are further reinforced or circumscribed by the circumstances of their preservation, e.g., as burial goods of a famous person, or as the container for relics identified by an authentic whose script establishes an approximate date of deposit; occasionally stratigraphy is also helpful.¹²³ The sample is drawn overwhelmingly

¹²³ Muthesius 1997, 163–203.

from textiles preserved north of the Alps. That the flow of silks into Europe increased in the tenth century (and, according to this data, continued to increase in the eleventh) appears consonant with the well-known general trend of European commerce in the Mediterranean world. What is new is that these charts suggest that the flow of silk into Europe north of the Alps had already increased in the Carolingian period. The dip in the first half of the ninth century is also interesting. One must immediately qualify these suggestions with a recognition that the sample is still relatively small and the dating method new and untested, although it is surely a step forward from dating solely by the style of decoration.¹²⁴ The majority of these textiles are furthermore assigned to the Byzantine empire, while the evidence on communications leads us to suspect, on the contrary, a predominance of Islamic imports.¹²⁵ Even so, another 1,200 silk textiles analyzed and classified in summary fashion appear to support the general chronological picture sketched by the 104 textiles which were studied and catalogued at greater length and assigned to various dates between 500 and 1100.¹²⁶ And this material evidence is, once again, quite independent of the textual data on silk imports.

Since the closest sources of silk in the Carolingian period were still the Islamic world and Byzantium, its presence in Francia and Italy necessarily points to exchanges with those regions. Some might have come from Spain, but most will have been imported from the Byzantine empire and the eastern Mediterranean, or points more distant.¹²⁷ Of course eastern silk could also have transited via Spain.¹²⁸ A fair number came from Central Asia: silks of this type survive notably among the relics at Sens, and with the relics of St. Lambert of Tongres and Liège (d. 705).¹²⁹ One silk, preserved with relics at Huy – on the Meuse – bears a merchant's annotation in Sogdian (an Iranian language) which has been

¹²⁴ See also below, 1131.

¹²⁵ Muthesius 1997, 146: two thirds came from Byzantium.

¹²⁶ *Ibid.*, 204–44.

¹²⁷ The notion that silk was cultivated in 9th-C. Italy is unfounded: Toubert 1995, 253–66. Scholars differ over whether Muslim Spain was producing silk in the Carolingian era: Constable 1996b, 173–4 states that production began in the 8th C.; Muthesius 1997, e.g. 88–9, lists no Spanish silk earlier than the 12th C. Serjeant 1951, 29 and 33, deduced that at Cordova the first *tirāz* production (embroidered with the ruler's name), apparently including silk, occurred only in 821.

¹²⁸ Constable 1996b, 177–8, has identified what may be the earliest attestations of Spanish textiles (whether of silk or not is unknown) in Carolingian sources: “*vela . . . spanisca*” in the *Liber pont.* comes among gifts given c. 829–31: Duchesne, 2.75.23–4; cf. Geertman 1975, 72. Ansegisus gave his abbey a *stragulum hispanicum* between 823 and 833: *Gesta Font.*, 13, 4, p. 102; however, he had served Louis the Pious in the Spanish mark c. 827–30: *ibid.*, 13, 2, p. 99 with 1218.

¹²⁹ Muthesius 1997, 94–100; cf. her catalogue entries M 105–8.

assigned to the seventh or eighth century and which seems to mention the village of Zandana in Bukhara.¹³⁰

It is futile to argue that silk textiles in the numbers recorded at Rome in 772–9 stem from diplomatic exchanges and so escaped, at least initially, the networks of commerce. Next to the 1,100 or even 837 Roman textiles of Table 24.1, the quantity of diplomats' silk gifts were small potatoes, even if the quality were beyond compare.¹³¹ The list survives of textiles presented by a Byzantine embassy to Louis the Pious. Its gifts must have been particularly lavish, since the purpose was to reestablish theological and political concord with the Franks and to obtain Louis' support for throttling the pope and dissident Byzantine milieus in Rome. The Frankish ruler received ten textiles.¹³² In other words, most of the silk fabrics recorded in the written sources or preserved *in situ* must have been purchased.

The patterns of commercial distribution may have been fairly complex, which perhaps hints also at the volume of import: thus a Frisian trader carried *holoserica*, the highest quality of silk cloth, up the Rhine, i.e. toward Italy, which appears to be counter-intuitive.¹³³ His case reminds us that we cannot rule out the possibility that some central Asian goods reached Frisia via the northern arc. A case has been made for silk moving from central Asia toward the Black Sea through a network of Jewish traders, and one could imagine that this network intersected with the Scandinavian one.¹³⁴ Certainly silk reached as far as Haithabu. The silk thus far found there is imprecisely dated and could have reached it from either north or south, although it may be telling that the gold-threaded brocade discovered in the emporium certainly did not come from Sweden or the east. Secondly, the quantities of silk detected archaeologically diminish as one moves westward across the Baltic. If the silk did nonetheless come from the north, Frisians and other merchants might have found it attractive for resale in their homeland.¹³⁵ This would be one way of explaining why our Frisian merchant and his silk were sailing toward Italy. He would represent an earlier current than the central Asian coins which reached the northern waters of

130 Muthesius 1997, 94, and M 103. The place may be between Bukhara and Samarkand, the modern Zandany: Board on Geographic Names 1970, 7: 639.

131 On prohibited and imperial qualities of silk, see Muthesius 1995, 289–91. The evidence for manufacture in the imperial workshop is strongest for fewer than a dozen surviving textiles: *ibid.*, 34–43; 46–50, 102–3; cf. 148. Their unique quality and inscriptions led Muthesius naturally to focus on them, so that they loom unrepresentatively

large in her basic selection of 104 textiles.

132 MGH *Conc.* 2.480.5–7; cf. R383. Cf. the memorandum on the gifts prepared for the court of King Hugh of Provence and of Italy in 935, Constantine VII, *De cer.*, 2, 44, 661.7–21. He also was designated to receive ten garments; another two dozen were earmarked for his entourage.

133 Wandalbert, *Mir. Goaris*, 28, 73.11–74.4. See further, below.

134 This is the implication of Haussig 1989.

135 In favor of this possibility, Steuer 1987a, 168–9; brocade: 170; cf. above, p. 611.

Frankland, as well as England and Ireland, borne by the later ninth-century Vikings. However, at least as far as the Frisian is concerned, it also might be that the distribution system involved transport north to Dorestad, where larger lots of goods may have been sold to retail merchants. In fact, the Frankish elite did not associate exotic eastern goods with the north. For them, spices and silk meant Italy.

This seems to me already implicit in the geography of the gift giving, or soliciting, that we observed above. A prince whose father controls the Rhine sends spices to his west Frankish cousin. The bishop of Constance, whose cathedral overlooks the great river's exit from the Alps, ships pomegranates, costly textiles, spices and the like to his king. Another bishop in the Frankish heartland seeks imported artistic supplies from an abbot whose monastery probably stood a day's march from another Alpine pass complex. We have already seen Notker's Frankish grandees decked out in the oriental finery they had bought in Pavia. And St. Gerald was certainly not the only traveler returning from Rome who had a chance at Pavia to add to whatever eastern delights he had purchased in the markets of the Eternal City.

A few contemporary observers make the Italian commercial link to the east explicit. When the well-traveled Amalarius discussed balsam, he too lifted a page from Isidore of Seville about its exotic origin. Yet he made a slight but significant change. "The balsam tree," he writes, "is one of the aromatics, which are odoriferous trees, as the same Isidore writes: 'Aromatics are whatever are of fragrant odor, which India or Arabia or the regions of Italy supply'." His addition of "Italy" reveals the Carolingians' immediate source for their balsam, as well, probably, as for the other aromatics imported from Arabia. It confirms Italy's critical role in the geographical structure of trade with the Arab world.¹³⁶ When a St. Gall poet saluted a passing king, he hailed the different peoples of the multinational Carolingian empire who hurried to do homage. His words for the Lombard kingdom – again from a man whose monastery overlooked Lake Constance and the trail to the Po basin – tell us all we need to know.

Let the folk of Italy, mixed of diverse bloods,
Rush to you with spices and fine fabrics.¹³⁷

136 *Liber officialis*, 1, 12, 13, *Opera liturgica*, 2.71.27–30: "Balsami arbor est una aromatum quae sunt odoriferae, ut idem Isidorus: 'Aromata sunt quaeque flagrantis odoris, quae India vel Arabia mittit sive Italiae regiones'." Cf. Isidore, *Origines*, 17, 8, 1, Lindsay, as well as ed. André, p. 141: "Aromata . . . mittit siue aliae regiones." Amalarius' reading is not attested in the apparatus of either Lindsay or André. I

suppose that Amalarius might have been influenced by the *aliae* of his source and perhaps he even thought that he was emending the text here. But even such an emendation is revealing of how he understood the situation.

137 Waldramm, *Sylloga codicis Sangallensis* 381, 17, MGH *Poet.* 4.328.13–14: "Italiae populus diverso sanguine mixtus/Ad te pigmentis palliolisque ruat."

Much, perhaps most of the eastern wares we can detect in the Frankish north crossed the Alps from Italy. The profit to be made on their sale justified that expensive journey.



This review of some salient wares from the south and the east in the Carolingian empire falls far short of exhaustiveness. More work on each of the wares I have investigated will deepen and extend the evidence and our understanding of the coalescing trading circuits of early Europe. In particular, further analysis may sharpen the chronological and regional oscillations of supply. But it is now impossible to deny that, on both sides of the Alps, a remarkable range of goods from the more developed Islamic and Byzantine economies were imported into the empire of Charles the Great. By value, a broader range of such goods was available in Italy than beyond it. This is readily understandable in terms of the economics of overland transport across the Alps. Even the expensive goods, like spices, incense, and silk, available on both sides of the mountains appear to have been more readily and more variously obtainable in Italy, where the vocabulary for describing them often seems more precise. It is possible that some goods, silk for instance, also reached the Frankish empire via Scandinavia, but conclusive proof remains wanting. In any event, contemporaries considered that the great peninsula was the main point of transit for exotic goods that reached the Carolingian north. This would explain why they seem to expect that they would be easier to come by along the main routes leading north from Italy. Some goods also moved north from Spain; but the evidence for this is a little later.

The reliance on Alpine routes to Italy was fundamental for all forms of Carolingian communications. This was the Achilles' heel of Carolingian economic integration into the broader Mediterranean world. On the positive side, it meant that the season for transporting eastern goods north was somewhat longer than if the goods had gone chiefly by the more westerly sea route. But that advantage was more than counterbalanced by the greater expense of overland transport. The threshold of transport cost effectively insured that lesser-value, high-bulk goods comparable to papyrus would not reappear on northern markets for centuries, even irrespective of the changing cultural attitudes towards writing and writing materials, and the manifestly increasing and efficient supply of its competitor, parchment. Lively Rhône river traffic and, especially, the Italian fleets that circumnavigated Spain to reach England and Flanders lay far in the future. For the next few centuries, northern Europe was essentially open to low-bulk, high-value goods from the southeast: coins, spices, incense, and textiles. For them, the demand was real and, so far as we can tell, the supply tended to satisfy it, notwithstanding some problems discernible toward 850.

Silk is the most abundantly attested Carolingian import, but the evidence for other goods is strong. Perhaps significantly, unlike spices and incense, whose nature it was to be consumed, silk was a relatively "durable" good. The cultural matrix that shaped demand probably implied that the need for spices had shrunk. Ninth-century Europeans seem to have desired them more in the lessened quantities implied by medicinal applications, as opposed to use in the kitchen. Conversely, demand for incense grew, as the Carolingian reform of the liturgy emphasized frequent and ever more elaborate liturgical ceremonies, not only in the cathedrals and monasteries, but in the countless rural churches of the empire. I have found no hint of supply difficulties for incense.

The clues that, north of the Alps, imports were more readily available closer to routes leading to Italy nonetheless provide an important indication that commercial distribution networks were underdeveloped in Frankland. This would tally with the importance of periodic markets, and with some indications of difficulties in the supply of non-durable eastern imports. This might be the implication when a normative source of 867 specifies that for an annual feast clerics were to receive, in addition to pepper and cumin, any one of three different spices. Unreliable supply of balsam is indicated by a controversy about preparing liturgical chrisms in western Francia in the 840s: new balsam was not available on the local markets every single year. The one piece of papal papyrus bearing specific manufacturing data was used some thirty-eight years after it was made in Egypt, hinting that even in Italy, in the 840s, the papal writing office was concerned about the regularity of supply from the Middle East.

That three hints of unreliable supply of exotic goods occur in the generation between 840 and 870 offers food for thought. If future research should confirm that this clustering is real, then we may be seeing a conjunctural rather than a systemic problem in supply and distribution. The years of the Carolingian civil wars were marked by surging raiding and, probably, increased banditry, as security decreased. The clustering also bears comparison with the overall pattern of communications: the "core movements" dipped sharply exactly in the period 825–50 (Chart 14.3), strengthening the possibility that short-term developments are reflected in these scattered indications of unreliable supply levels. Nonetheless, the erroneous older assumption that a shortfall in the supply of papyrus north of the Alps meant a breakdown of anything but a regional supply infrastructure cautions us not to assign definitive blame at this early juncture.

North of the Alps silk may have been more expensive than in Italy – this would explain why pilgrims like St. Gerald stocked up in Rome or Pavia – but it was widely available. Both texts and surviving silk fragments make this quite clear. If our sample is any indicator, the quantity consumed by the papal court looks very large. A first and very preliminary attempt to evaluate the changing volume of imports based on surviving silk suggests that more silk was reaching

the northern regions of Carolingian Europe in the eighth and ninth centuries than had been the case in the seventh century. If future research bears this out, it would confirm further much that we have seen in these chapters.

So rare spices, Arab drugs, incense, and precious silks were making their way to Italy, and from Italy across the Alps to the Frankish heartland. Continuing research will probably add more wares to the list.¹³⁸ These extremely costly goods were being purchased in the markets of the Muslim world and, perhaps to a lesser extent, of Byzantium. It is here that the testimony of the Arab coins of Carolingian Europe resonates most obtrusively. The conventional wisdom has tended to be that whatever luxury goods the impoverished Carolingians imported from the Middle East had to be paid for in cash; hence one might have supposed a drain of Carolingian silver toward the Islamic world.¹³⁹ But the merchants who were purchasing these luxuries were also acquiring dirhams and dinars: the purchase of the costly luxuries of the more developed economies, in other words, did not exhaust the resources the western traders had brought to eastern markets. Despite the high value of the goods they acquired in the southeast, whatever wares westerners had brought to exchange there seem to have been of greater value than incense, spices, and silks, for the Adriatic traders returned home with Arab currency. The great influx of Arab money started around 775. In precisely these years we observe very substantial imports of silk into Rome. Within another decade or two, at most, the first new Arab drugs were reaching northern Italy, and an Arabic word of Malay extraction was written in a parchment book near the middle Rhine; the markets of Rome attracted Arab merchants at the same time that Venetians traveled to the Middle East. What wares allowed the underdeveloped economy of Carolingian Europe to buy and import such extraordinary and expensive luxuries from the greater economies of the south and east, and still bring home the cold, hard cash of the *dinar manqūsh* and dirham?

138 For instance the sherds of Iraqi or Egyptian glazed glass dated c. 900, and discovered in 1992 in a fill layer at Fulda during the construction of the Dommuseum, where I recently saw them.

139 Spufford 1988, 49–52, nonetheless has argued for a more positive balance of trade when slave exports permitted.

European exports to Africa and Asia

AMIDST A GENERAL surge in the communications linking northwestern Europe to the more developed economies of the Mediterranean, coins and high-value goods entered the Frankish empire from the Arab and, probably, Byzantine worlds. Since there is not the slightest hint that precious metals flowed out of Europe, this leaves little doubt that Europe exported goods of high value to exchange for the eastern imports. Frankland certainly moved some goods toward the south. Alcuin, for instance, expected help for his merchant clearing customs both on his way to Italy and en route home: necessarily he was conveying some merchandise to sell in the south.¹ What exactly he and other merchants were transporting is less clear. Whatever it was needed to be of high value, portable and saleable in Italy or beyond.

1. Lumber, fur, and arms

The most emphatic statement has claimed that Europe exported English tin, Venetian lumber, furs, Frankish weapons, and slaves, but spent little effort sustaining these assertions with evidence.² A source from the second half of the tenth century shows that horses, slaves, wool, linen and canvas textiles, tin, and swords were shipped across the Alps in that period (above, p. 680). Slaves, tin, and swords will have been marketable beyond Italy. But one cannot use developments of 1000 to prove those of 800.

1 Alcuin, Ep. 77, 119.2 and 4–5: “Italiae [in the dative] mercimonia ferentem” and “. . . in montium claustris a vestris non teneatur tolneariis constrictus, sed per latitudinem caritatis latam habeat eundi et redeundi semitam.”

2 Lombard 1972, 23 (originally published

1947). With effort and goodwill, one can discover some evidence for some of these assertions in his further essays published *ibid.*; see below. The lack of method necessarily compromised the impact of his stimulating and valuable insights.