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PIERO PANTELLA FROM PIACENZA AND THE TEXTILE INDUSTRY OF DUBROVNIK (RAGUSA) IN THE FIRST HALF OF THE FIFTEENTH CENTURY

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ABSTRACT: By the first half of the fifteenth century 4,000 rolls of cloth a year were produced in Dubrovnik for a total value of about 600,000 ducats, in other words, an average annual production of a Ragusan factory by far exceeded its Florentine counterpart. The article elucidates the background of the rapid expansion of textile industry in this period and its leading figures, Piero Pantella being one of them, as well as the specific organisation of the production process characterised by the concentration and unification of several phases in one place that greatly differed from the traditional textile production of Florence.

Keywords: Dubrovnik, Piacenza, Florence, Prato, 15th c., Piero Pantella, textile industry, woollen fabrics

In his *Situs aedificiorum, politiae et laudabilium consuetudinum inclitae civitatis Ragusii*, Filippo Diversi dei Quartigiani attributed to Paolo Cornello of Piacenza the founding of the wool manufactory in the city of Dubrovnik (Ragusa) in January of 1416.¹ Paolo had started the production of woollen cloths

¹ *Philippus de Diversis. Situs aedificiorum, politiae et laudabilium consuetudinum inclitae civitatis Ragusii, IV-VIII, De Arte Lanificii fundata Ragusii auctore Petro Pantela*, in: Filip de Diversis, *Opis slavnoga grada Dubrovnika*, ed. Zdenka Janeković Römer. Zagreb: Dom i svijet, 2004: pp. 186-187.

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in this city attracted by the privileges the Republic offered, since the Italians were reputed to be technically superior in this particular field. The Republic agreed to give him a loan of 2,000 ducats with no interest to be paid back within ten years; a subsidy of 8 *grossi* for the first and second year, besides an award of 1/3 of a ducat for every roll of cloth produced; the use of a large building, free of cost, located outside the Pile city gates, specially built for this purpose by the Republic following the detailed plans provided by the Italian wool maker, and equipped with the sections for dyeing, cleansing, hanging and drying the woollen cloths. The authorities also offered total exemption from customs duties on the import of raw materials necessary for the manufacture and on the sale of the finished products. Moreover, the Italian wool maker was promised that he would be treated as a citizen of Dubrovnik and his account books would have full validity in the local courts of law. In exchange, Cornello guaranteed a production of at least 200 rolls of cloth (60 *braccia* long and as wide as the Venetian ones) during the first year, and promised to increase the quantity produced by fifty units every year until an annual production of 650 rolls of cloth was reached.² If Cornello was not able to respect the agreement, he would have to pay a penalty of two ducats for every roll of cloth not manufactured.³

Paolo Cornello died the following year, in 1417, before the enterprise was set up. Since in the contract that he had stipulated with the Republic there was a clause by which, in case of his death, his brothers were allowed to take his place, on 25 June all of the contractual obligations were assumed by his stepbrother Piero Pantella,⁴ who started to manufacture wool before the building at Pile was completed, in July of the same year. *Peritissimus* (highly expert) in the art of wool manufacture,⁵ Pantella soon succeeded in making a fortune, established himself and acquired property in the city, became the co-owner of several ships and boats, paid back the money that had been loaned, and became a citizen of Dubrovnik in 1430 along with his nephews, Filippo and Bartolomeo, the sons

² Sima Ćirković, »Importazione di tecnologie dall'Italia ed esportazione di maestranze dalla Serbia«. *Glas SANU* 154 (2006): pp. 73-83.

³ *Acta Consilii Maioris*, ser. 8, vol. 1, ff. 25r-25v (State Archives of Dubrovnik, hereafter cited as: SAD)

⁴ *Acta Consilii Maioris*, vol. 1, f. 25v; see Dragan Roller, *Dubrovački zanati u XV. i XVI. stoljeću*. Zagreb: JAZU, 1951: p. 7.

⁵ Filip de Diversis, *Opis slavnoga grada Dubrovnika*: p. 186; Ivan Božić, *Dubrovnik i Turska u XIV i XV veku*. Beograd: SANU, 1952: pp. 34-36; Bariša Krekić, »I mercanti e produttori toscani di panni di lana a Dubrovnik (Ragusa) nella prima metà del Quattrocento«, in: *Produzione commercio e consumo dei panni di lana (nei secoli XII-XVIII)*, ed. Marco Spallanzani. Firenze: L.S. Olschki, 1976: p. 708.

of his sister.⁶ Such was his standing in the city that in 1441 the Ragusan government sent him as their representative to Puglia for the purpose of recruiting one hundred soldiers to increase the defence of the city against the Turks⁷ and, when he died in 1464, he was buried in the sacristy of the Dominican monastery of Dubrovnik alongside other eminent citizens.

In this period many entrepreneurs arrived in Dubrovnik attracted by the privileges that the city government granted to foreigners who founded textile factories or other related activities. An interesting example is the agreement that the city made in 1417 with Jacopo, a Venetian soap maker.⁸ The city agreed to provide a building and the money necessary to start up production (50 ducats). The soap produced would be exempt from all taxes for two years and Jacopo would receive an annual commission of 60 ducats. In exchange, the soap maker promised to produce almost 10 tons of soap the first year, and twenty tons the second year. Another example is that of Pietro, a carpenter from Kotor, with whom the city of Dubrovnik made a contract in 1417, according to which he was to move to the city for six months and manufacture reels and other wooden tools for spinning wool.⁹

In this same context, starting in the early 1420s, there was a significant presence in the city of the people from Prato. Just to cite a few examples, we find a shearer, Antonio of Lorenzo; Niccolò of Matteo Cianfanelli; Niccolò and Buoso of Bartolomeo (who appears often in documents related to the local company belonging to the Caboga);¹⁰ Francesco of Giovanni Moddei with his brothers Michele and Giovanni.¹¹ In connection with another citizen of Prato, Agostino of Biagio, we have the request he made to the Ragusan government on 18 July 1420 for the founding of a wool factory. It stated that Agostino should be treated as a citizen of Dubrovnik as far as his operations as a wool manufacturer were concerned, except for the fact that he may not import foreign cloths. His accounting books would be considered as a valid proof in the courts of law, up until an amount of 5 *iperperi*. He asked the Republic to help him with 40 *iperperi* for the rent of a wool-making shop because this profession could not be

⁶ *Acta Consilii Maioris*, vol. 4, f. 78r.

⁷ *Lettere di Levante*, ser. 27.1, vol. 13, ff. 26r-27r (SAD); I. Božić, *Dubrovnik i Turska*: p. 88.

⁸ *Acta Consilii Maioris*, vol. 1, f. 75r; D. Roller, *Dubrovački zanati*: p. 7.

⁹ *Acta Consilii Maioris*, vol. 1, f. 78r.

¹⁰ Desanka Kovačević-Kojić, *Trgovačke knjige braće Kabužić (Caboga) 1426-1433*. Beograd: SANU, 1999: *passim*.

¹¹ Mirjana Popović-Radenković, »La penetrazione dei mercanti pratesi a Dubrovnik (Ragusa) nella prima metà del XV secolo«. *Archivio Storico Italiano* 117 (1959): p. 508.

conducted in a small and modest space. Moreover, Agostino asked for 1/3 of a ducat for every roll of cloth produced, and promised to make 35 rolls the first year, 40 the second, 50 the third, and 60 the fourth and fifth year. If Agostino did not fulfil his obligations, he would have to pay a penalty of 1 ducat for every roll of cloth not produced, unless he was prevented from doing so by war or death. As an argument for accepting his request Agostino mentioned the enlargement and promotion of the art of wool making in Dubrovnik.¹² With his maternal uncle Benedetto Schieri, the notary from Prato who later became a Ragusan chancellor, he founded a company that lasted for seven years and produced 647 rolls of cloth.¹³ Again in 1427 Benedetto Schieri, his nephew Fabiano and two men from Padua set up a company for the production and sale of woollen cloths that lasted for three years.¹⁴ Other Pratese citizens active in the city were Niccolò, Francesco, Bartolomeo and Giovanni Vinaccesi; Luca, Giovanni and Francesco, sons of Cecco of Bernardo; Niccolò of Matteo; Bernardo and Gabriello, sons of Niccolao of Bernardo; Michele, Giuliano and Bernardo of Stefano; Niccolò, Francesco, Giacomo, Bosio and Tommaso Ringhiadori; Niccolò, Pietro and Gherio of Stefano Gheri; Girolamo of Giovanni Marchionni; Andrea Gatti and Lorenzo of Tato; Stefano of Lazzaro.¹⁵ It seems that in 1423 Giuliano Marcovaldi also opened a dye shop with another Pratese, Luca of Cecco, an activity which they hoped would be off to a good start and would bring them success in the production of woollen cloths.¹⁶ In 1425 Marcovaldi was called *lanarius* (wool manufacturer). At the time he supplied a German weaver with a loom and the tools needed for weaving for a period of two years, with exclusive rights on the production.¹⁷

There were also so many Florentine citizens present in the city that Giacomo Luccari in his *Copioso Ristretto degli Annali di Rausa* erroneously stated that Piero Pantella was a Florentine.¹⁸ The same is repeated in *Storia di Ragusa* by

¹² *Acta Consilii Maioris*, vol. 2, f. 35v, B. Krekić, »I mercanti e produttori toscani«: p. 709.

¹³ *Diversa Notariae*, ser. 26, vol. 15, ff. 115v, 124 (SAD).

¹⁴ *Diversa Notariae*, vol. 15, f. 157v.

¹⁵ *Diversa Notariae*, vol. 13, f. 228r. See also B. Krekić, »I mercanti e produttori toscani«: p. 712; Paola Pinelli, »Giuliano di Marco da Prato, fattore a Ragusa: il carteggio«. *Atti e Memorie della Società Dalmata di Storia Patria*, N. S. 15 (2004), pp. 9-10; Ruggero Nuti, »Mercanti e lanaioli pratesi«. *Archivio Storico Pratese* 16 (1938): p. 174.

¹⁶ *Ospedale*, 2467 bis, 657, Giuliano di Marco Marcovaldi - Sandro di Marco Marcovaldi, Ragusa-Prato, 1 January 1423 (Archivio di Stato di Prato).

¹⁷ *Diversa Cancellariae*, ser. 25, vol. 43, f. 79v; see also M. Popović-Radenković, »La penetrazione dei mercanti pratesi«: p. 513.

¹⁸ Giacomo Luccari, *Copioso Ristretto degli Annali di Rausa*. Venezia: Antonio Leonardi, 1605: p. 120.

Serafino Razzi.¹⁹ Among the Florentines present in the city were: Spinello Adimari; Giovanni of Antonio Ricci; Stoldo of Goro from Rabatta; Matteo, Antonio and Giorgio of Giorgio Gucci; Ristoro of Zanobi; Bernardo, Antonio and Angelo of Silvestro Belfradelli; members of the families of Marchionni, Doni, Dei, Martini, Girolami, Biliotti, Bartoli, Guidetti, Berlinghieri, Altoviti; Schiatta Ridolfi and Lorenzo Mazzetti; Domenico Corsi but also, later, representatives of the Strozzi, Pitti, Davanzati, Medici and Pazzi families, first of all Martino Chiarini, but also Gasparre Ricasoli.²⁰ In a Florentine document of 1495 they even speak of a *natione fiorentina*, which elected its agent in the person of Iacopo of Giuliano dei Medici.²¹

A lesser number of wool manufacturers also arrived from northern Italy: from Piacenza, e.g. Piero Pantella, from Rimini, Verona, Bologna, Ferrara, Bergamo, Ravenna, and Mantua. One interesting case, for example, concerns the master wool-worker from Ferrara, Salvetto Salvetti, who on 19 January 1418 stipulated a two-year agreement with the Republic for the manufacture of woollen cloths. Salvetto asked for a support of 40 *iperperi* a year for the rent a suitable building, besides an award of 1/3 of a ducat for every roll produced and exemption from all taxes, and in return promised that he would produce 30 rolls of cloth the first year and 40 the second year with a penalty of one ducat for every roll not produced.²² Another interesting case is that of Giorgio Brugnolo from Mantua²³ who, in May of 1426, asked the city to allow him to enlarge his manufacture of fustian (*fustagni*) which, again with the support of the Republic, he had started up in the city nine months before. In this second

¹⁹ Serafino Razzi, *La Storia di Ragusa*. Ragusa: Editrice Tipografia Serbo-Ragusea A. Pasarić, 1903: p. 89.

²⁰ Dušanka Dinić-Knežević, *Tkanine u privredi srednjovekovnog Dubrovnika*. Beograd: SANU, 1982: pp. 240-241; Alain Ducellier, »La place des Toscans et des Italiens du nord dans le commerce balkanique au XVème siècle: l'apport des sources ragusaines«. *Byzantinische Forschungen* 11 (1987): pp. 310-313; B. Krekić, »I mercanti e produttori toscani«. pp. 710-712; Filippo Naitana, »I beni dei Pazzi all'indomani della congiura. Un "passaporto" per la storia delle relazioni fra Firenze e Ragusa nel tardo Medioevo«. *Quaderni medievali* 47 (1999): pp. 52, 57.

²¹ *Istoričeskie Pamjatniki Južnyh Slavjan i sosjednih ih narodov: izvjeleńnye iz italjanskih arhivov i bibliotek / Monumenta historica Slavorum Meridionalium vicinorumque populorum e tabulariis et bibliothecis Italicis deprompta*, ed. Vikentij Vasilevič Makušev, vol. I.1. Varšava: V tipografiji Varšavskago učebnago okruga, 1874: p. 457.

²² *Acta Consilii Maioris*, vol. 1, f. 99r.

²³ For more on him, see Zrinka Pešorda Vardić, *U predvorju vlasti. Dubrovački antunini u kasnom srednjem vijeku*. Zagreb-Dubrovnik: Zavod za povijesne znanosti HAZU u Dubrovniku i Hrvatski institut za povijest, 2012: p. 51.

phase of his activity, the Republic was to help him with a loan of 400 *iperperi* which he had to pay back within three years. In return Brugnolo promised to manufacture 200 rolls of fustian every year, that is, 600 in the period of three years, or pay a penalty of 6 *grossi* for every roll not produced.²⁴

However, the Italian wool manufacturers were not the only ones to seek their fortune in Dubrovnik. According to Bariša Krekić, many Flemish (mostly from Ypres), French, German, and Hungarian tradesmen also came to Ragusa to run this type of business.²⁵ Momčilo Spremić states that some entrepreneurs from southern Italy were involved in the textile industry in Dubrovnik and he cites an interesting case of Aniello Cicipesse, who owned a factory at Pile.²⁶ Desanka Kovačević-Kojić states that the Catalonians had an important role in the manufacture of textiles in Dubrovnik in the second and third decades of the fifteenth century, Bernardo Gaschigl di Tortosa in particular.²⁷

These entrepreneurs usually established companies with local businessmen who often provided most of the capital; although the documents do not allow us to determine with certainty the origin of the capital invested in wool manufacturing, it seems that at least 2/3 of the investments were Ragusan. The foreign businessmen contributed with their experience and know-how or, at the most, some of the tools necessary for production, like the looms.²⁸ In some cases, though not many, the Italians contributed small amounts of money.²⁹ On 25 November 1418 the merchants from the Volço family created a five-year company for the manufacture of cloth with the above mentioned Piero Pantella, and invested 2,000 ducats in cash and wool, while Pantella, for the same value of 2,000 ducats, promised to work continually and to be at the shop every day unless hindered by a just cause. He was also required to place at disposal the rooms used for dyeing and cleansing the woollen cloths built by the Republic.³⁰

²⁴ *Acta Consilii Maioris*, vol. 3, f. 111v.

²⁵ B. Krekić, »I mercanti e produttori toscani«: p. 708.

²⁶ Momčilo Spremić, *Dubrovnik e gli Aragonesi (1442-1495)*. Palermo: Accademia Nazionale di Scienze Lettere e Arti, 1986: p. 283.

²⁷ Dušanka Kovačević-Kojić, »Les Catalans dans les affaires de la compagnie Caboga (1426-1433)«: *Acta historica et archaeologica mediaevalia* 26 (2005): p. 761.

²⁸ D. Dinić-Knežević, *Tkanine u privredi srednjovekovnog Dubrovnika*: pp. 248-257; B. Krekić, »I mercanti e produttori toscani«: pp. 708-711; Bariša Krekić, »Italian Creditors in Dubrovnik (Ragusa) and the Balkan Trade, Thirteenth Through Fifteenth Centuries«, in: *The Dawn of Modern Banking*, ed. Fredi Chiappelli. New Haven: Yale University Press, 1979: p. 242.

²⁹ M. Popović-Radenković, »La penetrazione dei mercanti pratesi«: p. 518.

³⁰ *Diversa Notariae*, vol. 12, ff. 279v, 280r, 281r.

It was not until the 1430s that the Ragusan government started to take measures at limiting foreign activity in favour of the local enterprise which, in the meantime—as a result of the close contact with the Italians—had evolved and acquired the necessary practice and know-how.³¹ For this reason, the companies that were organised and managed exclusively by Ragusans began to spring up. The facilitations which once had been granted to foreigners were now granted to the aristocratic families of Dubrovnik, who traditionally had based their wealth on trade and were therefore able to take full advantage of the new opportunity. The first and perhaps most important local enterprise was that of Andrija Volço and his son Ivan whose agreement of 1430 bound them to produce 270 rolls of cloth in three years.³² In this same context, some members of the Giorgi and Menze families are also mentioned.

The Ragusan aristocracy, which up to that time had never been directly involved in wool manufacturing but had simply provided buildings and capital for companies that were managed by foreigners, began to enter the business themselves.³³ At this time, the guilds for the various professions related to the wool industry were founded in the city: the combers, carders, weavers, dyers, teaselers, and shearers. A register was to list the names of all those involved in wool manufacturing in Dubrovnik.³⁴ The Republic also founded the *Camera Artis Lanae*, which supervised production in the city and established detailed regulations controlling the acquisition and handling of the wool, the spinning, weaving, dyeing and all the other operations that were part of the process. It also regulated the length, width and weight of the rolls, the costs of the different phases and the time required for production, the salaries of workmen and the number of hours in a workday.³⁵

Apparently, by the first half of the fifteenth century 4,000 rolls of cloth were produced in Dubrovnik a year for a total value of about 600,000 ducats,³⁶

³¹ *Acta Consilii Maioris*, vol. 5, ff. 2v-3v; *Liber viridis*, ed. Branislav Nedeljković. [Zbornik za istoriju, jezik i književnost srpskog naroda, vol. III.23]. Beograd: SANU, 1984: pp. 233-234 (c. 284 *Confirmacio ordinis suprascripti artis lane cum additionibus et correctionibus infrascriptis*); see also D. Dinić-Knežević, *Tkanine u privredi srednjovekovnog Dubrovnika*: p. 304.

³² *Acta Consilii Maioris*, vol. 1, f. 120r; D. Dinić-Knežević, *Tkanine u privredi srednjovekovnog Dubrovnika*: p. 305.

³³ Dušanka Dinić-Knežević, »Kreditori dubrovačkog suknarstva«. *Jugoslavenski istorijski časopis* 20/1-4 (1981): pp. 237-261.

³⁴ *Liber viridis*: p. 226 (c. 283 *Ordines artis lane primo ad tempus firmati deinde in perpetuum cum additionibus et correccionibus ut infra sequitur et patebit*).

³⁵ *Liber viridis*: p. 183 (c. 233 *Ordo solutionis laboratorum artis lane*).

³⁶ Filip de Diversis, *Opis slavnoga grada Dubrovnika*: p. 187.

which means that a Ragusan factory in one year could, on the average, produce more than a Florentine factory.³⁷ As a comparison, we could add that the wool production in Florence fell from 25,000 rolls of cloth in the years 1365-1369 to 11,000-12,000 rolls around 1427,³⁸ and that Arezzo, an average Tuscan city, in the fifteenth century was producing an average of 650 rolls a year. The annual production of the other cities under the domination of Florence was not very different, as their production possibly approximated 20,000-30,000 rolls.³⁹ Another example is provided by Pantella's production of 4,250 rolls in ten years, an average of over 400 rolls a year,⁴⁰ while in the three years from 1524 to 1527 an average-sized Florentine company of Francesco Giovan Battista Doni did not produce more than 270 rolls.⁴¹ On the whole, it is estimated that during the fourteenth century the production of a Florentine workshop did not exceed 70-90 rolls a year, reaching a maximum of 220,⁴² and that from the end of the fourteenth until the seventeenth century the average varied between 50 and 150 rolls.⁴³

In the 1430s, there were at least 50 wool manufactories active in Dubrovnik,⁴⁴ and at least 300 men were involved in weaving alone. If we include all the phases of manufacture, it would appear that at least 2,000 men were in some way involved in the wool-making process.⁴⁵ For the city of Florence, the data collected by Franco Franceschi show that in 1378-1379 there were 2,291 heads

³⁷ D. Dinić-Knežević, *Tkanine u privredi srednjovekovnog Dubrovnika*: p. 305; B. Krekić, »I mercanti e produttori toscani«: p. 713.

³⁸ Bruno Dini, »L'industria tessile italiana nel tardo Medioevo«, in: idem, *Saggi su una economia-mondo. Firenze e l'Italia fra Mediterraneo ed Europa (secc. XIII-XVI)*. Pisa: Pacini, 1995: p. 29; Hidetoshi Hoshino, »Per la storia dell'arte della Lana in Firenze nel Trecento e nel Quattrocento: un riesame«. *Annuario dell'Istituto Giapponese di cultura* 10 (1972-1973): pp. 65-68; idem, *L'Arte della lana a Firenze nel Basso Medioevo: il commercio della lana e il mercato dei panni fiorentini nei secoli XIII-XV*. Firenze: L.S. Olschki, 1980: pp. 204-206, 238-240.

³⁹ B. Dini, »L'industria tessile italiana«: p. 29.

⁴⁰ *Acta Consilii Minoris*, ser. 5, vol. 3, ff. 97r, 220r (SAD). Pantella produced a total of 56 rolls less than stated in the agreement.

⁴¹ Bruno Dini, »Aspetti del commercio di esportazione dei panni di lana e dei drappi di seta fiorentini in Costantinopoli negli anni 1522-1531«, in: idem, *Saggi su una economia-mondo*: p. 233.

⁴² Paolo Malanima, *La decadenza di un'economia cittadina. L'industria di Firenze nei secoli XVI-XVIII*. Bologna: Il Mulino, 1982: p. 204.

⁴³ H. Hoshino, *L'Arte della lana a Firenze*: p. 203.

⁴⁴ D. Dinić-Knežević, *Tkanine u privredi srednjovekovnog Dubrovnika*: p. 306.

⁴⁵ D. Dinić-Knežević, *Tkanine u privredi srednjovekovnog Dubrovnika*: p. 308.

of family working in the manufacture of wool, in 1404 there were 2,335, and in 1427 only 909; moreover, in 1381 there were 283 factories and by 1427 this number had fallen to 131, and by 1458 to 111.⁴⁶

Nearby the dyeing and cleansing unit run by Pantella, there were also two dyeing and cleansing shops, both of which belonged to the Republic, which were managed by Luka Milkov of Zadar.⁴⁷ Moreover, during this period numerous small dyeing and cleansing shops appeared which the Ragusan government appointed foreigners to manage. In 1423, Tommaso di Stefano from Pula, a wool maker and citizen of Vicenza, was allotted a plot by the officials of the Wool Guild where he could build a cleansing shop. The site was located between the “big building” (*domus magna*) that was run by Pantella and the dye shops of Luka Milkov.⁴⁸ Another example is that of the master wool cleaner Bartolomeo di Agostino from the town Fossombrone in Marche, who in 1422 promised the Ragusan authorities to cleanse the rolls of cloth well and thoroughly, for all those who requested it, with black soap, if the city granted him the use of the building that was managed by the shoemakers at Pile but adapted, of course, for the new activity.⁴⁹ In 1425 Marin Bizia, Marino Mislieri and Giuliano of Stefano from Prato, asked to rent for a period of five years at a price of 80 *iperperi* a year the building belonging to the Municipality and located outside Pile, in which the Florentine Giorgio Gucci was making glass, to use as a dye shop.⁵⁰ In 1442 the Republic made an agreement with Onofrio della Cava, a Neapolitan engineer who in 1436 built the city aqueduct, to construct 14 fulling and cleansing units, all of which was supposed to be completed by July of 1444, for a total expense of 8,000 *iperperi*.⁵¹ In any case, a cleansing unit was certainly installed in 1455 beneath the Lovrijenac fort,⁵² to which, in 1459, a third

⁴⁶ Franco Franceschi, *Oltre il “Tumulto”: i lavoratori fiorentini dell’Arte della Lana fra Tre e Quattrocento*, Firenze: L.S. Olschki, 1993: p. 100; Franco Franceschi, «Istituzioni e attività economica a Firenze: considerazioni sul governo del settore industriale (1350-1450)», in: *Istituzioni e società in Toscana nell’Età Moderna*, vol. I, ed. Claudio Lamioni. Roma: Ministero per i beni culturali e archivisticci, 1994: p. 80 (http://www.archiviodistato.firenze.it/nuovosito/fileadmin/template/allegati_media/libri/istituzioni_1/Istl_Franceschi.pdf; consulted on 10 February 2013).

⁴⁷ *Acta Consilii Maioris*, vol. 1, f. 144r.

⁴⁸ *Acta Consilii Maioris*, vol. 1, f. 122v.

⁴⁹ *Acta Consilii Maioris*, vol. 2, f. 84v.

⁵⁰ *Acta Consilii Maioris*, vol. 2, f. 130r; vol. 3, f. 64v.

⁵¹ *Acta Consilii Rogatorum*, ser. 3, vol. 8, ff. 183r-185r (DAD); Relja Seferović and Mara Stojan, «The Miracle of Water: Prolegomena to the Early Renaissance Aqueduct of Dubrovnik». *Dubrovnik Annals* 11 (2007): p. 76.

⁵² *Acta Consilii Maioris*, vol. 5, ff. 142v-143r; *Liber viridis*: p. 398 (c. 458 *Ordo artis lane*).

basin (*ceppo*) was added at the city costs, because the original two were no longer sufficient for the quantity of woollen cloths that had to be washed.⁵³ We also know that in the same year—besides the big dye unit with a mangle, which was presumably the one originally assigned to Pantella and at the time was run by a dyer named Maffeo⁵⁴—there was also another one nearby which was run by a dyer named Ivko Đurković, who was appointed to dye with woad (*guado*); another was appointed to dye only with sappan wood (*verzino*). There was also a little dye shop run by Radovan who was the only one authorised to dye cloths of minor value and used clothing.⁵⁵ In 1461 we find another dye shop which the city leased out to a dyer named Antonio from Ravenna.⁵⁶ There were also private dyeing and cleansing shops that competed with those owned by the state, and because of that in 1435 the Major Council passed a law by which anyone who operated as a wool manufacturer in Dubrovnik, be he a citizen or a foreigner, was obliged to send at least half of the cloths that he produced to be dyed and cleansed in the dyeing and cleansing establishments of the Republic, under penalty of one gold ducat for every roll of cloth.⁵⁷ In 1442 they even ordered that only the dye workshops managed by the state were allowed to dye with the sole temporary exception of a private dye shops in Ombla, one in Gruž, one at Pile and the one ran by maestro Giacomo inside the city; but after two years all the winches, vats and boilers were to be sold to the state at a price set by its officials.⁵⁸

The immigrant wool makers, most of whom came from Tuscany, central and northern Italy, introduced a novel production scheme in their workshops in Dubrovnik. Despite scanty data, we have reason to assume that the factory Pantella set up in Dubrovnik—along with a host of similar cases traced so far—had many features that largely differed from the traditional production, especially from that developed in Tuscany. This structure reached an extreme, unknown level of concentration and unification, with all the preparatory work,

⁵³ *Liber viridis*: p. 426 (c. 486 *Ordine della lana*).

⁵⁴ *Liber viridis*: p. 390 (c. 443 *Ordo super tinctoriis*).

⁵⁵ *Liber viridis*: pp. 399-400 (c. 458 *Ordo artis lane*). Shortly afterwards it was established that all the dye shops could dye any fabric of any colour; see *Liber viridis*: p. 403 (c. 460 *Ordo super tentoriis*).

⁵⁶ *Liber croceus*, ed. Branislav Nedeljković. [Zbornik za istoriju, jezik i književnost srpskog naroda, vol. III.24]. Beograd: SANU, 1997: p. 18 (c. 15 *Ordo super tinctoriis, tinctoribus, pannis de garbo et guadis*).

⁵⁷ *Acta Consilii Maioris*, vol. 5, f. 143r; *Liber viridis*: p. 237 (c. 239 *Ordo tinctoriarum et purgi*).

⁵⁸ *Liber viridis*: p. 281 (c. 335 *Ordo quod non sin nisi tentorie comunis*).

but also the important phases of dyeing, cleansing and drying taking place inside the same manufactory. According to the documents in the Dubrovnik Archives, the building that was constructed at the expense of the Ragusan government to be used by Pantella was of considerable size, 75 ells long (1 Ragusan ell = 51.2 cm), 18-20 ells wide, with three storeys, each 7-8 ells high. The ground floor was divided into three sections: a 30-ell-long room on the west side serving as the dye shop, inside of which there were two adequate boilers, four wooden vats and all the equipment necessary for dyeing and a well; another room of 20 ells with a deep water cistern in part fed by the aqueduct and in part by a system of ducts which collected rainwater from the roof, and a large shelf which contained all the dyeing substances; a room 25 ells long used for cleansing the woollen cloths, with a middle-sized boiler and the equipment necessary for soap making. On the upper storey there was a large room divided into sections, probably meant for preliminary operations; on the top storey there were looms for distending and drying woollen cloths and making the rolls of cloth. All the floors were made of brick to prevent fire and water damage.⁵⁹

On the other hand, a Florentine workshop was usually composed of only a couple of rooms on the ground floor for depositing the material, display and sale of the finished pieces, above which there were sometimes lofts for the selection of the wool and the other phases of the preparatory process. In a recent study, Richard Goldthwaite points out how in Florence, at least until the seventeenth century, no attempt was made either to integrate or centralise the textile production process, not even the silk industry.⁶⁰ Generally speaking, in the medieval textile industry only the workers involved in the preparatory phases worked under the same roof, which was the wool maker's shop. All of the other phases were conducted at home once the farming was completed or in artisan's shops. Every worker involved in the manufacture of cloth was in reality a jobber who was part of a long chain of operations which were not under his control. The merchant who, in this case, was also an entrepreneur, was the sole link in a long chain of the coordinated activities that he controlled and organised. His role, however, did not include any direct involvement in the production process or in the investments in the transformation operations. This type of the production

⁵⁹ *Acta Consilii Maioris*, vol. 1, f. 24v.

⁶⁰ Richard A. Goldthwaite, *The Economy of Renaissance Florence*. Baltimore: Johns Hopkins University Press, 2009: p. 322.

organisation is classified as “decentralised and scattered”, meaning a system consisting of a series of scattered operational centres and managed by their owners with varying degrees of autonomy, but all connected by the activity of a single textile entrepreneur who, as the sole owner of the raw material and the semi-finished pieces, directed the entire transformation process in all of its phases. The complexity of the technological cycle, which certainly required a significant investment of capital and was considerably dependent on the external markets for the acquisition of raw material and the sale of the textiles, with the risk of sudden fluctuations in the production levels, in fact, discouraged the unification of the manufacturing phases in a single location and had oriented the entrepreneurs towards the *putting out system*.

By contrast, in Dubrovnik the immigrant wool makers introduced a different production model. Free from the guild restrictions that separated different craft specialisations, they could keep a close check on the whole production process, regulate the production time, and lower the cost of manufacture by concentrating some of the production phases, at least those which were most important as far as the investment of capital was concerned. Although the guilds had their place within a medieval economy, they were not responding to the evolution of the economy, which required flexibility and the capacity to adapt supply to demand; the regulations governing hiring of labour and salaries, along with the protection of traditional standards of quality certainly did not favour an increase in productivity either. It should be mentioned, however, that in the case of Dubrovnik, the intervention of the Republic was fundamental and the state institutions took on a totally new role as entrepreneurs, not only by financing the enterprises, but also by taking initiatives and running risks, selecting the main figures and making management decisions. This represented a completely new activity for an early fifteenth-century state, but it was facilitated by the fact that its institutions were filled by the noble rank, which had acquired its wealth by trade rather than by rents from land, and therefore were inclined towards the policy which allowed the businessmen to operate with great efficiency and without resistance to novelties.⁶¹ This was a pattern of behaviour that suited the rapid economic expansion of Dubrovnik, which convinced the merchants and the Republic to augment the production, even at the cost of sacrificing the flexibility provided by the traditional forms of organisation.

⁶¹ Bariša Krekić, »Developed Autonomy: the Patricians in Dubrovnik and Dalmatian Cities«, in: *Urban Society of Eastern Europe in Premodern Times*, ed. Bariša Krekić. Berkeley-Los Angeles: University of California Press, 1987: p. 189.