

Alum

A major commodity in Genoese trade with Anatolia in the later Middle Ages was alum, a colourless crystalline substance procured from certain rocks, which was used for a variety of industries and also in medicine, and was extremely important in the European cloth industry, where it was used in dyeing as a fixer and for cleansing fibres.¹ A further benefit for merchants was that alum acted as ballast in their ships.²

The process involved in producing alum was fairly lengthy and consisted of a series of boilings, soakings and dryings.³ Two basic grades of alum were produced: rock alum and grain alum. Rock alum, the best and most expensive type, was that which stuck to the basin edges in the last stage of the processing, while the alum at the bottom of the basin was called *allume corda* or *allume di fosso* and was a poor-quality alum.⁴ This was grain alum (*allume minuto*), and was the alum of everyday use.⁵ *Allume di sorta della buona luminiera* was second-quality alum, made up of two-fifths rock and three-fifths grain alum.⁶

According to Pegolotti, the bigger (*grosso*) and less grainy (*minuto*), the whiter, brighter, clearer and cleaner of stones and sandy soil the alum was,

¹ Alum was also used in the leather industry, in making certain types of glass and in the sugar industry: Suraiya Faruqi, 'Alum production and alum trade in the Ottoman empire (about 1560–1830)', *WZKM* 71 (1979), 154–5; Zachariadou, *Trade and Crusade*, p. 167; Balard, *Romanie génoise*, vol. II, p. 769; W. Heyd, *Histoire du Commerce du Levant au Moyen-Age*, (Amsterdam, 1967), vols. I–II: vol. II, p. 570; Jean Delumeau, *L'alun de Rome XVe–XIXe siècle*, Ecole Pratique des Hautes Etudes – VIe section, Centre de Recherches Historiques, Ports-Routes-Trafics XIII (Paris and The Hague, 1962), p. 14; Léone Liagre, 'Le commerce de l'alun en Flandre au Moyen Age', *Le Moyen Age* 61 (1955), 177–9.

² Faruqi, 'Alum production', 153.

³ Pegolotti, *Pratica*, pp. 367–8; Dukas, *Historia Byzantina*, p. 160, l. 12 – p. 161, l. 7; Dukas, *Historia Turcobyzantina*, p. 205, ll. 7–19; Dukas, *Decline and Fall*, p. 148.

⁴ Pegolotti, *Pratica*, p. 368.

⁵ Marie-Louise Heers, 'Les Génois et le commerce de l'alun à la fin du Moyen Age', *Revue d'Histoire Economique et Sociale* 32 (1954), 38, n. 26; Léone Liagre-de Sturler, *Les relations commerciales entre Gênes, la Belgique et l'Outremont d'après les archives notariales génoises (1320–1400)* (Brussels and Rome, 1969), vols. I–II: vol. I, p. cxxxix, n. 3.

⁶ Pegolotti, *Pratica*, pp. 411–12.

the better it was.⁷ The quality of alum varied according to where it came from.

Mining, production and export of alum in Anatolia was very much in the hands of the Genoese who, from an early date, dominated this trade. William of Rubruck, who was in Konya in 1255, met a Genoese merchant there, Nicolao de Santo-Siro, who, together with a Venetian called Benefatio de Molendino, had a monopoly of all the alum in Turchia, the sultan selling only to them. In consequence the price was, according to Rubruck, about 22 per cent higher than it should have been.⁸ In the early fourteenth century the Zaccaria family, later followed by the Cattanea della Volta, controlled alum extraction. After 1346, the Maona of Chios was predominant, controlling Phokaea and neighbouring islands. Ten years later, in 1356, the Gattilusio family, having established themselves on Lesbos, controlled the alum production there and on the other islands in the northern Aegean. It was through them that the Genoese gained the farms of the mines in Turchia.⁹ Towards the middle of the fifteenth century the Genoese merchant Francesco de Draperiis gained a position of great importance in the alum trade¹⁰ and various Genoese families, such as the Lomellini, the Doria, the Paterio, the Adorno, the Salvaigo and the Pallavicini, together with the Giustiniani, dominated alum export to the west.¹¹

Alum extraction and export was sometimes in the hands of a partnership of western merchants, as it was in 1416 in Phokaea¹² and again in 1437 when a partnership farmed the alum under Murad II.¹³ The size of such partnerships varied, Domenico Doria, for example, creating a small partnership in the 1440s to trade 8,000 *kantars* of alum per annum from Grecia and Turchia,¹⁴ while a very large partnership of 500,000 *kantars*, in which

⁷ Pegolotti, *Pratica*, pp. 368–9, 369–70.

⁸ William of Rubruck, *The Mission of Friar William of Rubruck. His Journey to the Court of the Great Khan Mönke, 1253–1255*, trans. Peter Jackson, introduction, notes and appendices by Peter Jackson with David Morgan (London, 1990), p. 273; Corpus Christi College, Cambridge MS 66A, fos. 109r col. 1 – 109v col. 1; Corpus Christi College, Cambridge, MS 181, fo. 396. Nicolao and Benefatio increased the price so that alum which should have cost 15 *besants* sold for 50 *besants*. Balard, *Romanie genoise*, vol. II, p. 770, n. 4 considers this to be alum from Kütahya which was closer to Konya than Karahisar. But Rubruck refers to all Turchia.

⁹ Heers, 'Commerce de l'alun', 32.

¹⁰ Francesco de Draperiis appears in various transactions entered into the accounts of Giacomo Badoer dealing with alum (1439.iii.21 = Badoer, *Libro*, col. 310, p. 622), oil (1437.ix.- = *ibid.*, col. 45, p. 90, col. 99, p. 201, of Messina, 1437.vii.5 = *ibid.*, col. 47, p. 94, col. 66, p. 133, of Coron), wax, a slave (1437.xii.10 = *ibid.*, col. 143, p. 288), sugar (1436.ii.14 = *ibid.*, col. 45, p. 90) and copper (1437.xii.18 = *ibid.*, col. 143, p. 288). He was a banker, being described as 'Franzesco Drapieri banchier' or 'Franzesco Drapieri dal bancho' (e.g. *ibid.*, col. 47, p. 94, col. 143, p. 288, col. 148, p. 298) and dealt in letters of exchange, 'letera de chanbio' (1437.vii.3 = *ibid.*, col. 143, p. 288, 'una letera de chanbio da Veniexa', 1439.iii.20 = *ibid.*, col. 320, p. 643, again a letter of exchange from Venice).

¹¹ Heers, 'Commerce de l'alun', 34, 38–9.

¹² Heers, 'Commerce de l'alun', 34.

¹³ Heyd, *Histoire du commerce*, vol. II, p. 40.

¹⁴ 1448.i.4 in Heers, 'Commerce de l'alun', 37.

Francesco de Draperiis owned half the capital, was formed in 1449. By this time there was apparently a problem of over-production and falling prices, and this partnership was formed in an attempt to control the situation. It negotiated an agreement with the lord of Lesbos, paying him 5,000 gold *ducats* of Chios a year in return for a moratorium on processing alum in Mitylene.¹⁵

While the trade in alum was largely in the hands of the Genoese, Turks too traded in this commodity. When he was *appaltator* of Phokaea, that is an official appointed by the Chian government to collect the tax on alum there, Francesco de Campis bought 100 *kantars* of alum for 50 *ducats* from a Turk. Apparently the alum was never delivered, and the Turk refused to hand back the money because of certain slaves, presumably his own, who had fled from Turchia to Phokaea. Francesco, by now *ex-appaltator*, requested, in a case of arbitration in Chios, that he be paid the money he had handed over to the Turk, and the government of Chios agreed to 40 gold *ducats* being paid to him, Francesco ceding his rights against the Turk to the government of Chios. The 40 *ducats* were to be paid by the current *appaltators* from the money they had to deliver to the government of Chios and they were to make up this money in the following four months.¹⁶

Anatolia was one of the principal alum-producing areas, exporting it to the east, to Egypt and Syria, and the west.¹⁷ Alum was exported to Cyprus, for ships carrying alum from Turchia paid the *missa* tax there.¹⁸ Turkish alum went further west and into northern Europe, even reaching as far as England. It was traded in Bruges, appearing there in a list of alums dating from the first part of the fourteenth century.¹⁹ In 1400 Antonio Cataneo was the owner and captain of a ship hired to take alum from Turchia to Bruges.²⁰ L'Ecluse, in the south-west Netherlands, just north-east of Bruges, was also a destination and market for Turkish alum as were

¹⁵ Heers, 'Commerce de l'alun', 31–2, 39–42. First payment under the Mitylene agreement, 1450.x.1 = Argenti, *Chios*, vol. III, doc. 128, pp. 598–9.

¹⁶ 1394.ii.18 = ASG, Notaio, Donato de Clavaro, Sc. 39, filza 1, doc. 97/240.

¹⁷ Heers, 'Commerce de l'alun', 45–9; Dukas, *Historia Byzantina*, p. 161, ll. 9–12; Dukas, *Historia Turcobyzantina*, p. 205, ll. 21–23; Dukas, *Decline and Fall*, p. 148.

¹⁸ Pegolotti, *Pratica*, p. 85. He describes a tax called *missa* which was imposed for keeping the sea around Cyprus safe and was paid by the masters of ships carrying merchandise from Turchia, Rhodes, Armenia, Syria and Egypt. If the master of the ship was Genoese or Venetian he did not pay the tax, as Venetians and Genoese were free from *comerchium* in Cyprus. In this case the tax was paid by the merchant whose goods were carried on the ship. Among the goods taxed was alum, taxed at 6 *karati* per sack. As Rhodes, Armenia, Syria and Egypt were not alum-producing areas, the alum in question must have come from Turchia. It seems reasonable that alum exported from Antalya went to Cyprus, or Syria and Egypt. See *ibid.*, p. 370.

¹⁹ Pegolotti, *Pratica*, pp. 243–4. These alums presumably also appeared in England as the equivalent of the Bruges *carica* of alum was given by Pegolotti for London.

²⁰ 1400.v.28 = Renée Doehaerd and C. Kerremans, *Les relations commerciales entre Gênes, la Belgique et l'Outremont d'après les archives notariales génoises, 1400–1440* (Brussels and Rome, 1952), no. 2, p. 23.

Middelburg, in the south-west Netherlands, Sandwich and Southampton. In 1343 158 *kantars* of 'aluminis turcheschi' together with some Kütahya alum *en route* for L'Ecluse were part of a security put up in Genoa.²¹ In 1371 alum from Turchia appears in a list of goods taken from English ships or seized in Flanders and sold in L'Ecluse;²² in 1388 and 1398 alum was loaded in Turchia for L'Ecluse or Middelburg²³ and in 1393 alum from Turchia went to Southampton, Sandwich or L'Ecluse.²⁴ Later, in 1417, a ship with a cargo of merchandise including alum loaded at Old and New Phokaea was to go to L'Ecluse, calling at various ports *en route* including Southampton, provided that the Genoese and the English were at peace.²⁵ Spain also imported Turkish alum. In 1332 a request was made to Alfonso III, king of Aragon, for the return of alum of Turchia, confiscated in Roses.²⁶

One of the main centres for alum production in Anatolia was Phokaea. The Genoese were established there²⁷ from 1275²⁸ or before, when the alum mines there were granted by Michael VIII to Benedetto Zaccaria and his brother Manuel.²⁹ The Zaccaria family control ended in 1314 with the death of Nicolino, and they were succeeded in Phokaea by the Cattaneo della Volta family. Phokaea reverted to Byzantine control in 1336³⁰ but from 1346 the Maona of Chios assumed control there, and the area remained in Genoese hands until 1445. Under the Maona of Chios the alum mines of Phokaea were farmed out, the mines being auctioned approximately every ten years.³¹

²¹ 1343.iv.10 = Liagre-de Sturler, *Relations commerciales*, vol. no. 127, pp. 155–8.

²² In 1371.viii.1 the English destroyed a Flemish fleet in the Channel. In reprisal, goods seized from the English were sold in L'Ecluse. There is an inventory of these goods dated 1371.viii.25 in the Bruges Archives: Liagre, 'Commerce de l'alun', 191 and n. 65. She refers to Gilliodts Van Severn, *Inventaire des Archives de la Ville de Bruges*, vol. II, no. 6, p. 118.

²³ 1388.i.13 = Liagre-de Sturler, *Relations commerciales*, vol. II, no. 503, p. 659; 1388.iv.7 = *ibid.*, doc. 521, pp. 682–3; 1398.x.8 = *ibid.*, no. 623, p. 825 (for L'Ecluse only).

²⁴ 1398.vi.28 = Liagre-de Sturler, *Relations Commerciales*, no. 565, pp. 746–51.

²⁵ 1417.i.6 = Doehaerd and Kerremans, *Relations commerciales*, no. 230, pp. 253–7.

²⁶ Francesco C. Casula, *Carte Reali Diplomatiche di Alfonso III il Benigno, Re d'Aragón Riguardanti l'Italia* (Padua, 1970), no. 521, p. 296.

²⁷ There were two Phokaеas, the original Old Phokaea north of the Gulf of İzmir, and New Phokaea, built on the coast at the foot of the alum mountains. New Phokaea was established by the Genoese because of Turkish raiding. Dukas, *Historia Byzantina*, p. 161, l. 5 – p. 162, l. 15; Dukas, *Historia Turcobyzantina*, p. 205, l. 26 – p. 207, l. 18; Dukas *Decline and Fall*, pp. 148–9.

²⁸ Michel Balard, 'The Genoese in the Aegean (1204–1566)', *Mediterranean Historical Review* 4 (June 1989), 161 says the date was undoubtedly 1267. Heers, 'Commerce de l'alun', 31, gives it as 1275, as does Pachymeres, *George Pachymeres, De Michaelе et Andronico Palaeologis libri XIII*, ed. I. Bekker, CSHB (Bonn, 1835), vols. I–II: vol. I, p. 419, l. 10. Balard, *Romanie génoise*, vol. II, pp. 770–1, basing himself on two notary deeds, says the date must be pre-1268. Liagre, 'Commerce de l'alun', 179, dates it to 1264.

²⁹ Dukas, *Historia Byzantina*, p. 161, ll. 12–15; Dukas, *Historia Turcobyzantina*, p. 205, ll. 24–6; Dukas, *Decline and Fall*, p. 148; Pachymeres, vol. I, p. 420, ll. 5–6.

³⁰ Balard, *Romanie génoise*, vol. II, p. 778; Heers, 'Commerce de l'alun', 31, gives the date as 1340.

³¹ Heers, 'Commerce de l'alun', 32.

Ramon Muntaner, the author of a chronicle of the Catalan expedition in the east, described Phokaea in the early fourteenth century as a town of 3,000 Greeks busy in the production of alum.³² There was clearly a high level of production which, according to Pegolotti, amounted to 14,000 Genoese *kantars* per annum.³³ In the first half of the fifteenth century it was the main alum mine in Anatolia, producing a yearly total of 750 tons.³⁴ A Genoese notary deed of 1452 gives the production figure for the mines of Phokaea in that period as around 15,800 *kantars* per annum.³⁵

Phokaea alum was used to make a mixture of two-fifths rock and three-fifths *allume corda* and was very similar to second-quality alum (*allume di sorte della buona luminiera*).³⁶ Used by French, German, English, Italian, Spanish, Arab, Egyptian and Syrian dyemakers,³⁷ it was traded locally and exported to the west, selling in Constantinople, Pera,³⁸ Chios,³⁹ Bruges,⁴⁰ Middelburg⁴¹ and l'Ecluse.⁴² Its importance is clear from Dukas, according to whom every ship in the early fifteenth century sailing westwards from there carried a cargo of alum.

Alum mines in Phokaea were, at least on occasion, owned or leased by the *appaltatores*. It seems that their ability to lease them out was controlled by the authorities on Chios for in 1394 Francesco de Campis, the *ex-appaltator* of Phokaea, was granted permission from Chios to lease to Nicolao Paterio, one of the current *appaltatores*, an alum works which he owned in Phokaea, for the period in which Nicolao held office. In return,

³² R. Muntaner, *L'expedició dels Catalans a Orient*, ed. Lluís Nicolau d'Olwer, Els nostres clàssics 7 (Barcelona, 1926), p. 156.

³³ Pegolotti, *Pratica*, p. 369. ³⁴ Faroghi, 'Alum production', 161.

³⁵ 1452.x.14 = Heers, 'Commerce de l'alun', 36–7. Balard, *Romanie génoise*, vol. II, pp. 773, 775 has questioned the accuracy of Pegolotti's production figures, pointing out that Pegolotti gives exactly the same figure for Karahisar alum. In this context the figure from Bernardo de Ferrari is particularly interesting in that it is close to that of Pegolotti. But Heers, 'Commerce de l'alun', 37 n. 20 points out that this was the minimum. De Draperis refers to fraud of 6 per cent, so that without fraud this figure would be 17,300 *kantars* per annum.

³⁶ Pegolotti, *Pratica*, p. 369.

³⁷ Dukas, *Historia Byzantina*, p. 161, ll. 9–12; Dukas, *Historia Turcobyzantina*, p. 205, ll. 21–3; Dukas, *Decline and Fall*, p. 148.

³⁸ Pegolotti, *Pratica*, p. 43.

³⁹ 1405.iv.4 = Doehaerd and Kerremans, *Relations commerciales*, nos. 11, 12, pp. 13–17, sale of 3,000 *kantars* of grain alum of Phokaea in Chios; 1413.xii.18 = *ibid.*, no. 167, pp. 159–60, 10,000 *kantars* of alum being loaded in New Phokaea and Chios; 1426.v.26 = *ibid.*, no. 305, pp. 338–9, alum loaded in Phokaea, some of which was offloaded in Chios.

⁴⁰ Pegolotti, *Pratica*, p. 244; Doehaerd and Kerremans, *Relations commerciales*, no. 261, pp. 289–91, 2,126 *kantars* of grain alum of Phokaea were in Bruges.

⁴¹ 1388.viii.18 or 28 = Liagre-de Sturler, *Relations commerciales*, vol. II, no. 526, pp. 691–5, 3,000 *kantars* were loaded in New Phokaea and 490 *kantars* in Old Phokaea for Middelburg. This document gives the loading times for the alum as eight days in New Phokaea and four days in Old Phokaea; 1439.xi.9 = Doehaerd and Kerremans, *Relations commerciales*, no. 805, pp. 630–3, 11,000 *kantars* or more of Phokaea alum was to be shipped to L'Ecluse or Middelburg.

⁴² 1426.v.26 = Doehaerd and Kerremans, *Relations commerciales*, no. 305, pp. 338–9, 9,000 *kantars* of alum from Phokaea were shipped to L'Ecluse. 1439.xi.9 = *ibid.*, no. 805, pp. 630–3, 11,000 *kantars* of Phokaea alum were to be shipped to L'Ecluse or Middelburg.

Nicolao was to pay 400 gold *ducats*, or 350 *kantars* of rock alum if Francesco preferred, as surety, the *ducats* or alum being returnable when Nicolao handed back the alum works to Francesco at the end of his period in office. Presumably Francesco would have used the money or alum for trading during the period in which the mine was let. Whether he chose alum or cash presumably depended on how easily he could dispose of the alum and on how much money he was likely to make on it. As he owned an alum mine and had been an *appaltator* in Phokaea, he could be presumed to have been active in the alum trade.

Alum could also be used in place of cash for purchasing an alum mine, for if Francesco wished to sell his alum works to Nicolao, Nicolao was bound to buy it for 300 *kantars* of rock alum, Francesco returning the 400 *ducats* given him by Nicolao when Francesco originally handed the works over to him.⁴³ Nicolao Paterio also bought another alum mine in Phokaea in the same year for 400 gold *ducats*.⁴⁴

Other sources of alum included that of the Black Sea region at Karahisar (Koloneia, modern Şebinkarahisar).⁴⁵ The Genoese were exporting alum from there before c.1275⁴⁶ and presumably controlled the trade of Karahisar alum to Europe throughout the fourteenth century, when they were the dominant force in the Black Sea.⁴⁷ These activities clashed with the interests of the Zaccaria of Phokaea who, in order to protect their own alum monopoly, sought to have an interdict applied against the alum of Karahisar to prevent its export to the west. In 1275 they obtained an agreement to this effect from the Byzantine emperor, Michael VIII. But the Genoese government was not happy and the interdict was quashed.⁴⁸

Karahisar alum was the best type of alum produced in Turchia. There were three grades: rock alum which was the most valuable; second-quality alum (*allume di sorta della buona luminiera*), made up of two-fifths rock and three-fifths *allume corda*, a grain alum (*allume minuto*); and *allume corda*, which was the most grainy type of alum.⁴⁹ Annual production was 14,000 Genoese *kantars*.⁵⁰ It was exported from Giresun (Kerasunt, Chisenda), on the Black Sea coast west of Trabzon, a seven-day journey from Karahisar⁵¹ and was sold in Constantinople and Pera⁵² and in markets further west, for Karahisar alum appears in the accounts of Bruges for 1312, valued at 40 *denari*.⁵³

Another source of alum was Kütahya, in western Anatolia, south-east of

⁴³ 1394.ii.18 = ASG, Notaio, Donato de Clavaro, Sc. 39, filza 1, doc. 97/240.

⁴⁴ 1394.iii.19 = Argenti, *Chios*, vol. I, p. 488.

⁴⁵ Zachariadou, *Trade and Crusade*, p. 168, n. 709.

⁴⁶ Balard, *Romanie génoise*, vol. II, p. 773, says it was pre-March 1274.

⁴⁷ Zachariadou, *Trade and Crusade*, p. 167.

⁴⁸ Balard, *Romanie génoise*, vol. II, pp. 776–7.

⁴⁹ Pegolotti, *Pratica*, p. 369. ⁵⁰ *Ibid.* ⁵¹ *Ibid.*

⁵² Pegolotti, *Pratica*, p. 43.

⁵³ Liagre, 'Commerce de l'alun', 187 and n. 65.

Bursa. Pegolotti describes Kütahya alum (*allume dal cotai e d'Altoluogo*) as being 'grossetto' and 'minuto' mixed together, similar to Ulubat (Ulek Abad) alum but more grainy (*minuto*), and close to Phokaea alum in quality. Twelve thousand Genoese *kantars* per annum were produced, and alum was exported through Theologos and Balat with 4,000 *kantars* going out through Antalya.⁵⁴ It sold in Constantinople and Pera.⁵⁵ According to Professor Balard,⁵⁶ the alum referred to as alum of Christo is the same as Kütahya alum, as is the alum noted by William of Rubruck towards the mid-thirteenth century as coming from mines in the sultanate of Iconium.⁵⁷ Kütahya alum was pledged in Genoa in 1343 as part security for 396 *florins*. It was on a *cocha* due to leave Genoa for L'Ecluse, calling at Maiorca, Cadiz and Malaga.⁵⁸

Mention is made in Genoese notary deeds of alum of Scorpiata. Scholars are divided as to whether this could be taken as evidence that the alum originated from Scorpiata or that simply it was exported from there. According to Professor Balard, the Genoese began to go to Scorpiata for alum from 1380.⁵⁹ He questions whether this alum represented local production from mines previously unknown or whether the alum was in fact from mines close to the Sea of Marmara, at Ulubat (Ulek Abad, Lopadion) and Kapıdağ (Cyzicus), which the Genoese had brought overland to avoid a passage through the straits. Professor Balard concludes that the alum was probably from local mines, pointing out that if the Genoese had wished to avoid a passage through the straits and were using Scorpiata solely as a place from which to collect alum, they would surely have been more likely to have selected Edremit (Adramyttion), altogether more accessible than Scorpiata.⁶⁰

In support of this one could argue that Scorpiata clearly had drawbacks as a loading site, being a beach not a port,⁶¹ and therefore loading and

⁵⁴ Pegolotti, *Pratica*, p. 43.

⁵⁵ Pegolotti, *Pratica*, p. 369. Pegolotti does not specify how often the 4,000 *kantars* went to Antalya but it may well have been a per annum figure as are his production figures.

⁵⁶ Balard, *Romanie génoise*, vol. II, p. 773, n. 21.

⁵⁷ William of Rubruck, *Mission*, p. 273; Corpus Christi College, Cambridge MS 66A, fo. 109r col. 1 – 109v col. 1; Corpus Christi College, Cambridge MS 181, fo. 396. But see Heyd, *Histoire du commerce*, vol. II, p. 567.

⁵⁸ 1343.iv.10 = Liagre-de Sturler, *Relations commerciales*, vol. I, doc. 12, pp. 155–8.

⁵⁹ Balard, *Romanie génoise*, vol. II, p. 774. Professor Balard does not give his reasons for this dating. If it is based on lack of documents referring to Scorpiata prior to 1380, surely this could simply be fortuitous, no documents happening to have survived. It seems to me unlikely that one could in fact be so precise over the dating here.

⁶⁰ *Ibid.*

⁶¹ 1408.x.24 = ASG, Notaio, Giovanni Balbi, Sc. 46, filza 1, doc. ?386. The captain in this deed said that he was unable at that moment to collect alum from Scorpiata because the weather/season was such that he could not go to Scorpiata, it being a beach. It was contested that the alum left in Scorpiata was in danger of deterioration and 'other things' (although it was also contested that the alum was safe and well looked after), perhaps further indicating Scorpiata's difficulties as a loading place: 1408.x.13 = *ibid.*, doc. 397.

unloading would have been hampered both by location and by weather conditions. In 1393 Scorpiata is specifically excluded in an agreement over loading goods including alum in a port in Turchia. Manuel Doria promised to go with his ship to Chios and to wait there for two days to be told by the hirer, Michael Lomellino, which port in Turchia, including Mytilene, he was to go to. Manuel stated, however, that he was not held to go to Scorpiata, even if told to do so. The document gives no indication as to why Manuel was not prepared to go to Scorpiata, but it may well have been that his refusal was in some way connected with difficulties of loading or landing there.⁶² That Scorpiata was not ideal is confirmed by a notary deed of 1404 in which a captain of a ship agrees to go to Scorpiata or another place nearby better suited to loading.⁶³

While one can convincingly argue that Scorpiata had its drawbacks as a loading site, this does not necessarily mean that the alum exported from there was from a previously unknown local source, as Professor Balard has concluded. The name Scorpiata when applied to alum may well refer to Scorpiata as the export port and not the place of origin of this alum. Evidence for such an argument may be adduced from the fact that Pegolotti refers to Kūtahya alum variously as ‘allume dal Cotai e d’Altoluogo’, ‘allume del Cotai, cioè d’Altoluogo’ and ‘allume di Coltai d’Altoluogo’.⁶⁴ However, he explains that the alum of Kūtahya was sometimes called alum of other Turkish places or alum of Theologos (Altoluogo) but that its correct name was Kūtahya (Coltai) because it came from the area of Kūtahya.⁶⁵ As Theologos was one of the ports for Kūtahya alum⁶⁶ perhaps this is why it was sometimes called ‘allume d’Altoluogo’. This may well also explain the name ‘alum of Christo’ referring to Kūtahya alum,⁶⁷ where again the name of the export port and not that of the origin is used.

Thus, by the same token, the alum of Scorpiata could have come from somewhere else, such as Kūtahya. Against this, however, is the fact that it would seem strange to take the alum to Scorpiata rather than to the nearer and more accessible and suitable ports of Balat and Theologos, from which Kūtahya alum was in fact exported. More plausibly, the alum of Scorpiata might have originated in the nearby alum-producing areas of Ulubat or Kapıdağ. Two Genoese notary deeds refer to the alum of Scorpiata as ‘bad’

⁶² 1393.vi.28 = Liagre-de Sturler, *Relations commerciales*, vol. II, no. 565, pp. 746–51.

⁶³ 1404.xi.4 = Doehaerd and Kerremans, *Relations commerciales*, no. 10, pp. 11–13, ‘ad La Scorpiata, vel alium locum eidem vicinum magis habile ad levandum et onerandum onus infrascriptum . . . in dicto loco Scorpate vel alio loco eidem vicino magis abili ad levandum’.

⁶⁴ Pegolotti, *Pratica*, pp. 43, 293.

⁶⁵ Pegolotti, *Pratica*, p. 369. ⁶⁶ *Ibid.*

⁶⁷ Balard, *Romanie génoise*, vol. II, p. 773, n. 21 says that the alum of Christo is without doubt Kūtahya alum. Balard identifies Christo as, in all probability, the port of Dioshieron near Theologos.

rock alum ('bruta'), perhaps adding weight to this supposition,⁶⁸ since Pegolotti describes the alum from Kapıdağ as 'poco e molto laida' (small and foul), one of the three worst sorts.⁶⁹

Professor Balard further argues that the frequent mention of Scorpiata alum between 1384 and 1409 leads one to conclude that there must have been alum-producing mines there which came to compete with the mines of Phokaea.⁷⁰ This seems too strong a conclusion to make on the evidence available, particularly bearing in mind that the alum of Scorpiata may well have got its name from the port and not the place of origin. The Genoese archival material seems more plentiful for the 1390s than for the earlier period, and this alone could account for the apparent upsurge in material relating to Scorpiata.

Whether there was or was not a new source of alum in Scorpiata it is certainly clear that alum was sold and exported from there. In 1384 there is a reference to a cargo of alum loaded in Pera or Scorpiata, insured for 125 Genoese pounds, which was to be unloaded in either L'Ecluse, England or Middelburg,⁷¹ and four years later alum was loaded in Scorpiata for L'Ecluse.⁷² In 1404, 10,000 *kantars* of alum were to be loaded in Scorpiata for Southampton and La Crussa.⁷³ In 1408 there was a sale of 4,999 *kantars* and 50 *rotoli* of alum – 3,000 *kantars* of grain alum and 1,999 *kantars* and 50 *rotoli* of rock alum – in Scorpiata where the ship was to spend twelve days loading alum and other merchandise.⁷⁴ The documents dealing with

⁶⁸ 1408.x.22 = ASG, Notaio, Giovanni Balbi, Sc. 46, filza 1, doc. 388, 'aluminum de rocha bruta'; 1408.x.24 = *ibid.*, doc. 386, 'aluminum bruti'.

⁶⁹ Pegolotti, *Pratica*, p. 369.

⁷⁰ Balard, *Romanie génoise*, vol. II, p. 774. He refers to ASG, Not. Cart. 311, fos. 154r, 155r; ASG, Notai, Gregorio Panissario, doc. 118; ASG Notai, Giovanni Balbi, 1408.x.13, 17, 22; Liagre-de Sturler, *Relations commerciales*, docs. 457, 499, 500. But the Balbi documents all refer to the same alum (and interestingly Balard does not refer to the other documents in this series, 1408.viii.14 and 1408.x.24). Similarly docs. 499 and 500 in Liagre-de Sturler both deal with the same cargo of alum. Do these references in fact amount to frequent mention, sufficient to allow Professor Balard to draw his conclusion about the importance of a mine in the Scorpiata area?

⁷¹ 1384.x.29 = Liagre-de Sturler, *Relations commerciales*, vol. II, no. 457, pp. 606–7.

⁷² 1388.i.2 = Liagre-de Sturler, *Relations commerciales*, vol. II, no. 499, pp. 654–5; 1388.i.3 = *ibid.*, no. 500, pp. 655–6.

⁷³ 1404.xi.4 = Doehaerd and Kerremans, *Relations commerciales*, no. 10, pp. 11–13. La Crussa is Pegnitz: *Orbis Latinus. Lexikon lateinischer geographischer Namen des Mittelalters und der Neuzeit*, ed. Graesse, Benedicts and Pechl (Braunschweig, 1972), vols. I–III: vol. I, p. 597.

⁷⁴ ASG, Notaio, Giovanni Balbi, Sc. 46, filza 1. In the sale document, doc. 397, 1408.viii.14, the amount of alum sold is 2,000 to 2,500 *kantars* of rock alum, whatever the whole amount was, and c.3,000 *kantars* of grain alum. In doc. 397, 1408.x.13, the first in a series of documents concerning a dispute over the sale, the amount appears as 5,500 *kantars*, as it does in doc. 396, 1408.x.17. Doc. 388, 1408.x.22, is more precise. It says that the sale was of 5,000 *kantars*, 3,000 of grain alum and 2,000 or more of rock alum. But it also says that 1,561 *kantars* and 50 *rotoli* of rock alum were loaded and 3,000 *kantars* of grain alum and 438 *kantars* of rock alum were left behind in Scorpiata. These figures are repeated in doc. 386, 1408.x.24, although in the second reference to the amount loaded the document misses out the 50 *rotoli*. It also makes the total 5,000 *kantars* though it must have been 4,999 *kantars* and 50 *rotoli*. Heers, 'Commerce de l'alun', 35, refers to the sale as being of 5,500

this sale and the subsequent dispute⁷⁵ show that the Florentines too were involved in buying and exporting alum from Scorpiata, since the alum in question was sold by a Genoese, Fillipo Lomellino, to two Florentine merchants, Petro de Ticio and Gieronimo Bartolo, who were to pay half the price of the alum in Florentine cloth. It is interesting to note the large amount of alum bought at Scorpiata in these documents, particularly when compared with Pegolotti's annual production figures for Phokaea and Karahisar of 14,000 *kantars* per annum.⁷⁶

Alum was also produced in various other places in Anatolia. Ulubat (Ulek Abad, inland from the Sea of Marmara, west of Bursa) alum (*allume lupaio* or *allume lupaio turchesco*) was sold in Constantinople and Pera.⁷⁷ It was 'allume grossetto', heavier than that of Kütahya and was exported through Trilia (Triglia). The annual production figure was 10,000 Genoese *kantars*.⁷⁸ It was clearly traded to Bruges, as it appears in a list of alum values there.⁷⁹ Camalı, just south of Gelibolu, also had mines producing excellent rock alum and the Genoese merchants were active there.⁸⁰ Alum from Kapıdağ (Cyzicus, west of Bursa on the coast of the Sea of Marmara) (*allume Chisico*) was one of the three worst sorts together with ?Diaschila alum (*allume ghiaghillo*) and *allume corda*.⁸¹ It was used for tanning hides and was 'small and foul' ('poco e molto laida').⁸² It too is listed among the alums in Bruges.⁸³

The export of alum from Anatolia was subject to tax. It would seem from Pegolotti that the tax on alum exported from Theologos was 4 per cent, as he states that, with the exception of wax, all goods paid at this rate.⁸⁴ From the various treaties with the Venetians it is known that alum in the beyliks of Menteşe and Aydın was placed under *appalto*, that is, it was tax farmed. In the treaty of 1337 between Giovanni Sanudo, duca di Candia, and İbrahim, emir of Menteşe, and in the treaty between Sanudo and Hızır of Aydın in the same year, alum is listed as one of the goods on which the Venetians did not have to pay *appalto*. This is presumably a concession specially for the Venetians and therefore one can presume that generally the *appalto* was applied to alum. This point is further strengthened by clause 28 of the treaty where İbrahim stated that he would impose *appalto* on alum in

kantars of alum with payment in cloth. But, as shown above, the amount must have been 4,999 *kantars* and 50 *rotoli* and the payment was for half the amount in cloth. There were 100 *rotoli* in one Genoese *kantar*: Schilbach, *Metrologie*, pp. 188, 189.

⁷⁵ The series of documents about this sale are 1408.viii.14 = ASG, Notaio, Giovanni Balbi, Sc. 46, filza 1, doc. 384; 1408.x.13 = *ibid.*, doc. 397; 1408.x.17 = *ibid.*, doc. 395; 1408.x.17 = *ibid.*, doc. 396; 1408.x.22 = *ibid.*, doc. 388; 1408.x.24 = *ibid.*, doc. ?386.

⁷⁶ Pegolotti, *Pratica*, p. 369.

⁷⁷ Pegolotti, *Pratica*, p. 43.

⁷⁸ Pegolotti, *Pratica*, p. 369.

⁷⁹ Pegolotti, *Pratica*, p. 243.

⁸⁰ Balard, *Romanie génoise*, vol. II, p. 774 and n. 23, citing ASG, Not. Cart. no. 445/2.

⁸¹ Pegolotti, *Pratica*, pp. 43, 293, 369.

⁸² Pegolotti, *Pratica*, p. 369. Pegolotti says that many alums were called 'cassico' because of their smallness and foulness.

⁸³ Pegolotti, *Pratica*, p. 243.

⁸⁴ Pegolotti, *Pratica*, p. 56.

Balat if Hızır of Aydın concluded a treaty with Crete but continued to make alum subject to *appalto* in Aydın.⁸⁵

It would appear that at some time between 1337 and 1358 *appalto* was imposed on alum in Menteşe since Musa, emir of Menteşe, undertook in his treaty of 1358 with the duca di Candia, Pietro Badoer, to lift *appalto* on alum.⁸⁶

In the treaty of 1375 between Ahmed, emir of Menteşe, and Giovanni Gradenigo, duca di Candia, the clause of the 1337 treaty relating to non-payment of *appalto* for alum is repeated. However, the 1375 treaty is largely a word-for-word copy of the 1337 treaty, of which it was a renewal. In some clauses, for example 26 and 27, where the oaths of İbrahim and his nobles are copied exactly, the content is clearly completely out of date, and this therefore casts doubt on the reliability of the other clauses. One has to wonder whether they were merely mindless copying or whether they, or at least some of them, were relevant to conditions in 1375.⁸⁷ Under the 1403 treaty between İlyas, emir of Menteşe and the duca di Candia, Marco Falier, there was to be no *datium* imposed on alum.⁸⁸ The 1407 treaty, this time between İlyas, emir of Menteşe, and the new duca di Candia, Leonardo Bembo, refers to no *amalim* being imposed on alum, meaning that, for the Venetians, it was not subject to *appalto*.⁸⁹

Gabellas and *introitus* were charged on alum in Phokaea, which taxes were collected by the *appaltatores*. It appears that, at least for the end of the fifteenth century, the *appaltatores* were entitled to some tax concessions on alum which they acquired during their period in office as they were able to export it without paying any 'new taxes' on it.⁹⁰

It seems that under the Ottomans alum was farmed out to the Genoese. Dukas, for example, refers to Giovanni Adorno, the new *podestà* of Phokaea, who, in c.1415,⁹¹ 'according to ancient custom', went to present himself to Mehmed I and made the 'customary obeisance'. In return for the

⁸⁵ 1337.pre-iv = Zachariadou, *Trade and Crusade*, doc. 1337M, clause 22, p. 198, clause 28, pp. 199–200; 1337.iii.6 = *ibid.*, doc. 1337A, clause 11, p. 192.

⁸⁶ 1358.x.13 = Zachariadou, *Trade and Crusade*, clause 8, p. 218.

⁸⁷ 1375.iv.22 = Zachariadou, *Trade and Crusade*, doc. 1375M, pp. 222–3.

⁸⁸ 1403.vii.24 = Zachariadou, *Trade and Crusade*, doc. 1403M DVL, clause 22, p. 231. Doc. 1403M has 'gabelam' in place of 'datium', clause 22, p. 231.

⁸⁹ 1407.vi.2 = Zachariadou, *Trade and Crusade*, doc. 1407M, clause 22, p. 236.

⁹⁰ 1394.ii.18 = ASG, Notaio, Donato de Clavaro, Sc. 39, filza 1, doc.97/240. The *appaltatores* in question were granted this tax concession because this was an established practice: 'Et hec ut supra declaramus [referring to the concession] cum cognoverimus sic temporibus retro-actis usitatum fuisse.' Francesco, ex-*appaltator*, had however to pay *gabellas* and *introitus* on alum which he had put in Phokaea after he had ceased being *appaltator* unless Domenico Giustiniano, *podestà* of Chios, certified that the alum had been sent to Phokaea for a legitimate reason. He had to pay on alum put in Phokaea by him after Nicolao had taken over the *appaltatorship*, as others paid it.

⁹¹ Dukas, *Historia Byzantina*, p. 164, l. 8; Dukas, *Historia Turcobyzantina*, p. 209, l. 18; Dukas, *Decline and Fall*, p. 150. Dukas says that this happened six years before the death of Mehmed. Mehmed I died in 824/1421.

rights to farm alum, which he ‘finally’ obtained from the sultan, he had to pay 20,000 gold coins per annum for the ten years of his period in office. On Mehmed’s death the money went to his successor, Murad II, Adorno again making obeisance before the sultan. Adorno had fallen behind on his payments because of the Genoese–Catalan wars which prevented the export of alum westwards and, apparently, because of the heavy cost of mining the alum. Murad II waived debts on alum in return for a passage across the straits in his fight with the rival claimant to the throne, Mustafa.⁹²

Under Mehmed II too the Genoese were tax farmers of alum. In 1452 Francesco de Draperiis made an arrangement with Paris Giustiniano, Paulo Bocardo and Benedetto Salvaigo. These three merchants gave Francesco 400 pieces of Genoese cloth worth around 5,000 gold *ducats* of Chios (c.7,000 Genoese *ducats*) which he was allowed to take to Edirne, and promised him a further 45,000 Turkish *aspers* (7,000 gold *ducats* of Chios, 9,800 Genoese), paid in Edirne, if he secured the tax farm of the mines of Greece and Turchia from Mehmed II.⁹³ In 1454 Mehmed II’s fleet appeared off Chios with instructions that if 40,000 gold coins owed by the Chian authorities for alum to Francesco de Draperiis (who in turn appears to have owed this sum to the sultan) was not paid, the island was to be attacked.⁹⁴

It is very difficult to give an accurate and detailed picture of the price of alum in this period.⁹⁵ Apart from the usual problem over currency exchange ratios and the correspondence between different measurements, there is the added problem of not always knowing what sort of alum is involved when a price is given. Although on occasions the sources specify, for example, rock alum, often they give a price for unspecified alum only.

⁹² Dukas *Historia Byzantina*, p. 163, l. 19 – p. 165, l. 24, p. 178, l. 2 – p. 179, l. 9; Dukas, *Historia Turcobyzantina*, p. 209, l. 9 – p. 211, l. 19, p. 225, l. 24 – p. 227, l. 12; Dukas, *Decline and Fall*, pp. 150–1, 158; Aşıkpaşazade, *Altosmanische Chronik*, bab 87, p. 88; Aşıkpaşazade, *Tevarih-i al-i ‘Osman*, p. 99. According to Dukas, the amount owed was c.27,000 gold coins. See also Dukas, *Historia Byzantina*, pp. 162–3, Dukas, *Decline and Fall*, p. 149, where he refers to a treaty made with Saruhan and the annual payment from Phokaea to him of 15,000 *lepta*.

⁹³ 1452.x (?)28 = Argenti, *Chios*, vol. III, no. 222, pp. 658–9; Heers, ‘Commerce de l’alum’, 50, n. 64 dates this document to 1451.xii.28. She refers to the price of alum as fixed at 0.45 of a *ducat* which represented 26,000 *kantars* of alum. However, no figure is given in the document. At the same time, without knowing what sort of alum was involved it would be difficult to be precise about what the money paid by Paris and his partners represented in terms of alum. All one can say is that the three Genoese merchants involved considered an investment of 12,000 gold *ducats* of Chios (16,800 Genoese *ducats* – 140 Genoese *ducats* to 100 Chian *ducats*: Heers, ‘Commerce de l’alum’, 40, n. 39) worthwhile in order to gain control of the alum coming from the mines of the Turkish sultan. It would be very helpful to know how long Francesco’s arrangement with the sultan was made for. Unfortunately the document gives no indication of this.

⁹⁴ Dukas *Historia Byzantina*, p. 322, ll. 10–19, p. 327, ll. 20–2; Dukas, *Historia Turcobyzantina*, p. 402, ll. 12–19, p. 411, ll. 19–20; Dukas, *Decline and Fall*, pp. 246–7, 250.

⁹⁵ See appendix 3 below.

This problem is compounded by the fact that alums from different regions varied in price.⁹⁶

As Professor Zachariadou has pointed out, there appears to have been a considerable increase in alum prices in the eastern Mediterranean during the fourteenth century. In 1336, 5.5 *kantars* of alum was sold for 1 *ducat*. At the end of the fourteenth century alum fetched in the region of 0.5 of a *ducat* per *kantar*. It seems that this increase took place at the end of the century rather than being a progressive development, something reflected in the Genoese slave market where prices remained without fluctuation throughout the century, increasing only at the end.⁹⁷ Both Professor Zachariadou and Professor Balard have attributed this increase to Ottoman activity, Professor Zachariadou ascribing it to Ottoman policy and Professor Balard to Ottoman advance at the end of the century.⁹⁸ While it is true that Ottoman advance was no doubt a disruptive factor, it is not likely to have been the sole reason for an increase in price, for, had it been, one would perhaps have expected to see a decrease in price after the collapse of the Ottoman state in 1402.⁹⁹ In fact prices appear to have remained fairly stable, even rising slightly.

A combination of Ottoman advance and subsequent Ottoman policy probably largely explains the increase in alum prices in Anatolia at the end of the fourteenth century. In 1381 the Ottomans took the alum-producing region of Kütahya and, at the beginning of the 1390s, annexed Menteşe and

⁹⁶ Pegolotti, *Pratica*, pp. 243–4. In a list of alum values in Bruges the various alums are said to be 2 *soldi* of the silver *tornesi grossi* cheaper or more expensive than each other. Unfortunately part of the text is missing and so no actual price is given. The alums listed are Cyzicus alum, Ulubat alum, second-quality alum, Phokaea alum and rock alum.

⁹⁷ Balard, *Romanie génoise*, vol. II, pp. 780–1. Liagre-de Sturler, *Relations commerciales*, vol. I, p. cxl also considers the prices stable. Balard, *Romanie génoise*, p. 781, n. 57, in quoting prices for alum at the end of the fourteenth century, refers to ASG, Not. Donato di Chiavari, 1394, n. 240; Not. Gregorio Panissario doc. 70, 135 (date = 1405.18.4, in Doehard and Kerremans, *Relations commerciales*, no. 11); D. Gioffre, 'Atti rogati in Chio nella seconda metà del XIV secolo' in *Bulletin de l'Institut Historique Belge de Rome* 34 (1962), 324, 359. Professor Balard here refers to grain alum. But Donato di Chiavari 1394 doc. 240 (1394.ii.18) refers either to alum or rock alum, not to grain alum. As Professor Balard specifically states that the rock alum price is for 1398 (i.e. not from Donato de Clavaro, of 1394) while he quotes the rest, at the end of the fourteenth century, as grain prices (i.e. thus including the Donato de Clavaro reference), Professor Balard must here be mistaken, quoting a rock alum price as a grain alum price. Further, the prices Professor Balard quotes, grain alum from between 12 *sous* 6 *deniers* (i.e. 0.5 of a *ducat*) and 18 *sous* 9 *deniers* (0.75 of a *ducat*) per *kantar*, rock alum at 45 *sous* (1.72 *ducats*) in 1398, do not tie in with the price in Donato de Clavaro, 1394, where the price for alum, type unspecified, was 4 to 5 gold *ducats* per *kantar* (and so presumably, judging from the price, rock alum). The other alum referred to was rock alum.

⁹⁸ According to Zachariadou, *Trade and Crusade*, p. 169, the increase in the price of alum during the fourteenth century was a direct result of Ottoman policy. Balard, *Romanie génoise*, vol. II, p. 718 regards the 'temporary rise' in alum prices at the end of the fourteenth century as caused by the Ottoman advance.

⁹⁹ Dr Colin Imber, verbal communication, has suggested rather that one might expect a rise post-1402, in view of the insecurity of the period.

Aydın and thus gained control of the export ports of Theologos and Balat. The Ottomans were therefore in a position to control alum exports and prices. The fact that prices apparently did not rise earlier in the century suggests that the beyliks were insufficiently powerful to increase substantially the prices paid by western merchants for alum in their territories. The change after the Ottoman take-over suggests a more dynamic economic policy, necessarily supported by considerably greater military strength.

The Ottomans, having established their position in these areas, did seek to control the alum trade. After annexing Kütahya in 1381, Murad imposed restrictions on alum export, as is indicated by the Venetian senate's instructions to its ambassador in 1384 to try and ensure that Venetians could load and export rock alum in Murad's territories. At the same time the ambassador was to request a reduction in the price of alum fixed by the sultan.¹⁰⁰ A Genoese notary deed from this period makes it clear that trading alum in Turchia was then not always easy.¹⁰¹ The document refers to the goods of the late Nicolao de Oliva, the executor of whose will, Giovanni de Bulgaro, had been unable to carry out his functions as *fideicommissor* because of 'various impediments and the great diversity of his trade'. He had particular difficulty in Pera and Turchia because of the distances involved, the dangers and the abundance of his goods. Giovanni in consequence appointed two agents to deal with all Nicolao's affairs and to receive all the alum that Giovanni Demerode had in Turchia and that from the goods of the late Nicolao and to sell it, investing or lending the money from the sale.

According to Dr Zhukov, the Ottoman take-over of Kütahya in 1381 resulted in an almost complete paralysis of the alum trade in Menteşe and Aydın, forcing the Genoese to obtain alum from areas under Ottoman control, in particular, in the period 1384–1409, from Scorpiata. This discontinuance of the transit trade, again according to Dr Zhukov, deprived the emirs of Aydın and Menteşe of an important source of foreign currency, which in turn resulted in the intensification of the unequal balance of trade with the Latin states of the Levant.¹⁰² There are, however, various factors which argue against this assessment of the situation after 1381. First, it relies partly on the assumption that Scorpiata became a centre of either alum trade or production after 1384 and, as has been argued above, this does not seem necessarily established. Further, there was clearly still an alum trade with western merchants in the beyliks during the 1380s and 1390s, apart from the trade in other commodities which is known to have existed. While it seems fairly clear that Ottoman control resulted in a tougher trade policy, as is evidenced by the Venetian senate's request to

¹⁰⁰ 1384.vii.22 = Thomas, *Diplomatarium*, vol. II, no. 116, p. 194.

¹⁰¹ 1381.ii.28 = ASG, Notario, Antonius Feloni, C. 175, fos. 114r–115r.

¹⁰² Zhukov, Эгейские Эмираты, p. 100.

Murad for a reduction in alum prices and its concern over its citizens' ability to load and export this commodity, trade relations were very much in Ottoman interests and continued under them. It does not seem possible therefore to refer to a paralysis in transit trade, nor to ascribe this as a cause for any worsening balance of trade between western states and the beyliks.

At the beginning of the fifteenth century the price of alum was slightly higher, per-*kantar* prices ranging from 0.75 of a *ducat* in 1405, c.0.66 for rock and c.0.33 for grain in 1408 and 0.7 in 1412. The price appears to have risen again by the late 1430s, though not by much, for per-*kantar* prices in Constantinople then varied between c.1.25 *ducats* and c.1.7. By 1450, however, prices appear to have declined again, hitting a level similar to that of the 1390s. In 1448 1 *kantar* sold for 0.375 of a *ducat*, and more than 0.5 in 1449 and 1450. After 1453 eastern alum became uncommon in European markets and the price correspondingly increased fivefold.¹⁰³ By 1462 the Ottoman empire was receiving as much as 300,000 gold *ducats* per annum from alum sales to the west.¹⁰⁴

The trade in alum sheds light on Ottoman trade policy in various ways. The rise in alum prices at the end of the century and the apparent restrictions imposed by Murad on Venetian trade in alum indicate that the Ottomans pursued a more hard-edged trade policy than that of the weaker beyliks, using their increasing political strength as a base from which to exercise greater economic dominance. Ottoman rulers were prepared to use western merchants, farming out their alum resources particularly to the Genoese, thus benefiting from a guaranteed income without much effort. The Ottomans, as well as exerting control, were also prepared to give concessions in order to foster trade. They did not apparently in general impose restrictions on alum export¹⁰⁵ and allowed some ports to be free. In 1408 Scorpiata appears to have been a free port, since a sale of alum there is described as being free from all expenses and *anaris* according to the custom of Scorpiata.¹⁰⁶

¹⁰³ Delumeau, *L'alun*, p. 19; Heers, 'Commerce de l'alun', 53.

¹⁰⁴ Liagre 'Commerce de l'alun', 194.

¹⁰⁵ Faroghi, 'Alum production', 153. She in fact says that the Ottomans never forbade alum export.

¹⁰⁶ 1408.viii.14 = ASG, Notaio, Giovanni Balbi, Sc. 46, filza 1, doc. 384: 'libera et expedita ab omnibus expensis et anaris secundum consuetudinem loci predicti Schorpiate'.