McGILL UNIVERSITY

HISTORICAL DEVELOPMENT OF THE LAWS AND REGULATIONS CONCERNING PUBLIC HEALTH IN DUBROVNIK (RAGUSA) FROM THE 13TH - 15TH CENTURY

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Master of Arts

Zlata Blažina, née Tomić
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PUBLIC HEALTH LAWS IN DUBROVNIK 13TH-15TH CENTURY

To my daughter Vesna

ABSTRACT

In this thesis the laws and regulations concerning public health in Dubrovnik in the 13th, 14th and 15th centuries have been analyzed. They can be divided into three groups: the pre-plague regulations from the 13th century dealing with general sanitary measures, the regulations concerning the presence of physicians and surgeons and the regulations after 1348 closely related to the recurring plague epidemics.

The third group is the most significant. There is the regulation of 1377 establishing plague control by isolation (quarantine) and the regulations of 1397 bringing into existence the office of the officiales caza mortuorum for the policing of the control measures. It has been unequivocally established that Dubrovnik was the first to institute a preventive quarantine system.

Name: Zlata Blažina née Tomić

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RESUME

Dans cette thèse nous avons examiné les lois et les réglements concernant l'hygiène publique à Dubrovnik au 13e, 14e et 15e siècles. Elles peuvent être divisées en trois groupes:, les règlements du 13e siècle concernant les mesures sanitaires générales, les règlements se rapportant aux médecins et aux chirurgiens et les règlements après 1348 étroitement liés aux épidémies périodiques de la peste. Le troisième groupe est le plus significatif. Le règlement de 1377 introduit le contrôle de la peste par isolation (quarantaine) alors que les règlements de 1397 exigent en plus l'institution du personnel sanitaire (officiales cazamortuorum) pour l'application des mesures de contrôle. Il a été clairement établi que la ville de Dubrovnik a été la première à établir un système de prévention de la peste par la quarantaine.

Nom: Zlata Blažina née Tomić

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INTRODUCTION

From the eighth to the nineteenth centuries, the town of Dubrovnik on the Adriatic coast of Croatia, Yugoslavia was an important maritime city-state. The flowering of its wealth and importance occurred in the 14th to 16th centuries, at which time it developed a system of municipal medical regulations that was among the foremost of the period and, to some extent, exemplary to other cities both in Dalmatia and in northern Italian cities. It is in the 14th century Dubrovnik, for example, that we find the first records of a systematic preventive quarantine against plague, a technique that was later adopted by cities such as Venice, Genoa and Marseilles.

The importance of Dubrovnik as an originator of public health measures at such an early date is heightened by the fact that comprehensive records of these medical materials are still preserved in the Dubrovnik Archives and are open to scholarly investigation.

Until thirty years ago, the Dubrovnik Archives were used mostly by domestic historians interested in political, economic and medical research. As the richness of its holdings became better known, not only historians from Yugoslavia but also scholars from other countries began using its vast resources for studies in the city's history. Of special interest are its commercial, political and cultural ties with other Adriatic and Mediterranean city-ports, its lucrative caravan trade with the Balkan hinterland, and its versatile and sometimes complex tributary

relations with Venice, the Croato Hungarian State and the Ottoman Empire.

From the point of view of medical history, the Dubrovnik Archives contain an unparalleled collection for the study of medical practise in the late medieval and early modern period.

All the documents in the Dubrovnik Archives are conveniently divided into four groups. The first group consists of several series, the most important being the Acta Consiliorum, which consist of the proceedings of the three councils that governed the city. These Acta are subdivided into the Acta Consilii Maioris, Acta Consilii Minoris and Acta Consilii Rogatorum. The resolutions of the Senate, (Consilium Rogatorum), constitute a very abundant series and consist of 6000 pages for only one period (1555-1595). To this group also belong the two series, the Lettere di Levante and the Lettere di Ponente, the correspondence between Dubrovnik's Senate and its consuls in the Eastern and Western Mediterranean. As well, the first group contains the Acta Sanctae Mariae Maioris (also called Acta et Diplomata), which contain the correspondence of Dubrovnik's consuls, foreign envoys and private persons. It is the oldest series in the Archives and covers the period from the 11th to the 19th centuries. The Acta Consiliorum are indispensable sources for the study of public health in Dubrovnik in spite of the fact that their contents are not primarily medical but a chronological listing of the Council's decisions on all matters over a period of 600 years. Nevertheless, in an incidental manner, they constitute a unique source of medico-historical information.

The second group of documents deals with financial matters of the city. These reports are a valuable source for the analysis of food prices and other imported and exported goods including medicines. Some of these sources can be used to determine food prices during famines and pandemics. Population studies could also be undertaken on the basis of the grain supply because the city-state administration regularly distributed imported grain to all citizens at a fixed price. The most important series from this group of documents are the Salinaria, the Grassia and the Libro di Cassa Pubblica. They cover purchases and sales of salt, grain and other food supplies. Further, two series, the Naula et Securitates and the Liber Navigiorum record all aspects of maritime trade and are of marginal interest only for the study of public health. More relevant information, however, is to be culled from the Liber Statutorum Doane, the Statute Book of customs duties. It is the oldest account book in the Archives and covers the period from 1277 until the downfall of the Republic in 1808.

The third group includes collections of public laws, tribunal sentences, cadastral surveys and the development of the chancellery of Dubrovnik. Here is to be found the earliest codification of Dubrovnik's laws, the Liber Statutorum (1272) and its annalistic continuations, the Liber Omnium Reformationum (1309-1357), the Liber Viridis (1357-1460) and the Liber Croceus (1460-1791). The last laws of the Republic, from 1791-1808 are recorded in the Parti dei Pregadi. In addition there are some 7000 volumes of discrete documents, organized into 92 series, and a further 100,000 separate acts. Much information pertaining to medicine and public health is scattered throughout this vast bulk of records. The

Dubrovnik Archives have no comprehensive index and the documents in each series were organized mainly by simple chronology. For that reason, only a selection of the primary material has been used in the preparation of this study. Nevertheless, certain collections contain a concentration of pertinent data. These are primarily the Liber Statutorum of 1272 and its continuations, the Liber Omnium Reformationum, the Liber Viridis, the Liber Croceus and the Acta Consiliorum. Of the books by public health officials, only one has survived, the Libro dei Cazzamorti, which covers the period 1500-1530, and which is unfortunately beyond the period of this study. There is a manuscript from the Acta Consilii Rogatorum, vol. 19, fol. 27, under the title "A La Croma non mittendo Infecti," dated March 26, 1466, which has been transcribed in Latin and translated into English by the author of this thesis. Its detailed analysis will be presented in the fourth chapter. While the vast bulk of the material in the Dubrovnik Archives has not been published, three selections of documents have been printed over the last century. The earliest publication is V. Bogišić and C. Jireček eds., Liber Statutorum Civitatis Ragusii Compositus Anno 1272 (Zagreb, 1904), vol. 9 of the series Monumenta Spectantia Historico Juridica Slavorum Meridionalium edited by Academia Scientiarum et Artium Slavorum Meridionalium (Zagreb, 1868-1901), 30 vols. in 20. This is the only publication of the Statute Book of 1272 as a whole. In the appendix, all the regulations are abstracted and a subject index is added. On the occasion of the 600th anniversary of the promulgation of the Statute Book, its seventh book, which deals with shipping, was reprinted in Latin and translated into Croatian by Z. Šundrica, in Prijevod sedme knjige dubrovačkog statuta (Dubrovnik, 1972).[1] The second selection

of published material from the Dubrovnik Archives is F. Rački ed., Monumenta Ragusina, 5 vols. (Zagreb, 1879-1897) vols. 15-20 of the series Monumenta Spectantia Historiam Slavorum Meridionalium (Zagreb, 1868-1901). It lists chronologically the minutes of the three Councils (1301-1397) which are part of the Liber Omnium Reformationum. This work deals mostly with internal politics and international relations, but specific instructions concerning the hiring of physicians and surgeons are also to be found in this collection. The third selection of the published material from the Dubrovnik Archives is G. Čremošnik ed., Spisi dubrovačke kancelarije or Notae et Acta Cancellariae Ragusinae (Zagreb, 1951) vol. 1 in Monumenta Historica Ragusina (Zagreb, 1951-) vol. 1, which is devoted exclusively to chancellery documents such as deeds of sale and other private contracts from 1278-1282. These, too, are arranged by chronology and contain a name and subject index. This work is of only limited use to medical history.

As far as secondary sources are concerned, a comprehensive general history of Dubrovnik has not yet been published.[2] There is, however, an abundance of scholarly articles written in the last two decades scattered in numerous Yugoslav journals. These served as a basis for the survey of the general history of Dubrovnik presented in the first chapter. In English, there are the publications by F.W. Carter, Dubrovnik (Ragusa), a classic city-state (London, 1972) and B. Krekić, Dubrovnik in the 14th and 15th centuries: a city between East and West (Norman, Oklahoma, 1972) and N.H. Biegman, The Turco-Ragusan Relationship (The Hague, 1967). Medical bibliography had a distinguished interpreter in the person of M.D. Grmek. In his work Hrvatska medicinska bibliografija,

2 vols. (Zagreb, 1955) are listed and annotated all the publications, Yugoslav and foreign, concerning Croatia from 1470-1918. A major secondary source for the medical history of Dubrovnik is R. Jeremić and J. Tadić, Prilozi za istoriju zdravstvene kulture starog Dubrovnika, 3 vols. (Beograd, 1938). This work covers the general aspects of the sanitary conditions in Dubrovnik from its beginnings to the 18th century. It is based exclusively on material from the Dubrovnik Archives. The most valuable part of this work is the third volume which lists selected documents transliterated from the original manuscripts in Latin and medieval Italian. Selected documents from the third volume of this publication have served as a basic source for the presentation of the development of the medical profession and the establishment of the institution of public health officials related to the appearance of plague. The work of Jeremić and Tadić is a pioneering effort and needs paleographic and linguistic corrections. Whenever possible, the author of this thesis has tried to photograph the original documents in the Dubrovnik Archives in order to correct the transliteration before translating them into English. A critical analysis of this material follows in the ensuing chapters. A short, well-documented monograph V. Bazala, Pregled zdravstvene kulture dubrovačke republike (Zagreb, 1972) offers some quotations and statements which could not be found elsewhere. The rest of the medico-historical secondary literature consulted was found in various Yugoslav journals, published mostly during the last three decades. It should be emphasized here that many aspects of the history of public health in Dubrovnik have not been researched yet. It would be interesting to compare documents in the Dubrovnik Archives with documents

in the archives of other cities along the eastern Adriatic which deal with similar problems: the epidemics which hit these cities were the same and often the same medical men served in several cities at different points in time. For the early medieval period of the history of medicine A. Castiglioni, A History of Medicine (New York, 1947) was perused, as well as M. Neuburger, History of Medicine, vol. 2 part 1 (London, 1925), S. De Renzi, Storia della medicina italiana 5 vols. (Napoli, 1845-1848) and H. Haeser, Lehrbuch der Geschichte de Medicin und der epidemischen Krankheiten 3 vols. (Jena, 1875-1882). Useful material on the appearance and the control of plague has been found in the works by A.M. Campbell, The Black Death and the Men of Learning (New York, 1931), an extensive history of the plague in the 14th century, L.F. Hirst, The Conquest of Plague (Oxford, 1953), a reliable work on the discoveries of the 19th century Far East plague epidemic, and P. Ziegler, The Black Death (London, 1969), another survey of the plague in 1348, organized by country. For the comparative study of quarantine and the establishment of public health offices in Dubrovnik and the Italian cities A.A. Frari, Della peste e della pubblica amministrazione sanitaria (Venezia, 1840) was consulted. This work contains a bibliography but the author's most important statements on public health ordinances in Venice are not documented. The publication by G. Sticker, Abhandlungen aus der Seuchengeschichte und Seuchenlehre (Giessen, 1908) offers a lot of information on the epidemics in Germany and Austria, but is less reliable when dealing with the epidemics in Italy. Until recently little attention has been paid to plague control and its contribution to the prevention of epidemics in general. C. Cipolla has awakened interest in this

subject with his publication Public Health and the Medical Profession in the Renaissance (London, 1976). He pointed out that Italy was far ahead of the rest of the European countries in the development of such measures. The work by J.-N. Biraben, Les hommes et la peste en France et dans les pays européens et mediterranéens, 2 vols.(Paris, 1975-1976) is a comprehensive study of plague in Europe. While Biraben is an undisputed authority on France, he uses secondary sources concerning other countries indiscriminately. Two recent Ph. D. dissertations, one by R. Palmer, "The Control of Plague in Venice and Northern Italy, 1348-1600," University of Kent at Canterbury, 1978 and the other by A.G. Carmichael, Epidemic Diseases in Early Renaissance Florence, Duke University, 1978 (Ann Arbor, 1978) form a complement to Biraben's work. To this, important essays by R.J. Palmer, "L'azione della Repubblica di Venezia nel controllo della peste, lo sviluppo di alcune norme di igiene pubblica" and by R.C. Mueller, "Aspetti sociali ed economici della peste a Venezia nel Medioevo" both published in Venezia e la peste edited by Comune di Venezia (Venezia, 1980) should be added. These essays fully documented with manuscript sources, of which some relate to Dubrovnik, helped the author of this thesis to place Ragusan achievements in their proper historical perspective.

NOTES TO INTRODUCTION

[1]Z. Šundrica is the archivist in the Dubrovnik Archives.

[2]V. Foretić, the eminent authority on the Dubrovnik Archives, is at present working on a two volume history of Dubrovnik. This work basically a political history is to be published soon.

[3]Some work has been done in this direction by M. D. Grmek and B. Belicza, and the results of their investigation are to be published in the forseable future.

CHAPTER I

GENERAL HISTORY OF DUBROVNIK

"Svuda ga jes puna slava, svud
on slove, hrvatskih ter kruna
gradov se svih zove..."*
Ivan Vidali

For it is praised and known
everywhere, it is called the
crown of all Croatian cities.

Encircled by its massive medieval walls and fortresses, the city of Dubrovnik (ancient Ragusa or Ragusium),[1] stands on a rocky promontory at the south end of the east coast of the Adriatic Sea. For centuries life has been pulsating through its narrow cobbled streets.

Dubrovnik has somewhat over 20,000 inhabitants of whom about 6,000 live inside the old walled city and the rest in the suburbs. The Dubrovnik municipality, with over 50,000 inhabitants, occupies the narrow coastal strip of southern Dalmatia and is today a maritime port of the Socialist Republic of Croatia, the second largest republic in Yugoslavia. It covers an area from the Neretva river in the north to Boka Kotorska (Bay of Kotor) in the south. It also includes the Pelješac peninsula with its ancient town Ston and an offshore chain of islands consisting of Mljet, Šipan, Lopud, Koločep and Lokrum. Further to the south, the islets of Bobara and Mrkan lie in the

vicinity of the town of Cavtat, formerly Epidaurus and Dubrovnik's parent city. Since the limestone Dinaric Alps extend to the very shore, there is a scarcity of arable land. What agricultural land exists is intensively cultivated, and the warm mediterranean climate with its mild, rainy winters and long, dry summers support a rich subtropical vegetation.[2] The city's closest supplier of fresh produce is the Konavlje valley, about 11 miles southeast. Dubrovnik's main industry and livelihood today is tourism, but in the Middle Ages, situated at the converging points of routes on land and sea, Dubrovnik became the main emporium of the eastern Adriatic and an exclusive intermediary between the Balkan hinterland and the western Mediterranean.

Recent archeological finds show that as early as neolithic times a fishing settlement existed in the area.[3] By the fourth and third centuries B.C., Illyrian and Greek colonists had established themselves there.[4] Christian relics excavated in Pustijerna, the oldest part of Ragusium, indicate the continuity of organized life down to the fifth and sixth centuries. At the beginning of the seventh century, the Balkan peninsula was under shaky Byzantine sovereignty. While the emperor Heraclius was engaged in wars against Persia, the northern border of the empire remained undefended. Avars, with some Slavs under their rule, started scouring the Balkan Peninsula, destroying the towns of Romans and romanized Illyrians.[5] Heraclius asked the Croats from White Croatia (the region around the present-day Krakow in Poland) to settle in the Balkan Peninsula. After the disappearance of the Avar khanate in the 8th century, they settled permanently

in the region between the Drava river and the Adriatic Sea, while Serbs, who also came from north of the Carpathians, settled in the Balkan interior southeast of the Croats.[6]

During that tumultuous time the city of Salona, the administrative center of Dalmatia was destroyed along with the other ancient cities of Skardona, Narona, Epidaurus and Delminium. Only Jadera and Tragurion and several others on small islands survived.[7] Epidaurus and Salona fell in 614. Refugees from these colonies sought shelter in the near-by castles of Spilan, Gradac and Ragusium which were probably part of the fortification system of Epidaurus.[8] The first extant document concerning the existence of Ragusium as a city comes from an anonymous cosmographer of Ravenna between 667 and 670. He wrote: "Epidaurus id est Ragusium," indicating the close link between the surviving Romans and the new town.[9]

The emperor-historian Constantine Porphyrogenetos (913-959) depicted the foundation of Ragusium three centuries before his own time.[10] From his confused and partially erroneous description, one can conclude that Ragusium developed gradually from a small castle and fishing village into a town. He confirmed that fugitives from Epidaurus and Salona fled to mountain sites at Gradac and Spilan and founded Ragusium, enlarged its walls and built the church of St. Stepanos in the center of the town. Among the fugitives he mentioned specifically Valentine the archdeacon and Valentine the father of Stepanos the protospatarios. These high ranking administrators from Epidaurus probably organized and administered city life in the new

town according to the custom with which they were familiar. Subsequently, the bishop of Epidaurus also found shelter in Ragusium, and by moving his see thither significantly increased the city's importance.[11]

As a former Roman colony, Epidaurus had its ager publicus, the out-of-town arable land which the citizens cultivated mainly for their own needs, as in other Roman colonies in Dalmatia, like Salona or Jadera. From its very foundation, Ragusium, being the heir of Epidaurus, inherited its ager publicus for which it continued paying the tribute mogorisium to the Byzantine prior in Jadera. This primary territory, Astarea, stretched about twelve miles along the coastline from Zaton in the northwest to Cavtat in the southeast. Ragusium also had in its possession the three islands of Šipan, Lopud and Koločep, which had been populated from the ancient times, and a number of uninhabited islets including Bobara and Mrkan. In the second half of the ninth century, the Emperor Basil I found it necessary to placate the local Slavic princes. These lords had contested Ragusium's right to the ager publicus, and the emperor resolved the problem by ordering Ragusium to pay most of the tribute previously sent to the prior in Jadera to the neighbouring princes instead. The princes of Zahumlje and Travunia became the recipients of the Ragusans' "price of peace."[12]

In 866-867, Ragusium withstood a fifteen month siege by the Arabs who were eager to expand their influence to the eastern Adriatic after they invaded southern Italy. At that time Ragusium must have been a well fortified city with an organized water and food supply. Two years after the siege the Ragusan fleet was large enough to transport

Croatian and other Slavic warriors to help recapture Bari from the Arabs.

Ragusium remained under Byzantine protection, with some brief interludes, until 1204. However, with its growing importance and economic strength, it developed its own independent internal and external political life. Pope Gregory VII promoted the Ragusan bishopric to the status of archbishopric with metropolitan authority. By this promotion, Ragusium's ecclesiastical jurisdiction was considerably enlarged.

In the first half of the eleventh century, the Croatian state, during the reign of king Stjepan (c. 1030-1058) and especially of his heir Peter Krešimir IV (1058-1074), acquired from Byzantium the right to administer the coastal Dalmatian cities. The coastal territory was thus united with the rest of Dalmatia and the rest of the Croatian littoral in the north.[13] Ragusium continued leading its own political life but it is certain that through evergrowing trade, intermarriage and cultural exchange, the links between Ragusium and the Croatian state grew closer. In the twelfth century, the Arabic geographer El Idrisi, describing the eastern Adriatic coast, stated: "Ragusium is thirty miles distant from Ston. There live Dalmatians, resolute and audacious people, who possess fast ships. Ragusium is the last city of Croatia."[14]

Documentary sources concerning Ragusium become more and more frequent during the same period. Extant treaties from the twelfth and the thirteenth centuries, preserved in the Dubrovnik Archives, reveal

that the trade contacts with Molfeta (1148), Pisa (1169), Ancona (1188), Rovinj (1190), Fano (1199), Monopoli (1201), Bari (1201) and Termoli (1203) increased rapidly.[15] At this time, when the Mediterranean sea routes were infested by pirates - Saracens and others - all of these treaties confirmed mutual freedom of trade and sea traffic, as well as the personal and economic security of merchants and sailors. As well, reciprocal exemptions from various customs and fees were granted.

In these treaties Ragusium is presented as an equal business partner, a supplier of raw materials from the Dalmatian coast and the Balkan hinterland in exchange for manufactured goods from southern Italy. In the following decades, Ragusan merchants must have explored the Balkan hinterland more frequently in spite of the fact that relations with neighbouring rulers were not always friendly. They established a well-developed network of diplomatic and trade channels, so that they could deal effectively with friend and foe. Sometimes they tried to avoid conflict by using the influence of their overlords or of the Pope, by offering money or favorable trade contacts. Since those same belligerent rulers depended solely on Ragusium for their trade exchange, they often made concessions and even war itself did not close the door to commerce. After a protracted period of internal disorder in the Serbian kingdom, its ruler, Stevan Nemanja, planned to penetrate to the Adriatic coast. He beseiged Ragusium but failed to conquer it. Finally, both parties signed a treaty in 1186 securing Ragusans free trade throughout Serbia.

Another important treaty was concluded with neighbouring Bosnia in 1189. Ban Kulin promised the Ragusan merchants free passage

through his land and full freedom from customs fees. It is in this treaty that the Slavic name Dubrovnik [17] is first used instead of Ragusium. It reflects the merging of the Slavic element with the population of the city. Concerning the process of the Slavicization of Dubrovnik, Vinko Foretić concludes : "Croatians and Serbians started settling in Dubrovnik very early." Among these Slavic newcomers the Croatian element prevailed, and in the fourteenth century Croatization of the city was accomplished."[18]

In 1181 Ragusium is mentioned for the first time as "the commune of Ragusium" with its comes or count and the archbishop representing the commune in all important internal and external affairs. By the end of the twelfth century, Byzantine sovereignty was no longer effective and Dubrovnik acted as an autonomous city-state.

It was Venice, already the strongest maritime power in the Adriatic, that profited most from Byzantine weakness. From the eleventh century onward, Byzantium granted more and more commercial immunities to Italian maritime city-states. The growth of Italian influence culminated in the fourth Crusade when the shrewd Venetian doge, Enrico Dandolo, persuaded the moneyless crusaders to attack Constantinople rather than fight infidels in Syria. In the Latin Empire (1206-1260) which the Crusaders set up, the Venetians acquired vast trading and financial privileges. Jadera on the Dalmatian coast also fell victim to the crusaders, even as they moved towards Constantinople. Unable to withstand an onslaught, Dubrovnik and the other Dalmatian cities submitted to Venetian authority. The Venetian rule in Dubrovnik lasted

from 1204 to 1358.

At the beginning, Venice was an occupying force that left no autonomy to the city. Dubrovnik had to accept a Venetian patrician as count and very often the archbishop was also from Venice. A century and a half of Venetian overlordship did not mean the end of Dubrovnik's development. On the contrary, Ragusan trade expanded, albeit in a different direction and the institutions of the city evolved, following the Venetian model. The structure of Dubrovnik's government before the Venetian period is not precisely known. There were, of course, officials such as the count, the archbishop, a notary or chancellor, a judge, and an elected City Assembly which consisted of approximately 30 representatives of the people, nobles and commoners alike (nobiles atque ignobiles).[19] With the city's increasing wealth the differentiation of the classes - nobles-patricians, common citizens and peasants outside the city walls - became more evident. The City Assembly fell into oblivion and Dubrovnik became an oligarchic aristocratic city-state. In the Venetian period the city councils took on an increasing role in government. The count acted as the head of the commune with the archbishop countersigning the most important documents.[19] It was a well-adapted and simplified version of Venetian government. The Count remained as the head with his Small Council called Consilium Minus, consisting of eleven nobles elected for a year. It carried out the decisions of the Senate, the Consilium Rogatorum (with about fifty members), the actual government of the Dubrovnik commune. The Senate had the power to decide on all financial and foreign affairs and to nominate ambassadors and

consuls. It also acted as the Supreme Court of Appeal for criminal and civil cases.

The members of all governmental bodies had to be noble males, who were also automatically accepted as members of the Great Council, - the Consilium Maius, once they reached twenty years of age. (After the Great Plague in 1348, this limit was lowered to eighteen years). The Great Council consisted of two hundred to three hundred members. It was within its power to ratify all the laws and make decisions regarding peace or war.

Some offices of importance should be mentioned here: the Upper and the Lower Court (Curia Maior, Curia Minor), the Public Prosecutors (Advocatores Communis), the Customs Officers (Doanerii) and the Procuratores Sanctae Mariae, who administered the affairs of the Church. The Notary had the duty to record all laws and decrees. The monthly elected nobles (Capitani di custodia) were in charge of the defence of the city, a duty they carried out with assistance of the Super turribus, who cared for the surrounding fortresses and ramparts. The supply of salt and cereals as a duty of vital interest was carried out by the officers of the Super Sale and the Super blado.

The health officials (Officiales Cazamortuorum) were instituted in the fourteenth century. They exercised vast prerogatives in guarding public sanitation during the recurring outbreaks of epidemics, especially the bubonic plague.

To complete this list of the main offices, the city's physician

(Magister medicus physicus), the surgeon (Magister chirurgus), the pharmacist (Speciarius) should be added, although they were mainly salaried foreign specialists and not necessarily of noble rank.

The majority of citizens were commoners, mostly tradesmen, sailors and craftsmen of all kinds, particularly those concerned with maritime trade. Their political participation was negligible and was completely abolished in the fourteenth century. The majority of nobles, because of the scarcity of arable land, were also involved in trade transactions.[20] They actively cooperated with their commoner-merchant colleagues and often provided them with special government-approved commercial concessions.

Peasants lived under different conditions. Some enjoyed full freedom in the city's suburbs, cultivating their own small lots and bringing fresh produce to the city market. Others worked for a salary on landowners' estates. Still others leased their lands under contract from the landowners. Feudal serfs (kmets) with restricted freedom lived mainly on the estates of the church or monasteries. In general, the living conditions of the peasants were far better than those of their brethren in the hinterland. At the bottom of the social structure there were slaves without any personal freedom.

Venice imposed some hardships on Dubrovnik's autonomy, particularly in restricting its maritime trade with Venice and the Levant. High duties were applied to merchandise imported by Ragusan vessels from overseas, but at the same time Venice encouraged trade with the Balkan hinterland. Goods brought from Croatia, Bosnia and Raška were

tax-free. While lively local trade with Croatian ports continued as before, caravan trade with the hinterland, up to then on a small scale, underwent a major development. Fortunately, the opening of mines by skilled Saxon miners in east-central Bosnia and western Raška where silver, lead and copper were extracted, coincided with Dubrovnik's growing interest to expand trade with these regions. Commerce in metals proved to be lucrative indeed, especially in the fourteenth and fifteenth centuries after the period of Venetian domination. The income received from the Srebrenica mine alone was 3,400 ducats in 1389, 24,800 in 1417 and 30,000 in 1458.[21] Silver, lead and copper, the most expensive and badly needed metals in Venice, Florence and Ancona, started coming by caravans consisting of 50 to 600 horses. The expensive mineral, lapis lazuli, was also exported. Antimony and mercury were sent from Bosnia for medicinal use. Mercury was recognized at that time as a treatment for skin diseases.

The increased prosperity in the exporting regions in the hinterland enabled Dubrovnik to develop a market there for luxury items such as housewares from Italy, spices from Levant and salt, which was a staple commodity for the needs of stock-breeders. Thus Dubrovnik became the middleman in the movement of goods between the western and central Balkans and the Mediterranean, a function that lasted for centuries.

One element in this commerce was slave trading. Male and more often female slaves from 10 to 30 years of age were exported to Italy where males were used in agriculture and manufactures while female slaves

served as concubines and domestic servants. There is a record of Christophanus, a physician from Dubrovnik, acting as a warrantor for an Italian merchant in 1372. Ragusans themselves used slaves as domestic servants as well as laborers in shipbuilding and maritime service. They were treated either as free mariners or slaves leased by their owners to the captain of the ship. The captain (nauclerius) had the right to administer corporal punishments. If a slave escaped, the captain was not obliged to pay any compensation to his owner.[22] Slaves were mainly bought from merchants in Bosnia and less frequently from Serbia. Most of the slaves from Bosnia were Bogomil schismatics who were persecuted and selling them into slavery was not considered a sin. Slaves coming from Serbia were mostly imported from other countries such as Russia, Hungary and Romania while others were shipped from the Levant. It was a profitable business because demand always exceeded supply. In 1416, however, under the pressure from the Church and the Bosnian rulers, the Great Council forbade Ragusan and foreign traders to engage in slave trade on its territory.[23] The Ragusans were still allowed to purchase slaves for their own use.

In 1102 the kingdoms of Croatia and Hungary were brought together in a personal and unequal union. Legally, the continuity of the Croatian statehood was preserved but in practice it was Hungary which emerged as a new power on the eastern Adriatic.

These events did not influence the course of Dubrovnik's political history until the second half of the 14th century. In 1358, however, Croato-Hungarian armies under the King Ludovic Angevin (1342-

1382) defeated Venetians in Italy and Dalmatia. Ludovic asserted his authority over the Adriatic coast as far south as Dubrovnik, and imposed an annual tribute of 500 ducats on the city. It was a good investment for the Ragusans. They were freed from Venetian domination while the attention of their new protector, a powerful military and political force, was concentrated on central European affairs. Hungary was a distant overlord and had no mighty fleet in the Adriatic. While the obligations of Dubrovnik towards Hungary were minimal, the King, together with the Ban of Croatia, promised to defend the city against its enemies. Dubrovnik could and did begin to act once more as an independent city-state and became known as a republic.

In the late 14th and early 15th century, Dubrovnik expanded its coastal territory. With the acquisition of the islands of Pelješac and Mljet in the northwest and the agricultural region of Konavlje in the southeast, it stretched over an area of fifty kilometers in length. Tadić estimates that at the end of the 15th century the Republic of Dubrovnik had 5,000-6,000 inhabitants within the city and 20,000-25,000 in the coastal territory.[24]

The irruption of the Turks into the Balkan peninsula at the end of the 14th century again brought profound change to the conditions of Dubrovnik's existence. Although it was never occupied by the Turks, Dubrovnik found it expedient to acknowledge Ottoman suzerainty and agreed to pay the harač, a tributary tax imposed on non-Muslims by Islamic rulers. In the 16th century, the harač amounted to about 12,000 ducats a year.[25] More serious than this financial imposition was the Turkish

ban on the export of metals from Bosnia and Serbia. Ragusan merchants had to turn to other goods such as sheepskins, wool and timber which found a ready market in Venice and Ancona. At the same time Dubrovnik's overseas trade expanded with surprising rapidity. Sailing in large wooden ships (characha) of up to 2,700 tons, Ragusan merchants reached the ports of France, Spain and England.[26] In the 16th century the Dubrovnik merchant fleet was a force of 5,000 seamen, indicating that every fifth inhabitant of the territory was engaged in shipping. They kept in mind the saying: "it is necessary to navigate, it is not necessary to live" (navigare necesse, vivere non necesse), or as Šundrica expressed it metaphorically, Dubrovnik was compelled to breathe through the gills.[27]

The development of world oceanic navigation by the countries of western Europe in the 16th and 17th centuries severely reduced the significance and the value of Mediterranean commerce, and Dubrovnik, like Venice, experienced an inevitable, if uneven, stagnation and then decline. By the end of the 18th century, the Republic had become a minor and anachronistic city-state, and its independence was extinguished by Napoleon in 1806.

There is little evidence of the cultural life of Dubrovnik before the 13th century apart from the ecclesiastical establishments, which were almost from the foundation of the city, the basic institutions of culture and learning. The bishopric of Ragusium was organized as early as the 7th century and several small churches in the preromanesque style were built from the 7th until the 12th century. The church of Saint Stephanos in the center of the city was the oldest. Then followed

the churches of Saint Blasius,[28] Saint Nicholas, Saint Jacob and others. The great cathedral, Saint Peter, was finished at the beginning of the 13th century and differed from other churches in that it was richly decorated with luxurious furniture and multicolored marble. It was destroyed by the earthquake of 1677. Coming from near-by Italy the Benedictines founded their first monastery in Croatia at Rižinice near Klis in 852 on the invitation of the Croatian duke Trpimir. Until the 11th century their monasteries spread along the eastern Adriatic coast. The oldest and most important Ragusan Benedictine monastery was founded by the archbishop Vital and the presides Lampredije with the help of nobles in 1023.

To the Benedictines who came from Apulia, they donated the whole island of Lokrum where the monastery and the church of Saint Michael were built. The order also founded monasteries on the island of Mljet and the nunnery of Saint Mary of Kaštel in the oldest part of the city itself. The monastery in Lokrum was held in high esteem. The abbot was the first ecclesiastic dignitary after the archbishop of Ragusium. Also, some monks settled there directly from Monte Cassino bringing with them the prestigious cultural tradition of their mother house. The 12th century "Missal of Dubrovnik" was a product of this tradition. It is written in Beneventan script in which Dalmatian and especially Ragusan religious songs are recorded in neuma scores.[29] The Franciscan and Dominican orders arrived in Dubrovnik at the end of the 13th century. The convent of Santa Clara was founded at that time. Their patrician daughters, who sometimes entered the monastery as early as at 14 or 15 years of age, spent their lives in prayer and charitable

works. The Franciscan monks (Fratres Minores) first founded their monastery outside the city walls at the Pile gate. Early in the 14th century, for safety reasons, they moved within the western wall, between the Minčeta fortress and the Placa, where they still live today.

These monasteries remained for many centuries important centers of learning. Many monks from Dubrovnik became well-known prelates, historians, litterati and scientists, such as: Mavro Vetranović, the 16th century poet, Stjepan Gradić, the 17th century latinist and philosopher, Lodovicus Tubero Crijević, the 15th century historian and Mavro Orbin, the 17th century annalist.

The monasteries looked not only to the spiritual needs of the population, but to their medical needs as well. The specific details of monastic medical practises in this early period (11th to 13th century) are not known but it was the Benedictine custom that each monastery should have an infirmary and a pharmacy. As well, medicinal herbs were to be planted in the cloister's gardens. The soil and climate of the Dubrovnik region favoured the growing of medicinal and other herbs, which became a tradition that continued down to the present. In 1317 the Franciscans founded a pharmacy, which dispensed medicines to the citizens. This pharmacy has one of the longest histories of its kind: it has survived to the present day and is still in operation.[30] Dominican monks were also actively involved in medicine and pharmacy. They organized an officina aromataria in the 15th century which for the most part served only members of the order. For centuries both monasteries remained repositories for manuscripts and books of

Dubrovnik's men of learning.

Although many facets of life were permeated with religious influence and monasteries were the major cultural institutions of Ragusan society, the political influence of the Church waned in the 13th century and had almost ceased to exist by the end of the 14th, as the Ragusan clergy was subordinated to the secular authorities.

This new development coincided with the growth of a secular intellectualism in neighbouring Italy, already remarkable in the 13th and 14th centuries. The practicality of the new learning is shown by the growth of legal and medical faculties at Italian universities. In the 13th century the medical school of Salerno gained a widespread reputation as the leading assembly of lay Greek, Latin, Jewish, Oriental and northern European medical men to whom princes and prelates came for medical advice. In Bologna, Roman and Canon law was studied by clerics and laymen alike. The "studium" of law and a grammar school already existed in Padua at the same time, and received a strong impetus when in 1222, a substantial number of masters and students migrated thither from Bologna.[31] Within several years Padua became a university city with approximately 2,000 students and scholars.[32]

This new interest in law was reflected in Dubrovnik by two turning points in the city's institutional history; the writing and codification of the Statute Book in 1272 and six years later the organization and systematic preservation of legal and state documents which ultimately developed into the Dubrovnik Archives.[33]

luerit mouere aliquo
illo p̄ stanuū aut alio quo
cūq; modo ad ip̄m cū ducat ad
ōm voluntatem ip̄ius tenet potest
inde h̄ere firmum.

Si aliquis ingulfus ut
renit ad om̄ voluntatē q
p̄cepit ei litteras suas valu
erit ire ad voluntatē de christo
ei litteras ad querēdū rōnes
inp̄ aliquē stannū de christo
ens romeo debet ei facē suas
litteras ingulfus ei litteras
illas debet ire ad voluntatem christi
mo ille stannus qui debet fa
cē rōnem ingulfo ad voluntem
de christo debet placitare q fi
at rōnē ingulfo nulla secun
da sit data facta p voluntatem de
christo erit firma. Et si alicui
pares nō venerint ad stannum
ad diem q̄ eis positus fuit quo
habuerint iustū impedimentū
dum tñ medietas impetitorum
cum de visu ad diem eis positum
venerint facta fuit p dictum pla
citum rectē tenta. Et si quod
cūq; fuit factum tam de ingul
fo quam ingulfus unstannus
stannus nō potest dicere ingul
fo nolo q̄ tu sis stannus ut re
ci ingulfus unstannus dicere
ei ut sibi, quicquid quod ip̄e
hoc potest. Et etiam si aliquis
ingulfus haberet ad querē
dū rōnes sup̄ aliquē stannū
et dominatū fuit stannaria pla

plenerū ingulfus ille no
luerit ire ad stannū illū ad
querendū rōnē suā illū nō pun-
dicat ei in suo iure tunc p̄t
manere. si stannus ille inde
in mora fuerit ingulfus ingu
lfus nō potest ire contra
ingulfū nec potest ei pignorem
re ut facere pignorē nec de
p̄dare ei. p̄cōne sua donec
plantū suū sibi fuit p
rōnē replegio securam, pro q̄
nolunt ire ad sibi faciendū ad
stannū

De diuersitatibus inē ingulfos
et alios tenentes

Si aliquis ingu
lfus ad querēdū habue
rit rōnes sup̄ duce de tossina
ul' sup̄ aliquē hominē de tossi
na ingulfus ille ei litteras om
nes exig. debet ire ad ducem
tossine ad querēdū rōnē suam
et sententia q̄ data fuit et ibi
erit firma.

Similiter modo facere
de tossina de suis hominibus
qui habet ad querēdū rōnes
sup̄ ingulfos et inuenit ingu
lfus ei litteras sua ducis ante
om̄ alios et sententia q̄ data
fuit erit firma

De diuersitatibus inē ingu
lfos et homines de sussex.

Si aliquis diuersitas
omū aut querimonia inter
inē ingulfi et homines de sussex

ad stannum

The promulgation of the Statute Book by the Count Marco Giustiniani in 1272 reflects a remarkable improvement concerning the legislation and the administration of the Dubrovnik Republic. It was a codification of all previous laws scattered in various books (pluribus libellis dispersa) and composed mainly of Dalmatian law (a kind of Roman substratum) and Slavic customary law, with additions of commercial and maritime regulations drawn from various bodies of such law in use in the Mediterranean Sea. The purpose of the Statute was "to harmonize discrepancies, suppress superfluities, supply omissions, elucidate obscurities and confusions, so that nothing superfluous, obscure, insignificant or captious should remain in them."[34] The Statute was divided into seven books according to subjects dealt with. The first book specified the duties of the count and the main civil servants. The second book recorded the oaths and salaries of each state official. The third book contained the law of procedure and determined the rules for the international court of arbitration. The fourth prescribed the form of marriages and wills. The fifth defined building laws and land tenure. The sixth constituted the criminal code. The seventh book determined all the regulations concerning maritime shipping law. The Statute Book was enlarged in 1358 by the addition of a book dealing with enactments on diverse matters.

Some public health measures were contained in the Statute Book. In the fifth book, there was a regulation dealing with the roads in the city. It mentioned in passing the public well of Cerçua situated in the vicinity of the All Saints' Church (today the church of St-Jacob). The city financed a number of such public wells for the

collection of rainwater because of the inadequate water supply.[35] Another regulation in the same book required that each house build and maintain its own cesspool or cloacha.[36] To secure law and order and to prevent public drunkenness at night, there was a regulation in the sixth book requiring all inns to close three hours after sunset.[37] A law in the criminal code foresaw death by burning for the herbalist (herbarius) who prepared a poisonous compound which caused a person to lose consciousness or to die. This was necessary because the herbalists had the role of preparing herbs, both , for medicinal as well as criminal use. The latter role was often assigned to women. For this reason the law mentioned female and male herbalists (herbarius and herbaria).38 In the eighth book of the Statute, pharmacists (speciarii) were ordered to weigh medicines on a big scale (pondus grossum) and were not allowed to have the small scale (pondus subtile) in their shops. The pondus subtile served for measuring silver and gold only.[39] This is the first information about the existence of pharmacists in Dubrovnik while there is no mention yet of the presence of the physicians. In an incidental manner, the Statute Book recorded the existence of lepers on Ragusan territory. The law, which required the tanners' houses situated in the vicinity of the lepers' houses outside the city walls, to be built of solid material also mention that the lepers were no longer allowed to stay in the same area but were ordered to move further away from the city.[40] In the seventh book there were two laws concerning the rights of the sailors who fell sick while at sea. Whether they were sailing for shares (ad partem) or for pay (ad marinariciam) the laws provided full payment during their sickness.[41]

Another series of administrative regulations was recorded in a separate codes, called the Liber Omnium Reformationum, which covered the period from 1306 to 1410. Two further collections of statutory laws followed, the Liber Viridis (Green Book), recording the laws from 1358 to 1460, and the Liber Croceus (Yellow Book), comprising the laws from 1460 to 1808. These two books listed regulations chronologically and were not organized by subject matter as was the Statute Book of 1272. The medical matter in these collections will be examined fully in the ensuing chapters.

NOTES TO CHAPTER I

*Ivan Vidali, Ragusan poet (16th century).

[1]In the extant sources Dubrovnik was called variously Ragusium, Rausium, Raugia and Ragusa. The Slavic form, Dubrovnik, was documented for the first time in 1189.

[2]The lowest average temperature of the coldest month (February) is 4.6°C, while the highest average temperature of the warmest month (August) is 26.2°C. The steep Mount Srdj protects the city from the cold wind, the Bura, which blows from the interior. Snow is rarely seen. S. Škreb, Klima Hrvatske (Zagreb, 1942), p. 139.

[3]G. Novak, "Povijest Dubrovnika od najstarijih vremena do početka VII stoljeća," Anali, vol. 10-11, Suppl., (1966), pp. 4-9. See also I. Marović, "Arheološka istraživanja u okolici Dubrovnika," Anali, vol. 4-5 (1956), pp. 11-12.

[4]M. Abramić, "Dubrovnik," in Enciklopedija Jugoslavije (Zagreb, 1958), vol. 3, p. 126.

[5]G. Ostrogorski, Istorija Vizantije (Beograd, 1959), p. 110.

[6]J. Šidak, "Hrvati," in Enciklopedija Jugoslavije (Zagreb, 1960), vol. 4, pp. 40-41.

[7]F. Šišić, Pregled povijesti hrvatskog naroda (Zagreb, 1920), vol. 1, p. 62.

[8]Marović, pp. 16-29.

[9]Ravenatis Anonymi, Cosmographia, ed. M. Pinder, (Berlin, 1860), p. 208.

[10]Constantini Porphyrogeniti, De Administrando Imperio (Bonn, 1898), p. 128.

[11] J. Lučić, "Povijest Dubrovnika od VII stoljeća do godine 1205," Anali, vol. 13-14 (1976), pp. 37-44.

[12] M. Suić, "Ostaci limitacije agera naših primorskih gradova u srednjem vijeku," Starohrvatska Prosvjeta, ser. 3, vol. 5 (1956), p. 10. See also V. Foretić, "Ugovor Dubrovnika sa srpskim županom (Zagreb, 1951), p. 56 (hereafter, Foretić, "Ugovor"), and Lučić, pp. 33-44.

[13] "... deus omnipotens terra marique nostrum prolongavit regnum." Quoted in Codex Diplomaticus Regni Croatiae, Dalmatiae, Slavoniae, ed. M. Kostrenčić et al., (Zagreb, 1967), p. 113. See also F. Šišić, Povijest Hrvata u vrijeme narodnih vladara (Zagreb, 1925), p. 522. See also B. Krekić, Dubrovnik in the 14th and 15th Centuries: a City between East and West (Oklahoma, 1972), p. 9 (hereafter Krekić, Dubrovnik), and N. Klaić, Povijest Hrvata u ranom srednjem vijeku (Zagreb, 1971), pp. 359, 360. Klaić thinks that Krešimir IV had not obtained the right from Byzantium to govern Dalmatian cities, for even in moments of great danger Constantinople did not surrender its territories. She has reservations also about the originality of some extant documents relevant to this matter.

[14] "... da Stagno a Magus, o come altri dice, ragusah (Ragusa) trenta migla (sic). Sono Dalmati che anno navi da corso, gente proda e risoluta. Questa e ultima citta della Croazia." El Idrisi, Libro del re Ruggero, (Arabic text published and annotated by M. Amari and C. Schiaparelli), (Rome, 1883), p. 108. Quoted in Lučić, p. 65.

[15] N. Nodilo, ed., Chronica Ragusina Junii Restii (Zagreb, 1893), pp. 52-74 hereafter Nodilo, Chronica). Resti lists all these treaties between Ragusium and Italian cities and Rovinj in Istria. See also G. Novak, Prošlost Dalmacije (Zagreb, 1944), pp. 167-171; J. Tadić, "Dubrovnik od postanka do kraja XV stoljeća," in Historija Naroda Jugoslavije (Zagreb, 1953), vol. 1, p. 633 (hereafter Tadić, "Dubrovnik"); T. Macan, Povijest hrvatskog naroda (Zagreb, 1970), p. 51; Krekić, Dubrovnik, pp. 12-13; F.W. Carter, Dubrovnik (Ragusa) (London, 1972), p. 74.

[16] Nodilo, Chronica, pp. 61-63. See also Foretić, "Ugovor", pp. 52-72; Tadić, "Dubrovnik", p. 633; Lučić, pp. 89, 92.

[17] Tadić, "Dubrovnik", p. 633 and Lučić, p. 93.

[18]V. Foretić, "Dubrovnik," Pomorska enciklopedija (Zagreb, 1955), vol. 2, p. 549. Other authors, such as Tadić, Krekić and Carter, use the term Slavicization only.

[19]Lučić, pp. 120-123.

[20]"I call the nobles the supreme merchants, although some of them live from estates only, but those are few. Someone may wonder why I call the nobles merchants, since nobility contradicts commerce. Let him know that the territory of Ragusium, because of its sterility as much as because ofthe large number of people, lives on a small income, so that nobody could live with his family from his estates (possessiones) unless he has other riches, and this is why it is necessary to engage in commerce. "De Diversis, Situs Aedificorum, Politiae et Laudabilium Consuetudinum Inclytae Civitatis Ragusii, ed. V. Brunelli (Zadar, 1882), p. 7. De Diversis is a major source for many aspects of Dubrovnik's activities and achievements in the second half of the fifteenth century. As the high school principal in Dubrovnik, he was an educated eyewitness of the period.

[21]Carter, p. 226

[22]V. Bogišić and C. Jireček, eds., Liber Statutorum Civitatis Ragusii Compositus Anno 1272, Monumenta Spectantia Historico Juridica Slavorum Meridionalium, vol. 9 (Zagabriae, 1904), Lib. VII, Cap. XIX, XX, p. 158 (hereafter Liber Statutorum).

[23]V. Foretić, "Opće prilike u Dubrovniku od XIII do XV stoljeća", in Spomenica 650-godišnjice Ljekarne "Male Braće" u Dubrovniku (Zagreb, 1968), p. 34 (hereafter Spomenica).

[24]Tadić, "Dubrovnik," vol. 1, p. 639. See also J. Tadić, "Le port de Raguse au moyen age. Le navire et l'économie maritime du Moyen Age au XVIII siècle," Travaux du Second Colloque International d'Histoire Maritime (Paris, 1959), p. 18.

[25]F.W. Carter, "Balkan Exports through Dubrovnik, 1358-1500; a Geographical Analysis," Journal of Croatian Studies, vol. 9-10 (1968-1969), p. 151.

[26]The Ragusan characha was copied by English ship builders and called an "argosy." "Argosy" is an alteration of the earlier words "ragusye" or "ragusea," meaning a large ship. Webster's Third New International Dictionary of the English Language (Springfield, Mass., 1974), p. 116.

[27]Z. Šundrica, Prijevod sedme knjige Dubrovačkog statuta (Dubrovnik, 1972), p. 6.

[28]Lj. Karaman, Iskopine Sv. Stjepana u Dubrovniku (Dubrovnik, 1930), p. 62.

[29]The "Missal of Dubrovnik" is in the possession of the Bodleian Library, Oxford, Sign. MS. Canonici Lit. 342.

[30]V. Velnić, "Ljekarna Male Braće u Dubrovniku" in Spomenica, pp. 19-20. See Also R. Jeremić and J. Tadić, Prilozi za istoriju zdravstvene kulture Dubrovnika (Beograd, 1938), vol. 2, p. 161.

[31]N. Siraisi, The Studium of Padua (Toronto, 1973), p. 16. The Studium signifies a center of higher learning sufficiently renowned to attract scholars from elsewhere. It does not necessarily refer to any particular academic institution.

[32]Ibid., p. 20. Legal schools on purely Roman Law were nurtured in Ravenna and Rome.

[33]V. Foretić, "Dubrovački Arhiv u Srednjem Vijeku," Anali, vol. 6-7 (1957-1959), pp. 319, 320. See also Tadić, "Dubrovnik," vol. 1, pp. 629-661, and J. Tadić, "Dubrovački Arhiv kao izvor za istoriju zdravstvene kulture," in Spomenica, pp. 111-114.

[34]"... in presens volumen collegimus, ipsorum discrepanciam concordavimus, resecantes superflua supplentes defectus, dilucidantes obscura quelibet et confusa; ut it eis de cetero nihil superfluum, obscuram, minus aut capciosum valest reperii ...." Liber Statutorum, p. 2.

[35]"... puteum comunis, qui consueverat vocari puteus de Cercua ... et ... ecclesie Omnium Sanctorum ..." Liber Statutorum, liber V, caput XLI, p. 123.

[36]"... cloacam habeat omnis domus ..." Liber Statutorum, liber V, caput 4, p. 3, 347.

[37]"Taberna que post tercium sonum campane inventa fuerit aperta vel in qua vendetur vinum ... solvat pro bano yperperum unum ..." Liber Statutorum, liber VI, caput XXVI, p. 133.

[38]"Quecunque persona fecerit herbariam vel maleficium herbarie, de quo aliquis posset mori vel perdere sensum ... quod per ipsam herbariam sit mortuus vel admiserit sensum, comburatur ..." Liber Statutorum, liber VI, caput 8, p. 128.

[39]"Et quod aurum, argentum et perle debeant ponderari ad pondus subtile; ... et omnes alie specciarie ... debeant ponderari ad pondus grossum. Et quod nullus speciarius ... audeat habere vel tenere in sua stacione aliquod pondus subtile." Liber Statutorum, liber VIII, caput LXXVII, p. 215-216.

[40]"De domibus factis in loco leprosorum. Statuimus quod domos quas conciatores pellium fecerunt ... ibi extra civitatem, in loco ubi consuerunt morari leprosi, sint eis firme ... Et leprosi non possint morari ibi, sed longius a civitate vadant ad habitandum." Liber Statutorum, liber VI, caput LVI, p. 144.

[41]"De marinario ad partem qui infirmatur," and "De marinario ad marinariciam qui infirmatur." Liber Statutorum, liber VII, caput XXIII and XXIV, p. 159.

CHAPTER II

THE MEDICAL PROFESSION IN THE 14th - 15th CENTURY

"Obliti privatorum publica curate."*
Forget private things and mind
public affairs.

When the Southern Slavs, mostly Croats, encircled the Romanized fugitives in the Dalmatian towns in the seventh century, they entered the sphere of the Christian world, which in time absorbed them. And as they relinquished their paganism, so too their primitive medical practices came under the influence of monastic medicine between the seventh and twelfth centuries. Still later, this transformation continued with the introduction of official lay medicine, as practised by university trained physicians, but the intermingling of pagan, Christian and lay medicine lasted for many centuries and passed through several stages.

In the beginning, as Grmek says, Slavic medicine "was analogous to the medicine of the rest of the primitive European peoples (e.g., Germans and Celts) and to some extent similar to the Greek medicine of the Homeric age."[1] People were treated by folk healers, and medicine men and women. If in healers' mind the ailment was provoked by "rational" agents, such as deficient nutrition, cold weather, poison or injury, they treated it accordingly, either by wholesome food, herbal remedies or adjustment of fractured or dislocated limbs. Internal diseases

constituted "magical properties" caused by demonic possession, inimical witchcraft or offended deities. "Godmother plague" (kuma kuga) was seen as a woman dressed in white, spreading epidemics.[2] For these "non-rational" afflictions they turned to magical methods, such as divination, or chanting of magic formulae. Both the cause and the cure of the disease were thus the result of supernatural agencies, either malign or beneficent. The two methods of folk medicine, the rational and the magical, borrowed and combined elements from monastic as well as from official medical practice,[3] which was led by lay physicians from the thirteenth century on. The co-existence of these traditions has been obscured by the confusion of vocabularies from pagan, Christian and lay medicine. These influences did not spread evenly throughout the northwestern part of the Balkan peninsula. Slavic nobles and peasants living closer to coastal towns or working on lands of the Benedictine monasteries were surely the first recipients of the more developed medical practice, while in the remote villages folk medicine persisted for a long time.

The origins of monastic medicine can be traced back to the sixth century. Cassiodorus, philosopher and physician, brought his collection of classical works to the monastery of Monte Cassino and taught the study of the great herbal of Dioscorides, the works of Hippocrates and Galen in Latin translation as well as the works of Aurelianus Caelius. St. Benedict of Norcia, the founder of the order, urged the monks to study the classics as well as the nature of the herbs but recommended that they place all their faith in the Lord when treating

the sick. According to his teaching, God himself, who gives life and restores health, created medicine and everything must be done in His name. It was an attempt to reconcile the classical teaching with Christian philosophy.[4]

The sources for this early period are few. There is one instance, in the 1180s, of the abbot of the monastery of St-Peter of Gomai near Split effecting a cure. "The abbot successfully cured a pig-keeper of smallpox, with which he was afflicted on the head. (The pig-keeper), as was usual in such cases, surrendered himself (as slave) to the church."[5] Generally, the word capra was used for smallpox. However, it cannot be ascertained whether capra meant smallpox or measles in this particular case, for both diseases affected people in medieval Europe and were not distinguished.

Citizens of Dubrovnik itself were apparently in an even better position, for five Benedictine monasteries offered medical help within the city and its immediate environs.[6] Midwives assisted at childbirth, since obstetrics remained exclusively within their domain. An important role was also played by itinerant surgical empirics who passed through the city from time to time. With greater or lesser success they extracted teeth and treated wounds, fractures and dislocations. Any medical treatment that required surgery was in the hands of these empirics because the ecclesiastical authorities had repeatedly prohibited the clergy from carrying out surgery of any kind, following the formula "the Church abhors bloodshed" (Ecclesia abhorret a sanguinem).[7] Some of these itinerant empirics performed complex operations like the

removal of cataracts, repairing or healing of hernias, and cutting for bladder stones. Such oculists, herniotomists and lithotomists filled a need that existed in medieval society, regardless of the hazardous and often hopeless nature of their interventions. They were not highly regarded, either in their own time or now, but the field of empiric surgery in the Middle Ages deserves a fuller investigation than it has so far received.

In 1349 Milcinus de Presarin contracted to heal the shoemaker Medoje's son, who was suffering from bladder stones, for the fee of 20 hyperpera.[8] The outcome of the operation is not recorded. Thirty years later, Obercho Chilloreza signed a contract with Strojislav Popović, who gave himself in to Obercho's hands "as dead" (posuit se pro mortuo).[9] The contract stipulated, "if he dies during the operation none of the patient's relatives, especially sons or brothers, shall do any harm to Obercho." We do not know whether the patient recovered from the operation, or if Obercho received his fee of 60 hyperpera, a princely sum for any medical service.[10] This contract seems to have been rather one-sided. In the event of failure, the lithotomist was protected from the vengeance of his patient's relatives, while the patient trusted his fate to the surgeon's skill. The patient, however, could have at least some confidence because the skill of the empirics was not entirely fictitious. They received a certain recognition even from some of their medically educated contemporaries. In the first half of the 13th century, for example, William de Congenis, professor of surgery at Montpellier, did not condemn or disdain the itinerant surgeons of his time, but recognized that surgery was a practical art

learned by experience and he acknowledged that the empirics were often more skilled than learned medical practitioners or general surgeons who did not venture into internal surgery.[11] As well, the empirics could offer a certain guarantee by means of their reputation and successful experience. Nicola Grecus or Bulgarus was a salaried teacher of Slavic script (magister litere slavice) but he was also known as a skilled herniotomist and lithotomist (quod possit medicare ... de infirmitatibus crepandis seu crepature et lapidis). In 1396, on the basis of his reputation, the Minor Council gave him the permission to practise this type of surgery in Dubrovnik and its district.[12]

Finally, as will be discussed, the whole of medical practice came under government regulation by later 14th century. There were, nevertheless, cases of charlatanism. One instance, in 1527, concerned Master Jacobus Rizo, a medicus pestis, who was called from Venice during an outbreak of plague. He and his servant were arrested and prosecuted by the Health Office pro excessibus et robariis per eum ut dicitur factis, although no details of his "excesses" are recorded.[13]

Like other larger cities in Dalmatia such as Zadar, Split and Kotor, Dubrovnik needed educated physicians and surgeons to care for its citizens. Under normal circumstances, there were two salaried physicians, two surgeons and two to three private pharmacists in the city. Since there was no university or medical school on the eastern shore of the Adriatic, the Ragusan Councils invested a great deal of energy and money to obtain physicians and surgeons, primarily from Italy. Through commerical, diplomatic and ecclesiastical channels

they sought out able and available medical practitioners. The process of hiring foreign medical personnel became almost standard. The Great Council would order the count and the Minor Council to send an agent (syndicus) to Italy to persuade potential candidates to come to Dubrovnik. Most often the syndicus went to Venice, Padua or Bologna. If he was successful there , the contract was drawn up for a period of one or two years, and the physician or surgeon swore on the Gospel to respect the contractual requirements. He became associated with the Ragusan government as a salaried official or medicus salariatus. The procedure of recruiting physicians and surgeons was identical to that used for other salaried professionals, such as chancellors, notaries, teachers, and skilled craftsmen. Sometimes a syndicus went to Italy to find several professionals at the same time. In 1380, for example, Jacobo de Prodanello was sent to Ancona to locate a surgeon, a chancellor and a crossbowman.[14] Occasionally the process of hiring physicians and surgeons met with great difficulties, particularly during epidemics of plague which were recurrent after 1348 in the whole Adriatic basin. Seeking help for afflicted Dubrovnik, the syndicus travelled from one plague-infested Italian town to another, where his mission was not greeted with enthusiasm by the natives, whose need was as great as the Ragusans'. That hiring a surgeon could be an arduous task is evident in the orders given to a mission of three noble agents sent to Italy in 1359.

For two years previously there had been a major outbreak of plague and not only were surgeons in short supply, but the Great Council anticipated difficulty in attracting them to Dubrovnik. On the Council's

order, the count gave the agents complicated orders. They were to go to Venice and try to engage maistro Gracioto, maistro Albertin da Mantoa or maistro Nicolo da Trivisio. If none of these surgeons would come, they were to recruit someone else of the same caliber in Venice. Failing that, one of the agents was to go to Padua, and, if unsuccessful there, he was to proceed to Bologna, "because we are informed that there are good doctors in Bologna." If one of the three preferred Venetian surgeons accepted service, he was to have a contract for two years with an annual salary of 200 ducats. The same terms were to be offered to a candidate in Padua or Bologna, but he would have to be an experienced practitioner and be prepared to depart from Venice within 15 days.[15] The earliest extant notarial registers disclose that four physicians served the community between 1279 and 1300. Three of them were from Italy and one, Pervoslavus, medicus, was, judging by his name, a native.[16] We have no idea of their background or their practice; in this early period they may have been only barber-surgeons. A scrutiny of several selected contracts from the first half of the 14th century reveals how the Ragusans gradually developed a policy of imposing requirements on their physicians. The Councils demonstrated a remarkable flexibility in suiting their requirements to the physician's individual case and circumstance, revealing their awareness that the human factor was an essential element in organizing and maintaining health services. This is demonstrated in the minor but significant variations in the physicians' contracts.

In 1301 master Marcus, medicus plagarum, cirologus, a wounds

doctor and surgeon, was reconfirmed by the Greal Council to serve the community for two years, at an annual salary of eight pounds, with a free residence as he had previously held. Again, there is no list of duties master Marcus was expected to carry out or anything about his practice.[17]

The contract with master Ricardus of Salerno, medicus fisicus, in 1302 is richer in marerial. Like master Marcus, he was confirmed by the Great Council to serve as a physician for two years, with the salary of 140 hyperpera (seven pounds) and a residence provided at communal expense. He was not to require payment from any Ragusan citizen, rich or poor. He was to refrain from having any business association with the pharmacist in his dispensary, either in relation to medicines or to any other business. He might accept fees from foreigners, upon mutual agreement.[18]

Ricardus' contract was very different from Marcus'. This may be due in part to the fact that his professional title was listed as medicus fisicus,[19] which indicates that he was an educated physician. As well, he came from Salerno which still enjoyed a high reputation in medical studies. The curriculum there required three years of study of logic, and then five years of medicine, including surgery.[20] Secondly, master Ricardus was supposed to care for all Ragusans without fees. While it would take several decades until this became standard practice, his contract shows the beginning of an organized health service for all citizens regardless of status or wealth. The prohibition of business with the pharmacist reflects contacts between Ragusans and Salernitan

authorities. As early as 1242, for the protection of patients, Frederick II Hohenstaufen had forbidden physicians in the Kingdom of Sicily to own shops or to keep pharmacists in their service.[21]

The question of fees was still not settled in 1304 when master Nicholaus de Marchia, medicus, accepted a low annual salary of 100 hyperpera (five pounds), but was allowed to charge the sick up to 2 hyperpera.[22]

Master Bartholomeus, medicus, received 20 hyperpera (one pound) in 1313 from the Minor Council for one month's service. It was again stipulated that he had to treat without fee all the inhabitants of the city and its district, the count and his family, the archbishop and his family, all monks and nuns and all salaried officials. Bartholomeus was obliged to give and administer his own plasters, unguents, waters and other medicines related to surgery.[23] Later his contract was extended for one year with the salary of 9 pounds under the same conditions.

In 1319 and again in 1323 the Great Council confirmed master Bonaventura, cirologus, of Venice as its official surgeon, with an annual salary of 12 pounds and 20 grossi allowance for a house. He was obliged to treat the archbishop, the count, the chancellor and their families, as well as present and future salaried officials, Minorite and Dominican brothers, monks and nuns and citizens of Dubrovnik and its district. He was to administer at his own expense unguents, plasters, waters and other medicines necessary in surgery. Master Bonaventura accepted the office and swore on the Gospel to observe the conditions of the contract.

He promised to sail from Venice on the first ship or forfeit 100 grossi.[24] The legal elaboration and the comprehensive coverage of the conditions in Bonaventura's contract reflect an ever increasing concern of the Council's members with procuring free medical treatment not only for themselves, the clergy and the salaried officials, but also for all people in the city and its territory (omnes homines civitatis et districtus Ragusii) without restrictions as to class or condition. It is also significant that this service was provided by the state and not by various charitable organizations as in Venice or Florence.[25] The same policy continued for centuries and contributed significantly to the stability of the social fabric in Dubrovnik.

Contracts with physicians and surgeons issued during the rest of the fourteenth and the fifteenth centuries contain more or less the same stipulations as in Bonaventura's agreements in 1319 and 1323. The Ragusan policy in this matter had reached its full development.

An important decree should be added. In 1331 the Minor Council prohibited physicians and surgeons salaried by the community from conducting any trade in Dubrovnik. At the same time they were not allowed to have any association or private business with pharmacists (speciarii).[26] With this order, the individual injunctions of past contracts passed into the area of general policy, and medical profession and pharmacy were definitely separated from each other. The same practice prevailed in other cities at that time.

Extensive research has been done on the salaries received by physicians and surgeons, and the consensus is that they were well-paid,

not only in Ragusan terms, but in comparison with cities in Italy, France and England too. During the later fourteenth century physicians in Dubrovnik were paid about 400 ducats annually, while surgeons usually received half that amount, depending on their education, experience and reputation.[27] Mosher-Stuard has examined the purchasing power of these salaries and concludes that a surgeon or physician could support his family and have a considerable amount left over. Prohibited from investing in trade, "those attracted to the town because of cheap living conditions and a high salary had no recourse but to leave within a few years ... We may only assume that it was more important to the merchant aristocracy to exclude outsiders from their growing commercial empire than it was to provide continuity in medical care."[28]

Her assertion does not agree entirely with the sources which are abundant particularly for the fifteenth century. Careful examination of the documents reveals that there were instances when physicians and surgeons were indeed allowed to participate in shipping transactions. Johannes, a surgeon from Tragurio, (today Trogir), who served from 1375-1389, and Petrus de Ricumbaldo de Barulo, a physician who served from 1381-1384, owned a ship and were permitted to engage in trade. These may have been isolated cases, but they show the flexibility of the Ragusan approach. One purpose of the prohibition against trade was to encourage the highly paid medical men to concentrate on their professional practice. But more importantly, they were excluded from commerce because they were foreigners. The vocation of trade in Dubrovnik had been from its beginnings the privilege of circles of noble-merchants and commoner-

merchants, a right they jealously kept for themselves. While Mosher-Stuard's statement about physicians' and surgeons' purchasing power is sound, her assertion that they tended to leave Dubrovnik after a few years is contradicted by the sources.

A listing of seven physicians and surgeons from the fourteenth century and sixteen from the following century proves that all of them served much longer than "a few years."[31] For some, documents cite only the period they served in Dubrovnik. Consequently, in addition to those listed, more physicians, whose record is not complete, should be added. It is fairly possible that some of them died during the outbreaks of plague because they, as well as priests, were the most exposed to infection by the nature of their duty. Quite a number of them worked until they reached old age and Ragusans awarded them a pension as a sign of gratitude for their dedicated service. The first medical pension recorded was approved by the Great Council in 1399 when it appointed a tutor for Christophorus the physician who, "because of his old age is not mentally well and to whom are allocated 12 grossi daily at the most."[32] Master Johannes of Papia indebted Ragusans considerably during his long and conscientious service of about forty-four years. In 1415, he was given a pension of 200 hyperpera "as remuneration for his merits and for the honour of our Republic."[33] Johannes' son, Thomasius, phisicus, followed his father's footsteps and received the same pension in 1458.[34] Johannes de Teolo, cirusicus, from Padua, received a pension of 150 hyperpera after serving in Dubrovnik for 12 years, from 1423-1435.[35]

Special mention should be made of physicians' duties. From the second half of the fourteenth century, they were supposed to treat all the inhabitants of the Republic. They examined patients, diagnosed illness and prescribed medicines, which were usually prepared and dispensed by pharmacists. For their own use in surgery, surgeons dispensed their own ointments and plasters. From the fifteenth century on, they controlled the quality and freshness of drugs, as well as the prices that the pharmacists charged for them. Physicians participated at the Councils' sessions - as foreigners, they were not members of the Councils but only consultants - and gave expert advice on the organization of health care and improvement of sanitary conditions in the Republic. During epidemics (if there were any physicians in the city), they gave advice on preventive measures in close cooperation with health officers. To some extent, physicians assisted in crime prevention in that they were required to report the treatment of wounds that could have been caused by violence.[36] Medical men often served as witnesses in the courts. In the city where merchants, caravans and sailors of so many different cultures met every day, the potential for violent conflict was inescapable and had to be carefully controlled. The same legal obligation was imposed on physicians in the cities of northern Italy, for which Venice served as an example.[37]

Physicians and surgeons were quite a mobile group of professionals and it was not unusual for the more prominent ones to be "loaned" to the neighbouring rulers. In 1395 Johannes de Papia, medicus cerusicus, was sent by the Senate to treat Dabiša, the Bosnian King and

was paid 40 ducats for his medical expenses (in medicinis et confectionibus).[38] In 1420 Johannes de Ancona was given a leave of absence with full expenses in order to be able to help Balšić, the ruler of Zeta.[39] In 1424 Bartholus de Plombino was sent to Zeta under armed escort to treat the duke Vukmir and the following year he had to travel again to attend to the needs of the Bosnian king.[40] Very little is known about the treatment methods of medieval physicians in Dubrovnik during the 14th and 15th centuries. There is, however, the record of Jacobus Mazia, physicus et ciroycus, from Salerno who distinguished himself by tying the (saphenous) vein of a patient suffering from a leg ulcer.[41] One can get an idea of the education of the physicians from the list of books and manuscripts in their possession which were usually mentioned in their testaments. In a document from 1418, Petrus, a physician, son of Albertinus of Camurata, is said to have owned thirty books, among which were works by Hippocrates, Galen and Avicenna, the standard medical reference works used in Western Europe.[42] Some physicians bequeathed their estate to their wives or children, others left money to poor Franciscan brothers, lepers or charitable organizations in Dubrovnik or their native city for the benefit of their souls. These testaments reveal a typical mixture of social concern, affection for the family, hope for afterlife, loyalty to the place of birth and to the city where they had spent the most productive years of their lives -- all so characteristic of the intellectual's preoccupation at that time.

NOTES TO CHAPTER II

*This inscription on the count's palace served as an admonition to those who entered.

[1]M.D. Grmek, "Ancient Slavic Medicine," Journal of the History of Medicine, vol. 8 (1953), pp. 18-40.

[2]Kuma Kuga is also the title of an epic about the plague written by the eighteenth century Croatian poet and novelist August Šenoa who was inspired by folkloric elements that still existed in villages.

[3]The term "official medicine" will be used in coming chapters to denote the medical practice of the medieval period leaving the term "scientific medicine" for the period of the nineteenth and twentieth centuries when technological and bacteriological discoveries marked the dawn of modern medicine.

[4]"... si legga che la Medicina sia stata creata da Dio, tuttavia e Questi che risana, Questi che senza dubbio concede la vita. Trovasi quindi scritto: omne quod facitis in verbo aut in opere, in nomine Domini Jesu facite, gratias agentes Deo et Patri per ipsum." S. De Renzi, Storia della medicina Italiana (Napoli, 1958), vol. 2, pp. 35-36; A. Castiglioni, A History of Medicine (New York, 1958), pp. 294, 295.

[5]V. Novak, ed., Supetarski Kartular (Chartulare Sancti Petri) (Zagreb, 1952), p. 106, no. 68. Chartulare Sancti Petri is the manuscript from the Archives of the Split Bishopric under the title: Jura Sancti Petri de Gomai. It was written in Beneventan script between 1080-1187 in vulgar Latin. It depicts the way Petar Crni, one of the highest ranking Croatian nobles, became a monk at the end of his life. To the monastery of St. Petri de Gomai he donated lands which he had acquired from impoverished peasants at an extremely low price. See also Klaić, pp. 161-162. She thinks that the lives of these unfortunates were better protected if they surrendered themselves as slaves to the monastery, for they were unable to feed their families from the small pieces of land they owned. Thus the imminent threat of famine might also have induced the pig-keeper to surrender himself as slave to the monastery. The word "similiter indicates that his case was not unique. "Porcarus similiter se dedit in nominata ecclesia, eo quod illum curavit de capra abbas cum magno dispendio quam habebat in capite."

[6]See Chap. I, p. 24.

[7]It was at the Council of Tours (1163) that this ban on surgery for clerics was pronounced. D. Amundsen, "Medieval Canon Law on Medicine and Surgical Practice by the Clergy," Bulletin of the History of Medicine, vol. (1978), p. 22. See also M. Neuburger , History of Medicine (London, 1925), vol. 2, pt. 1, pp. 40, 107-108, and C.H. Talbot, "Medicine" in Science in the Middle Ages, ed. D. Lindberg (Chicago, 1978), p. 394.

[8]Milcinus de Presarin (modern Prizren in Serbia) "cured the disease of stone" (medebatur morbi lapidis). C. Jireček and J. Radonić, Istorija Srba (Beograd, 1952), p. 79. See also Jeremić - Tadić, vol. 2, p. 12, vol. 3, p. 132.

[9]Jeremić - Tadić, vol. 2, p. 16, vol. 3, p. 134. "Chilloreza" was Obercho's nickname and means herniotomist. Obercho is a Slavic name. He came from the Balkan hinterland.

[10]Salaries were stated in pounds (an imaginary Venetian money of account), in hyperpera (an imaginary Greek money of account), or in Venetian ducats. The currency used in Dubrovnik included Venetian ducats and locally struck copper coins (follari) and silver coins (grossi).

1 grossus	30 follari	
1 hyperpera	12 grossi	
1 Venetian pound	20 hyperpera	30 grossi
1 Venetian ducat	2 hyperpera	24 grossi

For more details about the money used in Dubrovnik see I. Manken, Dubrovački Patricijat u XIV Veku (Beograd, 1960), pp. 101, 102, 106.

[11]William de Congenis, the follower of the famous Salernitan tradition, taught surgery at Montpellier. He used to give practical instruction to his students at the hospital bed-side. See C.H. Talbot, Medicine in Medieval England (London, 1931), pp. 93-97.

[12]Jeremić - Tadić, vol. 2, p. 20.

[13]Master Jacobus Rizo, medicus pestis, came to Dubrovnik from Venice in 1527 when the plague recurred. On the basis of the robbery that he committed (pro robbariis per eum ut dicitur factis), the Health Officers prosecuted him, and he was detained together with his servant. Quoted in Jeremić - Tadić, vol. 2, p. 50.

[14]M. Dinić, ed., Acta Consiliorum Reipublicae Ragusinae (Beograd, 1951), vol. 1, p. 38.

[15]See app. B, p. 86.

[16]G. Čremošnik, Spisi Dubrovačke Kancelarije (Zagreb, 1951), pp. 14, 48, 138, 17.

[17]A. 1301 die XVIII intrante septembris. Magister Marcus medicus plagarum per dominum comitem et suum Minus Consilium, habita prius licencia a Maiori Consilio, firmatus fuit ad salarium comunis Ragusii per annos duos, pro libris VIII grossorum in anno, et domo secundum quod habuit hinc nunc, et incipiat terminus eius die XVIII intrante septembris." Monumenta Ragusina, vol. 1 (Zagreb, 1879), p. 573 (hereafter MR).

[18]"Die domenica secunda intrante septembris. Magister Ricardus (Rizardus, Riccardus) medicus fisicus in Maiori Conscilio ... firmatus fuit ad salarium communis Ragusii per duos annos, habendo yperperos CXL in anno et domum convenientem pro comuni, hac condicione, quod non debeat recipere pacamenta ab aliquo Raguseo de medicatura sua et omnes a quibus vocatus fuerit teneatur bene et legaliter consulere et medicare tam divites quam pauperes, et non debeat habere societatem cum aliquo speciario in stacione sua de medicamentis nec de aliquibus aliis rebus dicte stacionis. A forasteriis potest accipere pro labore suo secundum quod cum ipsis poterit se concordari." MR, vol. 5, pp. 38, 76, 83; vol. 1, p. 30.

[19]The term "physician" fisicus or phisicus began to be used only in the the twelfth century. In classical Latin medicus was used for the doctor of medicine. The Greek term was physicus because medicine was considered to be one of numerous subjects of physica, i.e. of natural science and natural philosophy. The required medicial curriculum in Salerno and Naples consisted of five years study of the Aphorisms, Prognostics and Regimen of Acute Diseases by Hyppocrates and the Tegni by Galen. Surgery was not a compulsory course at the time. In Naples in this period the terms phisicus and medicus were apparently used interchangeably and without distinction. R. Doviak, The University of Naples and the Study and Practice of Medicine in the Thirteenth and Fourteenth Centuries, Ph. D. thesis, The City University of New York, 1974 (Ann Arbor, 1974), pp. 25, 30, 31.

[20]About the School of Salerno see P.O. Kristeller, "The School of Salerno, its Development and its Contribution to the History of Learning," Bulletin of the History of Medicine, vol. 17 (1945), pp. 138-194. Quoted also in Doviak, p. 24.

[21]Ibid., pp. 26-27.

[22]Jeremić - Tadić, vol. 2, p. 8 and vol. 3, p. 128.

[23]"Die XXV aprilis. Item in Minori Consilio captum fuit, quod dentur magistro Bartholomeo medico pp* XX pro uno mense proxime venturo. Et ipse debeat esse Ragusii per ipsum mensem et fideliter medicari omnes personas de Ragusio et districtu et omnes Ragusanos, dominum comitem et suam familiam, dominum archiepiscopum et suam familiam, omnes religiosos et religiosas de Ragusio et omnes salariatos communis et suas familias, sine precio et solucione aliqua. Et omnibus supradictis teneatur ipse magister Bartholomeus facere et dare suis expensis propriis omnes emplastros, unguenta, aquas et omnes medicinas ad artem zerugie pertinentes." MR, vol. 1, p. 26; see also pp. 30, 36, 45, 59, 78, 84, 87, 88, 90, 91, 96, 102, 103, 104, 111, 125, 130, 136, 139, 149, 150, 176, 181, 182, 230, 237, 261, 281.

*hyperpera

[24]See app. B, p. 87.

[25]B. Pullan, Rich and Poor in Renaissance Venice (Oxford, 1971), pp. 63-83. See also A.G. Carmichael, Epidemic Diseases in Early Renaissance Florence, Ph. D. thesis, Duke University, 1978 (Ann Arbor, 1981), p. 142.

[26]"In minori consilio, captum et firmatum fuit, quod nullus medicus, tam physicus quam cirogicus, sallariatus communis possit exercere aliquos mercationes Ragusii, neque habere societatem cum aliquo Speciario." MR, vol. 2, p. 332.

[27]Mosher - Stuard, "A communal Program of Medical Care: Medieval Ragusa/Dubrovnik," Journal of the History of Medicine and Allied Sciences, vol. 28 (1973), pp. 134-137.

[28]Mosher - Stuard, pp. 134-135.

[29]"Magister Johannes cerusicus salariatus communis, de Tragurio (habuit unum navigium)." Divina Cancellariae, 24, 17', 54', 61, 76; 92', 146; Debita Notariae, 8, 121; Jeremić - Tadić, vol. 2, p. 15, 21 and vol. 3, p. 133.

[30]Divina Cancellariae, 25, 26. Reformationes 25, 203, 230', 232; Jeremić - Tadić, vol. 2, pp. 16, 21 and vol. 3, p. 134.

[31]See app. A, p. 90.

[32]"Die XIII mensis octobris MCCCICIX electi et dati fuerant tutores et gubernatores magistro Christophoro physico, qui propter senectutem non est bene in mente sua, et taxatum est pro expensis singulo die grossos duodecim ad plus ipsi magistro Christophoro." MR, vol. 3, p. 273; Jeremić - Tadić, vol. 3, p. 132.

[33]"Die XXVI mensis februarii anno MCCCXV (Captum fuit) de faciendo provisionem magistro Johanni de Papia quam die vixerit de yperperis ducentis in anno pro remuneratione benemeritum suorum et pro honore rei publicae nostrae." Jeremić - Tadić, vol. 3, p. 134.

[34]"Die IX mensis madii MCCCCLVIII ... Hoc faciendo ad exemplar eius genitoris magistri Johannis de Papia, qui propter sua fidelitatem ... de dando ipsi magistro Thome in sustentatione vite sue et pro nutrimento suo illorum pauchorum diebum, quibus habet vivere, iperperos ducentos omni anno, quousque vixerit ...." Jeremić - Tadić, vol. 3, pp. 137-138.

[35]Jeremić - Tadić, vol. 2, p. 30.

[36]Quoted in R. Ferri, "Zdravstveni propisi dalmatinskih statuta iz srednjeg vijeka," in Iz Hrvatske medicinske prošlosti (Zagreb, 1954), pp. 138-146. The same regulation existed in Šibenik (another town in Dalmatia) and was recorded in its Statute of 1379. Ibid., p. 144.

[37]G. Ruggiero, "The Cooperation of Physicians and the State in the Control of Violence in Renaissance Venice," Journal of the History of Medicine and Allied Sciences, vol. 33 (1978), pp. 156-166.

[38]Jeremić - Tadić, vol. 2, p. 16.

[39]Jeremić - Tadić, vol. 2, p. 23.

[40]Jeremić - Tadić, vol. 2, p. 25.

[41]Jeremić - Tadić, vol. 2, p. 30 and vol. 3, p. 139.

[42]Krekić, Dubrovnik, p. 94 (the author has not quoted the source). See also V. Bazala, "Il ruolo dei medici italiani sulle sponde dell' Adriatico di Levante" in Pagine di storia della medicina, vol 13 (1969), pp. 22-24.

CHAPTER III

CURRENT AND HISTORICAL VIEWS ON PLAGUE

" DOM
Heu mors omnis truncas
MDXXVII crudiore peste
Vita peregrinatio
Fugaces dies"*

Allmighty Lord
Oh, death that mutilates all
1527 with such a cruel plague
Life is a journey
Days are fleeing

Cipolla stated that each culture has its predominant disease. The early Middle Ages struggled with leprosy and later, plague prevailed. The Industrial Revolution was the age of tuberculosis. And now, we live in the age of cancer, cardio-vascular diseases and psychotic disorders.[1] Due to discoveries made during its reappearance at the end of the nineteenth century, a period marked by considerable advancements in bacteriology and microbiology, we are now acquainted with the nature of the bubonic plague. Not only has plague become a curable disease, but, with the present etiological and bacteriological knowledge, we are able, at least to some degree, to reconstruct the characteristics of its medieval form.

Our understanding of the occurrence of the medieval epidemics must be informed by the modern etiology of the plague-bearing in mind the limitations of interpreting past forms of the disease through its

more recent and more easily researched appearances. A summary of this modern etiology thus follows.

Plague is an extremely severe, acute infection caused by the bacillus Yersinia pestis.[2] There are three varieties of the same bacillus. The first, antiqua, suspected of having come from Ethiopia, was responsible for the epidemic at Pelusium in lower Egypt, in 541 A.D. It spread through Egypt, Palestine, Syria and from there to Constantinople in 542. It was then further transmitted through the Mediterranean region, where it reappeared at intervals of approximately 10 years until the second half of the eighth century. The second variety of the bacillus is the medievalis, which was suspected of having been the cause of the Great Pestilence. It came from the Siberian steppes via the Caspian and the Black Seas, and was carried by ships to the Middle East and Western Europe in 1347.[3] Although it later ravaged the same territories with somewhat lesser intensity and recurred periodically in Europe until 1841, the original outbreak was extremely virulent. The third variety of the bacillus is called orientalis and can still be found today in East Asian ports and in the United States. It is the same variety that spread from Southern China at the end of the nineteenth century. All three varieties are equally pathogenic to its hosts - either humans or rats. The most common hosts are members of the rat species Ratus Alexandrinus, Ratus Ratus, Ratus Norvegicus or other wild rodents. The bacillus is transmitted from the host - rat to man by the vector, the rat flea Xenopsylla Xeopis, or sometimes by the flea Nosopsyllus Fasciatus. It seems that in the European epidemics of the Middle Ages, as Jorge and Rodenwaldt have

pointed out, a significant role might have been played by the human flea, Pulex irritans, which is also capable of transmitting plague bacilli.[4] Pollitzer and Biraben now believe that, if these fleas were present in large numbers and there is no doubt that they did abound, especially during the summer months, the Pulex irritans must have been involved in medieval outbreaks of Plague in Europe.[5]

The modern etiology describes the following course of the disease. The infection begins when the flea abandons its host-rat after it has died and the body has grown cold. Then it bites its new host - man. The bacilli ingested by the flea multiply and produce a "blockage" in the flea's proventriculus situated on the esophagus. When the flea bites; the blood which it has sucked, being unable to pass, is regurgitated back into the victim's wound. Fleas without the proventriculus such as the Pulex irritans, can still contaminate by their excrement through the scratched skin. Infected fleas can live for several months at 15-20 degrees Celsius in 90-95% humidity. This is the reason why their activity is so high in the summer months.

The bacillus Yersinia pestis survives for several days in putrifying corpses or on the surface of the soil, but it can survive for as long as a year if kept in the dark at a constant temperature, as for example, underground in rodents' burrows.

The incubation period of the bubonic plague is from 1 to 6 days.

Plague begins with a fever of 39 to 40 degrees Celsius. A plague blister which looks like a blackish carbuncle forms near the flea bite.

After 2-3 days, an enlargement of the lymph nodes appears in the groin, the armpit or the neck. These are the buboes. They become very painful and tend to suppurate. Neurological disturbances such as headaches, and sometimes vomiting or diarrhea can follow. Depending on the virulence of the bacillus and the susceptibility of the infected, 20-40% of the patients survive. Reconvalescence begins after 8 to 10 days. If the bacillus is highly virulent it can cause an overwhelming septicemia, followed by such a sudden death that the bubo has no time to develop or become visible. This course of the disease is also considered to be a form of the bubonic plague.

In the pneumonic form of the plague the incubation lasts from 1 to 3 days. The bacillus is transmitted from man to man by air-borne contamination, coughing or sneezing. It multiplies in the lungs, first causing exudative inflammation and then an unrestricted destruction and necrosis of the tissues. The sputum is blood-stained. The mortality rate for the pneumonic plague was fully 100% before the discovery of antibiotics, while that of the bubonic form varied from 50 to 60%.

Today, all forms of the bubonic plague are successfully treated with the antibiotics streptomycin and tetracycline, if these are administered early enough. Sulphonamide is given as a prophylactic.[6]

The question which still remains unanswered is to what degree one can apply the present epidemiological knowledge of the Yersinia pestis to the Great Pestilence of the Middle Ages. Further investigation in archaeology, paleopathology and physical anthropology combined with

demographic data from existing archives, could add considerably to the corpus of knowledge concerning the medieval bubonic plague phenomenon.

The efforts contemporaries have made, in the light of their comprehension of the disease, to limit or to stop the spreading of epidemics will now be examined. At the time of the first outbreak of the Great Pestilence, in 1348, official medicine was dominated by the teachings of Hippocrates, Galen and Avicenna. Hippocrates was the first to outline a naturalistic theory of the spreading of diseases. His theory was that when the pestilence afflicts a mass of men at once, there must be poison in the air inhaled. He based his theory of the poisoning of the air (miasma), on observations of climate, season and locality, and the physical and mental condition of the sick. However, he obscured his teaching by saying that epidemic disease is often enhanced by a specific, unknown condition of the air which is due to the presence of Quid divinum and may also exist in miasma and in certain impure things. The Quid divinum was probably the scourge of divine wrath.[7] While, in fact, climatic conditions are not irrelevant to the development of many epidemic diseases, including bubonic plague, Hippocrates' assertion that the unknown atmospheric state produces disease, diverted followers from looking for relevant factors on earth. For many centuries they based their understanding of the epidemics on his miasmatic theory. Galen (129-199 A.D.) mostly shared Hippocrates' ideas concerning epidemiology and added that any disease which afflicts a large number of people simultaneously should be regarded as a pest, especially if it is of long duration. Galen also believed that the corruption of the air was more

intense in the vicinity of the sick than elsewhere. Perhaps this was his hint that flight from the stricken area was recommended. He suggested that the corrupted air might be corrected by setting fires around the area: "placing upon the fires wreaths and flowers and sweet smelling unguents."[8]

It comes as something of a surprise to find that Galen's teachings, inspite of the incongruity between theory and experience, were so influential until the sixteenth century. Temkin states that Galen's set of doctrines, in its complete form, fulfilled social and intellectual needs: "within the structure of medieval Galenism physicians and patients found their way; it separated doctor from the quack and gave confidence to him and his patient."[9] Avicenna (980-1037), the third ranking medical authority, based his etiology of plague on the classical tradition, emphasizing the influence of astrological phenomena combined with the possibility of earthquake or putrefaction originating from the interior of the earth: "when the heavenly forces become active and impress themselves upon those of the earth, plague results."[10] Two basic concepts, the causative agents and contagiousness were absent from classical theories. Disease, according to these theories, develops as a result of the disturbance of the balance either within the body of the sick or in the structure of the air. This includes stellar and solar imbalance as well as putrefactions occurring in the interior of the earth. One of the reasons for the slow abandonment of the classical theories should be sought in the fact that the patients' expectation to recover from illness was very low. The physician's reputation was enhanced, if only five

to seven percent of the treated patients survived.

It is possible to trace, in fragments, the medical opinion which prevailed in 1348 through the extant consilia or treatises which some physicians addressed to their governments in order to help them in the fight against the plague on a larger scale. The earliest document of this kind is that of Jacme d'Agramont, written to the Lords and the Council of Lerida in Catalonia, Spain, dated April 24, 1348. His advice was strictly along the lines of the classical teaching, except that he discussed "moral pestilence", which, in the opinion of Winslow and Duran-Reynals, marks him as a thinker of distinct originality.[11]

Gentile da Foligno wrote to the masters of Perugia, shortly before his death (June 18, 1348) caused by plague, that authorities should appoint some citizens to hold conferences with physicians in order to manage the safety of the people.[12] His proposed treatment included purgation, blood-letting, medicines and disinfection. Mention should also be made of the Compendium de epidemia, issued by the Faculty of Medicine of Paris in October 1348. It stressed that decaying matter may cause the earth to quake. As to the origin of disease, it said that the cause could be traced to a planetary conjunction of Mars, Jupiter and Saturn in the year 1345.[13] The impact of Avicenna's thinking, whose influence rapidly crossed the borders of France, is evident in this Compendium.[14] From this brief account of the first concilia one can see that the influence of the classical teaching prevailed and that these medical men had not noticed any discrepancy between theory and direct observation of the disease.

At the same time, there were educated individuals who carefully observed the plague, using their personal experience as a basis for their ideas about the nature of the bubonic plague and its transmission. Tribute should be paid to Guy de Chauliac (1300?-1368), from Avignon, a surgeon and eyewitness, who bravely continued to tend to the sick during the outbreaks of plague in 1348 and 1360. He eventually contracted the disease himself, but, fortunately for posterity, recovered. Besides his timely description of the symptoms of the plague and the therapy applied, he left a description of the contagiousness of the plague through contact with the sick: "it was so contagious, especially that accompanied by spitting of blood, that not only by staying together, but even by looking at one another, people caught it, with the result that men died without attention, and were buried without priests. The father did not visit his son, nor the son his father...."[15] He went on, however, to discuss a universal agent, which stems from the decomposition of the air (the old Hippocratic theory) due to the conjunction of certain planets (Avicenna's theory) as a primary cause of disease. On the other hand, de Chauliac distinguished the pneumonic from the bubonic form. This was a considerable advancement from the standpoint of modern pathology. It is surprising and disappointing, that his distinctive statements never made a decisive impression on his colleagues.

The medical profession and laymen continued to grow apart in their thinking. Boccacio (1313-1375), the founder of Italian prose, left the first literary account of a plague epidemic. He was particularly aware of the contagious character of the disease:

> ... for not merely by speech or association with the sick was the malady communicated to the healthy with the consequent peril of common death, but any that touched the clothes of the sick or anything else that had been touched or used by them, seemed thereby to contract the disease. 16

His views were similar to those of other chroniclers who witnessed the outbreaks of plague. They observed most of the symptoms of the plague, and distinguished the pneumonic from the bubonic form. They also added the concept of contagiousness as a result of contact with the infected.

Measures of isolating the sick affected by epidemic diseases originate from antiquity, namely from Talmudic medicine. The Hebrews established elaborate legislation and procedures for the isolation of lepers by expelling them from the settlements of the healthy population. When leprosy appeared in Europe in the Middle Ages, Europeans applied similar measures.

After the first outbreaks of plague in 1348, governments in some cities legislated measures according to the classical theories. They tried to clean the putrefying air by setting fires with sweet-smelling herbs. They ordered the sprinkling of houses with vinegar and rose water and enforced more rigorous measures of cleanliness, such as the removal of decaying animals and of human wastes or anything else that caused bad odour. These measures helped in improving the general sanitary conditions in the cities, but they did little for the prevention of plague epidemics. Other governments tried to isolate the sick from the healthy on the basis of contagion and, as plague recurred , these measures became more sophisticated and more meaningful.

The ensuing chapter will focus on the response of the Ragusan government to the plague, and the role played by the medical profession and the Church.

NOTES TO CHAPTER III

*The inscription found on the common grave in the claustrum of the Franciscan (Minorite) brothers in Dubrovnik.

[1]C. Cipolla, Public Health and the Medical Profession in the Renaissance (Cambridge, 1976), p. 11.

[2]The bacillus was discovered by Alexander Yersin in Hong Kong in 1894.

[3]In Ragusan and European 14th century sources the terms "prima, secunda or tertia mortalitas," "pestilencia" or simply "infirmitas" were used. The term "Great Pestilence" or "plague" is closer to extant sources and will be used to denote epidemics of the bubonic form during the 14th and 15th centuries. In the course of time the terms have multiplied, especially in Latin: pestis, pestilentia, febris pestilentialis, contagium pestilentiale, morbus pestiferum; In Italian: peste, peste bubonica, peste orientale, pestilenza, contagio, moria; In English: pest, pestilence, plague; In German: Pest, Pestilenz, Menschen-Pest; In Spanish: pest, pestilencia, quoted in A.A. Frari, Della peste e della pubblica amministrazione sanitaria (Venezia, 1840), p. 41; In Croatian or Serbian: kuga, čuma, morija, quoted in P. Skok, Etimologijski rječnik hrvatskog ili srpskog jezika (Zagreb, 1972), vol. 2, p. 222. The term "Black death" was not used by contemporaries. It appeared for the first time in the 19th century literature.

[4]R. Jorge, "Les anciennes épidémies de peste en Europe comparées aux épidémies modernes," 9th International Congress for the History of Medicine (Bucharest, 1932), pp. 361-375; E. Rodenwaldt, Pest in Venedig 1575-1577, Ein Beitrag zur Frage der Infektkette bei den Pestepidemien West-Europas (Heidelberg, 1953), p. 222.

[5]R. Pollitzer, La peste (Geneva, 1954), p. 401; J.-N. Biraben, Les hommes et la peste en France et dans les pays européens et mediterranéens (Paris, 1975), p. 334 (hereafter Biraben, La peste); J.-N. Biraben, "Current Medical and Epidemiological Views on Plague" in The Plague Reconsidered; A New Look at its Origins and Effects in 16th and 17th Century England (Matlock, 1977), p. 30, (hereafter Plague Reconsidered).

[6]Biraben, in Plague Reconsidered, p. 29; L. Bradley, "Some Medical Aspects of Plague" in Plague Reconsidered, pp. 11-24; C. Morris, "Plague in Britain" in Plague Reconsidered, pp. 37-48. J.F.D. Shrewsbury, A History of Bubonic Plague in the British Isles (Cambridge, 1970); see also L.F. Hirst, The Conquest of Plague (Oxford, 1953); P. Ziegler, The Black Death (London, 1969); M. Dols, The Black Death in the Middle East, Ph. D. thesis, Princeton University, 1971 (Ann Arbor, 1971).

[7]J.M. Eager, "The Early History of Quarantine," Yellow Fever Institute, Bulletin, no. 12 (Washington, 1903), p. 8; Hirst, p. 35-36. G.E.R. Lloyd ed., Hippocratic Writings (New York, 1950), p. 148-149.

[8]C.-E.A. Winslow, The Conquest of Epidemic Disease (Princeton, 1943), p. 72.

[9]O. Temkin, Galenism. Rise and Decline of Medical Philosophy (Ithaca, 1973), p. 124.

[10]Avicenna, Canon, p. 806; Lib. IV, Fen. T, Doct. IV, Cap. 1. quoted in A.M. Campbell, The Black Death and Men of Learning (New York, 1931), p. 44.

[11]C.-E.A. Winslow and M.L. Duran-Reynals, "Jacme d'Agramont and the First of the Plague Tractates," Bulletin of the History of Medicine, vol. 22 (1948) pp. 747-765. See also "Texts and Documents, Regiment de Preservacio a Epidimia o Pestilencia e Mortaldats. Epistola de Maestre Jacme d'Agramont ... de Leyda, 1348," translated by M.L. Duran-Reynals and C.-E.A. Winslow, Bulletin of the History of Medicine, vol. 21 (1949), pp. 57-89.

[12]A. Campbell, p. 12.

[13]A. Campbell, p. 39-47.

[14]These first 4 tractates or treatises were written during 1348, another 77 before 1400, and the rest later. A. Campbell analyzed the earliest 16, all dating from the middle of the fourteenth century. K. Sudhoff lists a total of 281 plague treatises, which he examined in a number of articles in the Archiv für Geschichte derMedizin, vols. 4-17 (1910-1925). These tractates, which are scanty, are valuable contributions to the medical intellectual history of the times.

[15]Quoted in Campbell, p. 3.

[16]Quoted in Ziegler, p. 23.

CHAPTER IV

PUBLIC HEALTH MEASURES IN THE CONTROL OF PLAGUE

"Fuge cito, longe et
tarde revertere."*

Run fast and far away
and come back late.

In October 1347, Genoese galleys returning from the Black Sea brought the first plague infection to Messina, Sicily.[1] The same galleys carried it to their mother-city and other Mediterranean ports. By the middle of December plague had devastated Split, depopulated Zadar and Šibenik, and shortly afterwards, it appeared in Venice. During 1348, it followed the busiest communication routes and spread into the interior of Western Europe.[2]

In December 1347, the malady was first recorded on the island of Šipan, a Ragusan territory. The government acted quickly with all the human and financial resources at its disposal. It sent physicians and medicines "and other medicaments useful in such epidemics."[3] It also ordered a procession to be held and litanies to be chanted to alleviate what was considered to be the Divine Judgement. At that time, no one had yet contracted the disease in Dubrovnik itself. It is interesting to note that certain members of the Great Council proposed to ban the sick of Šipan from entering Dubrovnik. This measure of segregation was rejected at the Council's session on January 19, 1348 — 55 members voted against the ban, while 30 gave their consent.[4]

At least an attempt was made at this early stage to apply some sanitary measure which would prevent the infected from entering the city. As mentioned before, the concept of isolation in epidemic diseases such as leprosy was not alien to Europeans.[5] The first information about the existence of lepers on the territory of Dubrovnik originates from the Dubrovnik Statute of 1272.[6] In 1306, the lepers were removed further north from the city, and were settled near the church of St. Michael. However, leprosy was not a major problem in Dubrovnik because the lepers were never very numerous. The Ragusans cared for them and treated them fairly well. From their treatment of lepers, the Ragusans derived their basic notions of care, confinement and disposition of those affected by epidemic diseases.

The plague bacilli, hidden from the naked eye in grain, wool and other goods from the Levant, unloaded from Ragusan ships, disrupted the city's activities and had an impact on every aspect of its life. When Dubrovnik experienced its first outbreak of the Great Pestilence, its maritime and caravan trade had already brought remarkable wealth to its citizens. At the same time, Dubrovnik was on its carefully paved way to freedom from Venetian supremacy.[7]

In the book of wills (Testamenta), there is a document, written by an anonymous eyewitness, which is of great importance and merits translating and quoting in full:

> In the name of Almighty God.... in the year of our Lord 1348 ... Our Lord God sent horrible

> judgement, unheard of in the whole world, on Christians and pagans alike, a mortality of men and more of women, an infirmity incredible and incurable, that caused spitting of blood from the throat and swellings on different parts of the body, in such a manner that one caught from the other, that son fled from his father, and more often a father from his son; thus all the art of Apocrates, galeno and avizena had not helped at all, because neither arts nor science proved of any use against the Divine Judgement ..This mortality commenced in Ragusa on the fifteenth day of December and lasted for six months during which 120 or more persons died each day. During the same period, 110 nobles of the Councils died and other persons, men and women....

The tone of this document may be considered to reflect the notions and opinions of Ragusans in general about the disease and the events that followed it during the very first year of plague. Ragusans recognized empirically the nature of plague in its pneumonic and bubonic forms, and were, above all, aware of its extreme contagiousness. They seemed to know that medical doctrine was useless. This contention was probably strengthened by the fact that all the physicians and surgeons present in Dubrovnik in 1348 died during the epidemic. High mortality was the foremost problem. According to Razzi, aproximately 7000 ordinary people (popolo minuto), 300 commoner merchants (populani) and 173 nobles (nobili) died.[9] Other sources indicate that 110 priests also perished.[10] Since we know that before the epidemic there were 300 Great Council members, the 110 figure represents more than one third of its total number. In the same year the Great Council passed a law to the effect that all young male nobles were to be accepted as members of the Great Council upon reaching 18 instead of 20 years

of age, as was previously decreed.[11] This extraordinary legislation aimed at normalizing the administration of the city. In order to attract artisans of all kinds, they brought in regulations relieving them of all taxes except for customs duties, for a period of five years.[12] Besides placating the "Divine Judgement" with special processions and prayers, large sums of money (40,000 ducats) were collected to build the votive church of their patron saint St. Vlaho (St. Blasius).[13]

All these measures which dealt with social, economic and psychological effects of the Great Pestilence were not essentially sanitary in character or purpose. The first sanitary measures which dealt with the prevention of plague were established by the autocratic family of the Visconti rulers in Milan. Milan, being an inland city, had a better chance of controlling the progression of the epidemic than the ports where the epidemic could flare up instantly with the arrival of infected ships.

In 1374, Bernabo Visconti ordered the mayor of Reggio Emilia, a town on Milan's territory, to expell from the city persons examined by the priests and diagnosed as affected by plague. They were to be expelled until they died or recovered. Their possessions were to be donated to the Church. Persons who had been in contact with the sick, the so called "contacts", were to be sent to the "recovery houses" for ten days.

According to this ordinance of 1374, priests, and not physicians, were to deal with the plague. The priests were to examine the infected and if, in their opinion, the examined had contracted plague, they were to be expelled

from the city without any concern for their well-being. These measures are reminiscent of the treatment reserved for the lepers in Talmudic law. The lack of concern for the plague sufferers and the harsh methods applied to eradicate them speedily from their environment, reflect the overwhelming fear of legislators and citizens in general. It also shows how helpless the medical profession felt in dealing with the plague epidemic. However, temporary isolation of the persons who came into contact with the infected, is a new measure. It is interesting to note that the legislator was not far away from what is, in modern epidemiology, called incubation period. For plague, this period is one to six days. In the isolation of the suspected contacts from the healthy, one can trace the rudimentary elements which later lead to the development of the quarantine. Palmer claims that it is not likely that the members of the Ragusan Council were almost immediately informed about the measures Visconti had tried in Milan.[14] Rather, the Ragusans tried, on the basis of their experience with the plague which was closely connected with shipping, to independently devise a preventive system to deal with the same scourge. After a relative period of recuperation and revitalization, the epidemics recurred periodically between 1348-1374. Judging by the number of the testaments preserved in the Dubrovnik Archives, the Great Pestilence of 1348 and the plague that ravaged in 1363, seem to have been of the highest intensity.[15] It is estimated that 25,000 Ragusans perished in these epidemics. The Councils devised various measures to attract immigrants from the neighbouring regions in order to repopulate the Republic, and at the same time, they had to import large quantities of grain from Sicily, Egypt and Syria to be able to feed them. Since plague had become endemic in the Levantine countries at that time, it was being reintroduced into the port of Dubrovnik

Venens de locis pestiferis no intret ragusium uel distrectum C. 49

Eodem anno die xxviii iulii in consilio maiori congregato ut est moris in quo interfuerint consiliarii xlvii capta et firmata fuit per xxxviii ipsos in nostrates qui aduenerint uenientes de locis pestiferis no recipiant in ragusium nec ad eius distrectum nisi per vnum mensem ad peregrinum se in mercatum seu in ciuitate uenerit per unum mensem

Item quod insulanos xlviii eiusdem consilii capta fuit in nulla persona de ragusio uel eius distrectu audeat uel presumat ire ad illos qui uenerint de locis pestiferis et stabit in mercatum uel ciuitate uenerit si per xl stando ibid per unum mensem et illi qui poterunt illis de victualibus seu aliis necessariis no possint ire ad illos sine licentia officialium ad hoc ordinandorum ut ordine adhuc officialibus illis dando si de pene stando ibid per unum mensem

Item quod insulanos predictum eisdem consilii capta fuit et firmata quod non obstante predicta seu aliqua predicta solite debent de pena vnius quinquaginta et nichilominus teneant predicta obseruare

Et una nisile et zuppane et calamota de post ragusium hoc ordine C. 50

Anno dni a natiuitate mcclxxvii octuagesimo septimo octauo die vltimo iunii in magno consilio congregato ut solet in quo interfuerint consiliarii l. capta et firmata fuit per xlvi ipsos, de licentia nris insulanos de zuppana nisula et calamota qui ipsi in mare et deis nisil possint introduce ad ciuitate ragusii ad uendere qui tota diem unum debeant ostende nustrum nris et si fuerint forensia

from these destinations. Shipping and trade provided the only livelihood for the Ragusans and without them, their very existence was threatened. Shrewd Ragusan noble-merchants observed that the plague usually struck about thirty percent of the population while famine could annihilate all of them, if they stopped importing grain from the Levant, or put a halt to their maritime trade in general. The members of the Great Council realized that they had to devise a whole system of preventive measures which would slow down trade only partially, but which would successfully control the entrance into Dubrovnik of people and merchandise coming from plague-infested areas. On July 27, 1377, the Great Council promulgated the following ordinance:

> THOSE WHO COME FROM PLAGUE-INFESTED AREAS SHALL NOT ENTER RAGUSA (DUBROVNIK) OR ITS ENVIRONS
>
> On July 27 in the year 1377, the Great Council, with 47 members present, has decided by 34 votes that those who come from plague-infested areas will not be admitted to Ragusa (Dubrovnik) or its surroundings unless they previously spend a month on the island of Mrkan or in Cavtat for the purpose of disinfection.
>
> During the same session, 44 members have decided and confirmed that no one living in Ragusa or its surroundings will be allowed to approach those who come from plague-infested areas and are staying on Mrkan or in Cavtat; the punishment for not obeying this order being a one-month stay on Mrkan or in Cavtat for themselves. It was also ordered that those who would bring food or other necessities to those who are quarantined will not go there without an official permit, this permit being issued under the condition of staying there for one month. As well, 27 members have decided and confirmed that whoever should not abide by this order will be liable to pay a fine of fifty hyperpera. 16

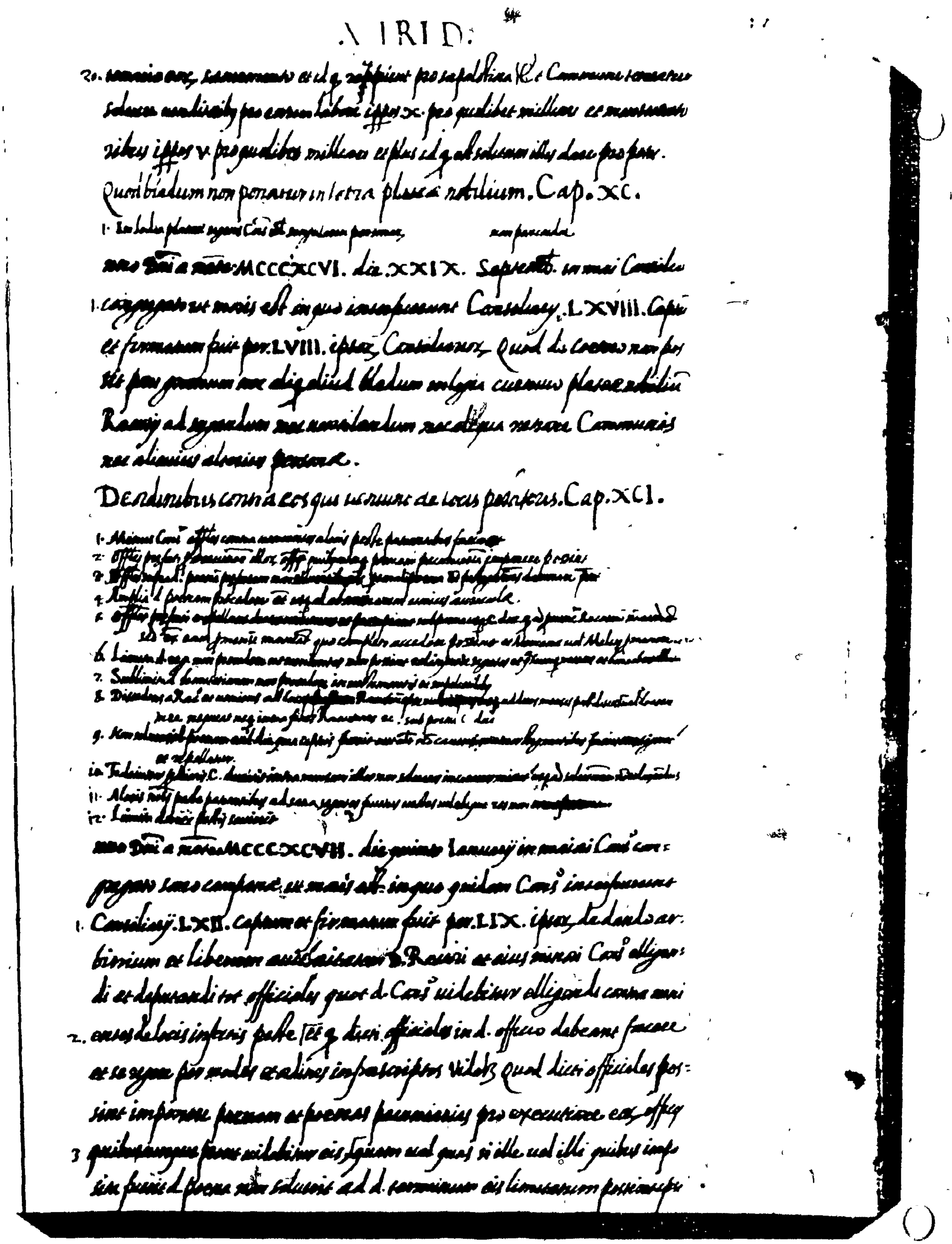
It is evident from this ordinance that Ragusan authorities decided to isolate the contacts, care for the isolated and prevent contact between them and the city. Until recently, it was generally accepted that the

ordinance of 1377 was devised to prevent the introduction of the disease by ships. While this is true, Grmek has lately drawn attention to the fact that the regulation simply mentions "those coming from plague-infested areas" without specifying whether by ship or in caravans from the hinterland. Grmek speculates that the regulation encompassed traffic both by land and sea.[17] The text of the regulation, which provides two places of isolation, lends support to his idea. Grmek believes that the islet of Mrkan was set aside for those coming by sea and, Cavtat, situated on the coast was reserved for those coming by surface routes. In 1377, plague had not yet spread into the interior, but it seems that the Ragusans foresaw that it might happen in the future. It actually spread into the Balkans in the middle of the 15th century and remained endemic for 300 years. Campbell pointed out that in June 1377, Ragusa issued the first quarantine regulation which was actually a trentina. Neither term was used in the 14th and 15th centuries. The term quarantine was coined by modern historians because the original thirty-day period was later extended to 40 days.

The truth about the establishment of the quarantine in Dubrovnik took a long time to be discovered because of omissions in the medico-historical literature of the 19th century. Even though documents in the Venetian Archives did not support it, the role of Venice as a forerunner in the plague prevention was systematically exaggerated. In 1840, Frari, a Venetian physician, published a history of plague control. This otherwise well-documented work is not supported by the archival material of the second half of the 14th century. Frari counted six deadly visitations of plague in Venice between 1348 and the end of the century. He did not mention anywhere

the possibility of closing the port of Venice, nor is there any other attempt at protection from the epidemic in 1374.[18] Frari also pointed out that during the same period Venice continued being the almost exclusive importer of merchandise from the Levant which was the main source of its wealth and prosperity. Consequently, it could not abandon these markets and was forced to devise necessary measures of temporary isolation of infected people and merchandise. In 1403, the Venetian government ordered that the islet of St. Agostino with the church and monastery of Santa Maria di Nazareth should become the place of isolation for the infected who lived on Venetian territory. In fact, it was only in 1423 that Venice definitely established a permanent plague hospital or lazaretto on the island of St. Agostino. Neither did Renzi, writing in 1845, mention any organized attempt by Venice to combat plague before 1403, the year when the Venetians started building the lazaretto on the islet of St. Agpstino.[19] Lechner, writing in 1884, and Gelchich, in 1892, included the text of the Ragusan quarantine ordinance of 1377 in their publications which meant that its existence could no longer be overlooked.[20,21] In 1908, Sticker, a well-known plague historian simply noted that in 1374, Venice undertook strict measures against the introduction of plague by ships, men and merchandise. He used Frari as a source but there is nothing in Frari's work about the Venetian regulations of 1374. In the second part of his book, Sticker mentioned in passing that the Ragusan ordinance of 1377 represented a step closer to the establishment of quarantine, which, according to him, took place in Marseilles in 1383.[22] Medical historians such as Neuburger, Eager, Garrison, Castiglioni and others accepted Sticker's interpretation and chronology.[23] Some noted Yugoslav historians namely

Jeremić, Tadić, Bazala and Krekić did not question Sticker's views either whereas contemporary historians whose publications are based on archival documents from Venice do not mention any regulations issued by Venice in 1374 because there actually were none before 1400.[24] Stefanutti, writing in 1976, mentioned only the final stage of the establishment of the lazaretto in Venice in 1423.[25] Premuda stated, in 1976, that it is universally recognized that the small Republic of Dubrovnik decreed the first quarantine regulation in 1377.[26] He then acknowledged Venetian success in establishing the lazaretto, starting in 1403.[27] Mueller brought to light, in 1979, the full text of the ordinance "the election of three wise men concerning health" issued by the Venetian government in 1348. The three wise men were to examine every possible way of preserving health and avoiding corruption from the interior of the earth at the time of plague. The influence of the miasmatic theory in this ordinance is quite obvious. It probably helped in the enforcement of the previous regulations concerning the cleanliness of the city, but little else.[28] Palmer, writing in the same year, 1979, gave the Venetian ordinance of 1348 the same interpretation as Mueller.[29] He emphasized the importance of the introduction of quarantine in Dubrovnik in 1377, as well as attempts by Visconti to isolate Milan from the centers of plague in the years 1398-1400. According to Palmer, the developments in Dubrovnik and Milan had a direct influence on the activities of the Venetian government. In May 1400, the Venetian Senate issued an ordinance in which it discussed the Ragusan policy of closing its port to Venetian ships as long as plague was rampant in Venice. At that time Dubrovnik was attacked by plague while Venice remained in a state of health. Many Ragusan ships loaded with refugees tried to find shelter on Venetian territory but Venice prudently


VIRID:

[illegible]

Quod bladum non portetur in terra placea nobilium. Cap. XC.

[illegible]

anno Dni a nato MCCCXCVI. die XXIX. Septembris in maiori Consilio

[illegible] Consiliarij. LXVIII. Capitum et firmatum fuit per LVIII. ipsorum Consiliariorum [illegible]

[illegible]

De ordinibus contra eos qui venerint de locis pestiferis. Cap. XCI.

[illegible]

anno Dni a nato MCCCXCVII. die quinto Januarij in maiori Consilio congregato sono campane ut moris est in quo quidem Consilio interfuerunt

1\. Consiliarij. LXII. captum et firmatum fuit per LIX. ipsorum de dando arbitrium et libertatem [illegible] ac eius minori Consilio eligendi et deputandi tot officiales quot d. Consilio videbitur eligendi contra omnes

2\. [illegible] officiales in d. officio debeant facere [illegible] Quod dicti officiales possint imponere penam et penas pecuniarias pro executione eorum officij

3 [illegible]

Liber Viridis, cap. 91, fol. 99' of January 5, 1397, MS, Dubrovnik Archives. (later copy, n.d.)

refused to let them in. The Venetian ordinance of 1400 represents the first attempt in Venice to prevent the spreading of epidemics. Palmer stated further that it took Venice another quarter of a century to adopt the public health measures established in Dubrovnik and Milan.[30] Finally, special tribute should be paid to Grmek, who has been examining Ragusan quarantine regulations for years and, whose latest essay on this subject dispelled previous misconceptions in medico-historical literature.[31]

After the establishment of the quarantine in 1377, the Ragusan government continued issuing other ordinances which were meant to complement the original legislation. In 1397, the old monastery on the island of Mljet was converted into a lazaretto for the quarantined. Grmek speculates that the lazaretto on Mljet could have been the first of its kind ever.[32] In 1429, the Senate decided to build another lazaretto on the island of Supetar.

It is possible that the measures of strict isolation were not carried out to the letter because of, on the one hand, inexperience and, on the other, reluctance of those responsible to implement them fully. Therefore, it does not come as a surprise that in 1397 the Great Council proclaimed additional ordinances against those who were coming from the plague-infested areas (De ordinibus contra eos qui veniunt de locis pestiferis). According to these ordinances the court and the Minor Council were entitled to elect special officials called officiales cazamortuorum, who would, if necessary, punish those who refused to comply with the quarantine regulations. The penalty for escaping isolation was a fine of 50 to 100 hyperpera. The punishment for not paying the fine was beating, branding with a red-hot iron or having one ear cut off. All those coming from areas suspected of plague

had to stay in isolation under medical supervision either on the island of Mrkan or on Mljet. Cargo could not be unloaded from ships before it was carefully examined. However, persons coming from the infected areas were still allowed to import grain and new textiles. Clothing that had been worn, bedding and other items in daily use had to be taken to the places of isolation for special cleaning. On June 28 of the same year, 1397, the Great Council decreed another law, this time prohibiting traffic of any goods including grain, fruit and clothing from an area on Ragusan territory already infected by plague. Again, penalties for not obeying these laws were stated.[33] There is also a short ordinance issued by the Great Council on January 15, 1426 by which the office of the public health officials (officiales cazamortuorum), was confirmed. It stipulated that they should not be members of the Minor Council or of the civil court of justice, probably because of conflict of interest.[34] The elected public health officials were always of noble rank and, once chosen, could not refuse appointment to this duty. They were answerable directly to the court and the Senate. Their prerogatives were wide-ranging. They could, without any court procedures, impose severe pecuniary or corporal punishment. Their duty was to control the traffic of people and goods on land and sea and prevent the unwanted from entering the city and its environs. Furthermore, they had to check the progression of epidemics and rapidly inform the Minor Council about this matter.

In 1466, the city and the islands of Lokrum, Šipan and Koločep suffered another plague epidemic. On March 26 of the same year, the Senate responded by bringing in another regulation which is here translated in full:

THE INFECTED SHOULD NOT BE SENT TO LOKRUM

On March 26, 1466, the Senate first decided to give to the discretion of the cazamorti the right to burn infected things as they saw fit and if there was an abundance of these things, it should be determined up to which amount and at whose expense the said things should be burnt. This was decided and passed... 28 to 6.

The said cazamorti are to have the responsibility of deciding which infected things of the infected families should be burnt. The value of these things should not exceed 10 hyperpera. Clothing should be washed at the commune's expense. This proposal was not passed.

Secondly, the said cazamorti are to have the responsibility of deciding which infected materials should be burnt. The value of these materials should not exceed 5 hyperpera. Clothing should be washed at the commune's expense. It was decided and passed... 19 to 5.

The cazamorti are to send the infected and the contacts to the island of Supetar and under no circumstances to Lokrum, and even those who are presently at Lokrum should be sent to Supetar. It was decided and passed... ... 33 to 1. 35

This regulation gives further powers to health officials (cazamorti) and reveals the government's awareness that not only the sick and the contacts but also their belongings represent a source of infection which should be eradicated. It is interesting to note that it was first proposed that the value of personal belongings designated for burning be fixed at 10 hyperpera. This was the approximate amount which could be earned by a labourer in four months and was probably considered to represent too high a financial loss for poorer families.[36] Although extremely concerned with the new outbreak of plague, the government refused to put any further economic pressure on the community whose financial situation was already strained by recurring epidemics, and decided to compromise on the money issue. The majority of the Senate members voted against this

proposal and determined that the value of the things which the cazamorti were allowed to burn had to be lowered to 5 hyperpera. It is quite clear that economic and social considerations prevailed in this decision. According to the last paragraph of the ordinance of 1466, all the infected and the contacts were to be sent to Supetar and not to Lokrum where a lazaretto had previously been organized. As well, those already on the island of Lokrum were to be moved to Supetar. The reason for this move must have been political. At that time the Turks had occupied Bosnia and moved uncomfortably close to Ragusan borders. The Ragusans were probably afraid to leave Lokrum, so close to the city, undefended in case of Turkish invasion. The regulation of 1466 was the last extant document about the activities of public health officials in the 15th century.

In 1377, Christophorus de Benevento, a reputable physician, was practising medicine in Dubrovnik. It is possible that, in his role as medical counselor to the Great Council, he took part in the deliberations concerning the ordinance of 1377. Also in the city in 1377, were Johannes de Tragurio and Johannes de Papia. However, there is no mention in the documents of their participation in the public health decisions of the government. When the contagiousness of the plague became too obvious, the physicians sometimes allowed themselves to depart from the classical theories. In 1416, Jacobus de Gondovaldis, a physician, persuaded the Great Council that medical treatment is of no avail in the case of plague and suggested that it should concentrate its efforts on the isolation of the infected. In 1430, he warned the Councils that all personal belongings of the plague sufferers who died should be destroyed. After his intervention the Ragusans started building a

lazaretto at Dance which became fully operational in the second half of the 15th century.[37]

The 14th and 15th century documents do not reveal any conflict between the Church and the government concerning the application of preventive public health measures. The clergy had to comply with them like any other citizen. The members of the Councils were fundamentally religious people and, together with the Church, they tried to alleviate what was considered to be God's wrath, by prayers, repentance and processions. When plague devastated Dubrovnik in 1348, the city collected 40,000 ducats for a new church. Public health measures, though, were clearly initiated by the government but the Church gave them full support.

NOTES TO CHAPTER IV

*Popular proverb related to plague occurrences. Quoted in V. Bazala, "Calendarium Pestis (I)," Acta Historica Medicinae, Pharmaciae, Veterinae, vol. 1 (1962) pp. 55-65.

[1]Ziegler, p. 16.

[2]For detailed spread of the Great Pestilence throughout Europe see Biraben, La peste, vol. 1, pp. 71-85.

[3]Jeremić - Tadić, Prilozi, vol. 1, p. 66.

[4]M.D. Grmek, "Le concept d'infection dans l'antiquité et au Moyen Age, les anciennes mesures sociales contre les maladies contagieuses et la fondation de la première quarantaine a Dubrovnik (1377)" in Rad, vol. 384, pp. 38-39 (hereafter Grmek, "Le concept").

[5]See above, chap. III, p. 63.

[6]See above, chap. I, p. 28.

[7]See above, chap. I, pp. 21-22.

[8]Colo nome dell'onipotente Dio, fiolo e spirito santo, e de madona santa Maria mare del fiol di Dio - in ano Dni M.CCC.XLVIII. Lo nostro signor Dio mando giudizio orbile, et inaodite in lo universo mundo, si sovra li christiani, come sovra li pagani, zoe mortalidade de homeni et plu de femene, de infermita inaodita et incurabile, de getar sangue per la guola, e de nassenze in diverse parti del corpo, per tal modo che uno se impilava del'altro intanto che fiolo scapava dal pare, et ancora plu lo pare dal fiolo, si che tuta l'arte d'Apocrate galeno, et avizena non serviva niente, pero che non vale arte ne scienzia contro lo divino consiglio; la quale mortalidade comenzo in Ragusi nel predeto milesimo die XV de dezembrio e duro VI mesi de longo intanto che dal die

moriva persone CXX e pliu. In lo qual tempo mori gentilhuomini de conseio in numero CX, et altre persone di ogni conditione maschuli e femene, moriron intro lo ... Quoted in G. Gelchich, Istituzioni Maritime e Sanitariae della Repubblica di Ragusa (Trieste, 1892), p. 37.

[9]"Dell' anno 1348 fù in Raugia una grandissima pestilenzia ... Onde morirono de nobili 173 persone. Dei populani circa 300. E del popolo minuto e della plebe circa sette mila. Fu fatto dal publico voto di fabricare una chiesa di S. Biagio ... con i speza di ducati quaranta mila ...." Quoted in S. Razzi, La storia di Ravgia (Sala Bolognese, 1980), reprint of 1595, p. 42.

[10]Jeremić - Tadić, vol. 2, p. 67.

[11]"... quod sicut actenus erat in statuto, quod habens XX annos possit debeat venire in Maius consilium et non minus, quod nunc et deinceps propter carentiam hominum deficiencium in Ragusio propter pestilenciam mortalitatis existentis, annorum XVIII possit et teneatur venire ad Maius consilium." MR vol. 2, p. 25.

[12]D. Dinić, "Uticaj kuge od 1348. na privredu Dubrovnika" Godišnjak Filozofskog Fakulteta u Novom Sadu, vol. 5, p. 13.

[13]Jeremić - Tadić, vol. 1, p. 60; Razzi, p. 42.

[14]R. Palmer, "The Control of Plague in Venice and Northern Italy, 1348-1600," Ph. D. thesis, University of Kent at Canterbury, 1978, p. 31.

[15]

The year of plague:	The number of testaments:
1348	292
1363	293
1371	66
1373	11
1374	15

[16]Liber Viridis, cap. 49, fol. 78. Concerning its transliterated text in Latin see app. B, pp. 93-94.

[17]Grmek, p. 51.

[18]Frari, pp. XLII-XLIII.

[19]S. De Renzi, vol. 2, pp. 395-396.

[20]K. Lechner, Das grosse Sterben in Deutschland 1348 bis 1351 (Walluf bei Wiesbaden, 1974), reprint of 1884, pp. 67-68.

[21]Gelchich, p. 37.

[22]G. Sticker, Abhandlungen aus der Seuchengeschichte und Seuchenlehre (Giessen, 1908) Pt. 1, pp. 78-79 and Pt. 2, p. 295.

[23]F.H. Garrison, An Introduction to the History of Medicine (Philadelphia, 1914), p. 128; J.M. Eager, p. 17; A. Castiglioni, Storia della Medicine (Milano, 1948), p. 309.

[24]Jeremić - Tadić, vol. 1, p. 104.

[25]U. Stefanutti, Momenti Storici del Veneto nel Progresso della Medicina e Chirurgia (Albo dei Medici, 1976), p. IX.

[26]L. Premuda, "Storia della Quarantena nei Porti Italiani" Acta Medicae Historiae Patavinae, vol. 23 (1976-1977), pp. 46-47.

[27]Premuda, p. 48.

[28]R.C. Mueller, "Catalogo dalla Reazione alla Prevenzione" in Venezia e la Peste, ed. Comune di Venezia (Venezia, 1980), p. 77.

[29]See app. B, p. 94.

[30]R.J. Palmer, "L'Azione della Repubblica di Venezia nel controllo della peste. Lo sviluppo di alcune norme di igiene pubblica," in Venezia e la Peste, ed. Comune di Venezia (Venezia, 1980), p. 103.

[31]Grmek, pp. 9-55.

[32]"Ce fut probablement le tout premier lazaret au monde." Grmek, p. 52.

[33]DE ORDINIBUS CONTRA EOS QUI VENIUNT DE LOCIS PESTIFERIS ANNO 1397 FACTIS

Anno* Domini a nativitate 1397 die quinto januarii in Maiori Consilio congregato sono campane, ut moris est, in quo quidem Consilio interfuerunt consiliarii LXII, captum et firmatum fuit per LIX ipsorum de dando arbitrium et liberam auctoritatem domino Rectori et eius Minori Consilio eligendi et deputandi tot officiales, quot dicto Consilio videbitur eligendi contra venientes de locis infectis peste. Et quod dicti officiales in dicto officio debeant facere et se regere per modos et ordines infrascriptos, videlicet, quod ipsi officiales possint imponere penam et penas pecuniarias pro executione eorum officii quibuscumque prout eis videbitur. Quam vel quas illi quibus imposita fuerit dicta pena non solverit ad dictum terminum eis limitatum, possint ipsi officiales predictos contrafacientes non solventes dictam penam punire in personam faciendo ipsos fustigare, aut brustulare, vel similem penam illis inferendo usque ad incisionem unius aurium.

Item, quod dicti officiales debeant licentiare quoscunque venientes de locis pestiferis de Ragusio et districtu, et eis committere sub pena qua eis videbitur usque ad quantitatem ducatorum centum, quod stent extra Ragusium et districtum per spatium unius mensis a die quo licentiabitur non appropinquando Civitati Ragusii a Malonto citra et versus ponentem non se ponendo in aliquo loco districtus Ragusii includendo Melitam in dicto districtu. Possint tamen predicti venientes de dictis locis pestiferis poni facere in Civitate blada et quascumque alias mercantias et bona, quae et quas secum portarent vel portare facerent. Salvo quam(!) vestimenta a orso, lectos et massaritias usatas eis non intrantibus cum personis intra catenam portus Ragusii, verum tamen dicti venientes de locis pestiferis per dictum tempus unius mensis, quod debent stare extra Ragusium et districtum, si noluerint possint stare Merchane vel in monasterio Melite non obstantibus confinibus superius contentis et expressis.

Eodem anno die XXVIII junii in Maiori Consilio congregato, ut moris est sono compane, in quo quidem Consilio interfuerunt Consiliarii LXII captum et firmatum fuit per LVIII ipsorum consiliariorum, quod de locis nostri districtus, in quibus est vel erit pestis, non possint portari ad nostra loca sana aliqua blada, nec fructus, nec vestes, nec alique alie res cuiuscumque generis sint, donec non erit bene et clare

cessata dicta pestis in ipsis locis sub pena ordinata. Liber viridis, cap. 91, 99'-100'.

[34]ORDO PRO ELECTIONE OFFICIALIUM CAZAMORTUORUM

Anno Nativitatis eiusdem millio CCCCXXVI Indicione quarta, die XV mensis januarii. In maiori et Generali Consilio Civitatis Ragusii, in quo interfuerunt consiliarii LXXX, captum fuit et firmatum per LVII ex ipsis consiliariis de eligendo in Consilio Maiori per angariam officiales cazamortuorum. Ita tamen quod ad dictum officium elligi non debeant aliqui de Consilio Minori nec ex Judicibus Curie Civilium. Liber viridis, cap. 205.

[35]1466.

A La Croma non mittendo Infecti

26. III, MCCCCLXVI. Prima pars est de dando libertate cazamortis quod possint facere ardere res infectas quae eis videbuntur et si haec pars copietur limitabitur a quanta quantitate infra debent dari dicta libertas et cuius expensis debeant facere conburere dictas res. Captum et firmatum fuit ... 28 X 6.

*Prima pars est quod dicti Cazamorti habeant libertatem faciendi ardere de quaqunque familia infecta res infectas quae eis videbuntur ab yperperis decem infra et vestum faceant lavare et hoc fiat expensis communis. Captum et firmatum non fuit.

Secunda pars est quod habeant dictam libertatem faciendi ardere infectas res ab yperperis quinque infra et vestum faciendi lavare, et hoc totum fiat ad expensis communis. Captum et firmatum fuit ... 19 X 15.

Prima pars est (Cazamorti), quod Cazamorti debeant mittere infectos et infectendos ad Sanctum Petrum et non ad La Cromam aliquo modo et qui sunt in presentiarum ad La Cromam ... debeant mitti ad Sanctum Petrum. Captum ed firmatum fuit ... omnes contra unum. Consilium Rogatorum, Vol. 19, fol. 27 (MS).

*This paragraph had not been accepted, and had been crossed out in the manuscript.

[36]Manken, p. 102.

[37]V. Bazala, Pregled povijesti zdravstvene kulture dubrovačke republike (Zagreb, 1972), p. 67.

CONCLUSION

In this thesis the laws and regulations concerning public health in Dubrovnik from the 13th to the 15th century have been collected and analyzed. Most were translated into English from medieval Latin and Italian. The laws and regulations examined can be divided into three groups:

1) the pre-plague regulations dealing with general sanitary measures in the 13th century

2) the regulations concerning the presence of physicians and surgeons

3) the regulations after 1348 directly related to the recurring plague epidemics.

The third group is definitely the most important and the most progressive. The regulation of 1377 requiring that all persons coming from areas suspected of plague be quarantined is considered to be the first attempt at controlling plague by isolation. In 1397, there were two regulations, one establishing the position of health officials for the policing of control measures and the other forbidding transport of grain from the infected areas on the Ragusan territory to the healthy ones. While other goods were identified as possible carriers of infection much earlier, grain was added to the list of culprits quite late. The regulation of 1466 has been transcribed, edited and translated from the manuscript in medieval Latin. This regulation, which has never before been analyzed,

recognizes that the personal belongings of those infected with plague could be a source of infection and should as such be eradicated. It entrusts the health officials, whose position was confirmed in 1426, with the duty of burning the belongings of the infected worth up to five hyperpera.

The public health measures of the Ragusan government have an administrative and social character and reflect a strictly pragmatic approach to the control of epidemics. The Ragusans noticed that plague could be transmitted by contact with the infected and took all means at their disposal to isolate the sick from the healthy. In Dubrovnik, as elsewhere, the medical profession contributed very little to the public health measures enacted by the government. It is well-known that there were several physicians and surgeons in the city at the time of the 1377 quarantine regulation, but there is no mention of their contribution as government consultants on medical matters. It is obvious that the physicians, adhering to contemporary medical theories, had trouble reconciling what they had learned with what they observed and could, therefore, not act.

An attempt has been made to clarify the chronology of quarantine in Dubrovnik in relation to the regulations in northern Italian cities. It has been unequivocally established that Dubrovnik was the first to have a complete preventive system of plague control. Its innovative role has been increasingly recognized in recent publications.

Further research should concentrate on the documents from the 16th century which abound in the Dubrovnik Archives. While the Liber Statutorum, the Liber Viridis and the Liber Croceus have been fairly extensively examined, other groups of documents have not received the same

attention. These studies could be enriched by parallel research in other Dalmatian cities.

APPENDIX A

Table of Physicians Who Served in Dubrovnik in the 14th and 15th Centuries**

Names of Physicians	Years Of Service
Marcus, medicus plagarum	1301-1311
Mertacha, medicus plagarum	1302-1312
Uguiccio de Padua	1322-1329
Christophorus de Benevento	1360-1398*
Johannes de Papia	1376-1415*
Gregorius de Verona	1383-1395*
Albertinus de Chamurata de Padua	1385-1397
Jacobus de Salgeriis de Padua	1402-1423*
Johannes da Ancona	1404-1412
Petrus de Chamurata	1407-1414
Bartolus de Squarcialupi de Plombino	1409-1414
	1419-1426
Thomasius de Papia	1409-1455*
Jacobus de Gondovaldis	1416-1437*
Johannes de Teolo, de Padua	1423-1438*
Christophorus de Padua	1436-1444*
Johannes Mathias de Feltro	1436-1454*
Angelus de Contis de Venetiis	1449-1460*
Petrus Reginus de Feltro	1452-1490*
Johannes Petrus de Verona	1461-1464*
Johannes Cladus	1466-1477
Hieremias de Utino	1467-1479*
Jacobus Catellanus de Barchinonia	1486-1505*
Antonius de Faventia, civis Bononiensis	1490-1516

* denotes that he died in Dubrovnik

**Data compiled from Jeremić-Tadić, vol. 2, pp. 7-43.

APPENDIX B

1380.

In nomine Domini amen.

Nuy Coan de Bona, retor de Ragusi, judici et conselieri dela dita terra, per autoritade del Maçor Conseyo: Chometemo a vuy Martolo de Çorçi, Michel de Babalio et Blaxio de Dersa, nobili et dileti çitadini nostri, che vuy debie eser syndigi et procuradori del nostro comun a çerchar de uno bon mediço in cirosia in Venesia. In prima debie çerchar se vuy pode aver al nostro salario maistro Gracioto o maistro Albertin da Mantoa a maistro Nicolo da Trivisio (cancellatum: E se vuy non podesi aver algun de quisti III, et vuy çerche de algun altro che sia bon et suffi-ciente). Et se in Venesia non podesi aver algun de quisti III, et vuy pone le sorte intro de vuy, qual debia andar fuora de Venesia a çerchat. Et quilo a chi tochara la sorte, debia andar in pena de perperi C. Et debia andar a çercar a Padoa. E se a Padoa non se podese aver, debia andar a Bologna ale spiese del nostro comun, perche semo conseiadi che se trovara a Bologna de boni medesi. Anchora chometemo et demo arbitrio, che se vuy pode aver algun de quili III, che son scriti et nomenadi de sovra, coe maistro Gracioto o maistro Nicolo da Trivisio, che vuy lo debie firmar per II anni cum salario de ducati IIC in ço, al meior che vuy pore, et cum condicion che quil medego che vuy tore sia tignudo de medegar tuti quili de Ragusi e del nostro destreto, e li religiosi e relegiose(!), et la fameia de misser l arçiveschevo e del nostro retor sença algun premio

Et chometemo che quilo a chi tochara la sorte ad andar a fora de Venesia, che infra di XV debiase partir de Venesia per andar a cerchar del dito medego, da puo che vuy avere recevudo questa chomision, se in Venesia non pore aver algun de quili III che son scriti de sovra. Et abia a mente, quilo che andara, persona che sia praticada in l arte. Lettere Levantine, vol. 2, p. 3, in F. Rački, ed., Monumenta Ragusina (Zagreb, 1879-1897), vol. 2, pp. 278-279 (hereafter MR). T. Smičiklas, Codex Diplomaticus Regni Croatiae, Dalmatiae et Slavoniae (Zagreb, 1904-), vol. 12, pp. 618-619. Quoted in J. Tadić, Pisma i uputstva dubrovačke republike, Litterae et commissiones Ragusiane (Beograd, 1935), p. 4.

1319.

"Die Martis, secundo mensis augusti. In Maiori Consilio ... captum fuit et deliberatum per duas partes et plures, quod magister Bonaventura, frater magistri Albertini, cirolugus de Venetiis elligetur et assumetur ad salarium communis Raugusini pro duobus annis incoandis prima die, qua applicuerit Ragustum, cum salario duodecim libr. in anno et sol. XX gross. in anno, pro una domo pro sua habitatione. Qui teneatur medicare dominum archiepiscopum et eius familiam, dominum comitem et eius familiam, cancellarium et eius familiam et omnes salariatos communis tam presentes, quam futuros, fratres minores et Predicatores et omnes religiosos et religiosas et omnes homines civitatis et districtus Rabgusii, omnibus sui expensis de unguentis, inplaustris, aqua et aliis necessariis circa artem cirogie.

Qui magister Bonaventura, in eodem Maiori Consilio dicta die

acceptavit dictum officium et salarium, et juravit ad sancta evangelia corporaliter tactis scripturis predicta omnia et singula inviolabiter observare, ac eciam promisit et se obligavit, et omnia sua bona presentia et futura eidem domino comiti recipienti et stipulanti nomine et vice communis Raugusini venire ad dictum officium per primam conduram que discedet de Venetiis vel saltem super galeam que hodie vadit Venetias sub pena D sol. gross. et pena soluta ... renuntians." MR, vol. 1, p. 90.

1377.

VENIENS DE LOCIS PESTIFERIS NON INTRET RAGUSIUM UEL DISTRICTUM

Eodem anno (1377) die XXVII Julii in consilio maiori congregato, ut est moris, in quo interfuerunt consiliarii XLVII, captum et firmatum fuit per XXXIIII ipsorum, quod tam nostrates quam aduene venientes de locis pestiferis non recipiantur in Ragusium nec ad eius districtum nisi steterint prius ad purgandum se in Mercana seu in Civitate Veteri per unam mensem.

Item per consiliarios XLIIII eiusdem consilii captum fuit, quod nulla persona de Ragusio vel suo districtu audeat vel presumat ire ad illos qui venient de locis pestiferis et stabunt in Merchana vel Civitate Veteri sub pena standi ibidem per unum mensem. Et illi qui portabunt illis de victualibus seu alliis necessariis non possint ire ad illos sine licentia officialium ad hoc ordinandorum cum ordine a dictis officialibus illis dando sub dicta pena standi ibidem per unum mensem.

Item per consiliarios XXVIIII eiusdem consilii captum fuit et firmatum, quod quicumque non obseruauerit predicta, seu aliquid predictorum, soluere debeat de pena ypperperos quinquaginta et nichilominus teneatur predicta obseruare. Liber Viridis, cap. 49, fol. 78. Quoted in V. Bazala, Pregled povijesti zdravstvene kulture Dubrovačke republike (Zagreb, 1972), p. 31.

1348.

ELEZIONE DI TRE SAVI ALLA SANITA 1348

Quia pro salute et conservatione hominum iam invocavimus et continue invocare debemus humiliter misericordiam et gratiam Dei et quod dignetur nobis gratiam boni consili ad conservationem sanitatis. Vadit pars quod eligantur tres sapientes, per ellectionem in Maiori Consilio, qui examinent diligenter super omni modo et via quod videretur eis, pro conservatione sanitatis et ad evitandum coruptionem in terra, et expediant se de suo consilio usque ad diem iovis proximam. Qua die post nonam vocetur consilium, ad quod possint ventre omnes officiales et iudices, et fiet sicut videbitur, et quilibet possit ponere partem et possint accipi de omni loco.

Non sinceri 2 De non 3 Omnes alii de parte

Sapientes Nicolaus Venerio
Marcus Quirino
Paulus Bellegno

(ASV, Maggior Consiglio, Spiritus, Reg. 17, c. 155 v; 30 marzo 1348) Quoted in Commune di Venezia ed., Venezia e La Peste 1348/1797 (Venezia, 1980), p. 363 (hereafter Venezia e La peste).

SELECTED BIBLIOGRAPHY

I. Primary Sources

A. Manuscript

In the preparation of this thesis the author has examined documents from the following collections:

Dubrovački Arhiv , Dubrovnik (DA):

Liber Viridis
Liber Croceus
Consilium Rogatorum
Divina Cancellariae
Debita Notariae
Reformationes.

B. Printed

Bogišić. V. and Jireček, C. eds. Liber Statutorum Civitatis Ragusii Compositus Anno 1272. Zagreb: Monumenta Historico Juridica Slavorum Meridionalium, 1904.

Constantini Porphyrogeniti. De Administrando Imperio. Bonn: 1898.

Čremošnik, G. Spisi Dubrovačke Kancelarije. In Monumenta Historica Ragusina. Zagreb: J.A.Z.U., 1952.

Dinić, M. ed. Acta Consiliorum Reipublicae Ragusinae. Beograd: S.A.N.U., 1951.

Jeremić, Risto and Tadić, Jorjo. Prilozi za istoriju zdravstvene kulture Dubrovnika. vol. 3. Beograd: Planeta, 1938.

Rački, F., ed. Monumenta Ragusina, 5 vols. Monumenta Spectantia Historiam Slavorum Meridionalium, vols 15-20, 1879-1897. Zagreb: Yugoslavenska Akademija Znanosti i Umjetnosti, 1868-1897.

Šundrica. Z. Prijevod sedme knjige dubrovačkog statuta. Dubrovnik: 1972.

II. Secondary Sources

Abramić, M. "Dubrovnik." In Enciklopedija Jugoslavije. Zagreb: Leksikrografski Zavod, 1958, vol. 3, p. 126-134.

Amundsen, D. "Medieval Canon Law on Medicine and Surgical Practice by the Clergy." Bulletin of the History of Medicine, vol. 52 (1978), pp. 22-44.

Bazala, V. "Calendarium Pestis (I)" Acta Historica Medicinae Pharmaciae Veterinae, vol. 1 (1962), pp. 51-61.

---------. "Il ruolo dei medici italiani sulle sponde dell'Adriatico di Levante." Pagine di storia della medicina, vol. 13 (1969), pp. 20-31.

---------. Pregled povijesti zdravstvene kulture dubrovačke republike. Zagreb: Dubrovački Horizonti, 1972.

Biegman, Nicolaas H. The Turco-Ragusan Relationship According to the Firmāns of Murād III (1575-1595) Extant in the State Archives of Dubrovnik. The Hague: Mouton, 1967.

Biraben, Jean-Noel. Les hommes et la peste en France et dans les pays européens et mediterranéens. 2 vols. Paris: Mouton, 1975-1976.

Campbell, Anna Montgomery. The Black Death and Men of Learning. New York: Columbia University Press, 1931.

Carmichael, Ann Gayton. Epidemic Diseases in Early Renaissance Florence. Ph. D. thesis, Duke University, 1978. Ann Arbor: University Microfilms International, 1978.

Carter, Francis W. "Balkan Exports through Dubrovnik, 1358-1500; a Geographical Analysis." Journal of Croatian Studies, vol. 9-10 (1968-1969), pp. 145-161.

----------. Dubrovnik (Ragusa): a Classic City-State. London: Seminar Press, 1972.

Castiglioni, A. Storia della medicina. Milano: Mondadori, 1948.

----------. A History of Medicine. New York: Albert Knopf, 1958.

Cipolla, C. Cristofano and the Plague: a Study in the History of Public Health in the Age of Galileo. London: Collins, 1973.

----------. Public Health and the Medical Profession in the Renaissance. Cambridge: Cambridge University Press, 1976.

De Diversis. Situs Aedificorum, Politiae et Laudabilium Consuetudinum Inclytae Civitatis Ragusii. V. Brunelli, ed. Zadar: Voditzka, 1882.

De Renzi, S. Storia della medicina Italiana. 5 vols. Napoli; Filiatore, 1845-1848.

Dinić, Dušanka. "Uticaj kuge od 1348 na privredu Dubrovnika." Godišnjak Filozofskog Fakulteta u Novom Sadu, vol. 5 (1960), pp. 1-33.

Dols, Michael Walters. The "Black Death" in the Middle East. Ph. D. thesis, Princeton University, 1971. Ann Arbor: University Microfilms, 1975.

Doviak, Ronald J. The University of Naples and the Study and Practice of Medicine in the Thirteenth and Fourteenth Centuries. Ph. D. thesis, City University of New York, 1974. Ann Arbor: University Microfilms, 1975.

Eager, J.M. "The Early History of Quarantine." Yellow Fever Institute, Bulletin, no. 12 (1903), pp. 3-27.

El Idrisi. Libro del re Ruggero. Arabic text published and annotated by M. Amari and C. Schiaparelli. Rome: 1883.

Frari, A.A. Della peste e della pubblica amministrazione sanitaria. Venezia: Francesco Andreola, 1840.

Ferri, R. "Zdravstveni propisi dalmatinskih statuta iz srednjeg vijeka." In Iz Hrvatske medicinske prošlosti. Zagreb: n.p., 1954.

Foretić, Vinko. "Dubrovački Arhiv u Srednjem vijeku." Anali, vol. 6-7 (1957-1959), pp. 315-336.

----------. "Dubrovnik." In Pomorska enciklopedija. Zagreb: Leksikografski Zavod, 1955, pp. 548-557.

----------. "Opće prilike u Dubrovniku od XIII do XV stoljeća." In Spomenica-650 Godišnjice Ljekarne Male Braće u Dubrovniku. Zagreb: Pliva, 1968, pp. 27-46.

----------. "Ugovor Dubrovnika sa srpskim županom." Zagreb: Rad J.A., 1951.

Garrison, Fielding H. An Introduction to the History of Medicine. Philadelphia: Saunders, 1914.

Grmek, M.D. "Ancient Slavic Medicine." Journal of the History of Medicine, vol. 8 (1953), pp. 18-40.

----------. "Le concept d'infection dans l'antiquite et au moyen âge, les anciennes mesures sociales contre les maladies contagieuses et la fondation de la premièrequarantaine a Dubrovnik (1377)" in Rad, vol. 384, 1980, pp. 9-54.

----------. Hrvatska Medicinska Bibliografija. 2 vols. Zagreb: J.A.Z.U., 1955.

Hatcher, John . Plague, Population and the English Economy 1348-1530. London: Economic History Society, 1977.

Hirst, L. Fabian. The Conquest of Plague: a Study of the Evolution of Epidemiology. Oxford: Clarendon Press, 1953.

Jeremić, Risto and Tadić, Jorjo. Prilozi za istoriju zdravstvene kulture Dubrovnika, 3 vols. Beograd: Planeta, 1938.

Jireček, C. and Radonić, J. Istorija Srba. Beograd: n.p., 1952.

Jorge, R. "Les anciennes épidemies de peste en Europe comparées aux épidemies modernes." 9th International Congress for the History of Medicine. Bucharest, 1932.

Karaman, Ljubo. Iskopine Sv. Stjepana u Dubrovniku. Dubrovnik: "Dubrovnik", 1930.

Klaić, Nada. Povijest Hrvata u ranom srednjem vijeku. Zagreb: Školska knjiga, 1971.

Kostrenčić, M. et al., eds. Codex Diplomaticus Regni Croatiae, Dalmatiae, Slavoniae. Zagreb: J.A.Z.U., 1925.

Krekić, Bariša. Dubrovnik in the 14th and 15th Centuries: A City between East and West. Norman: University of Oklahoma Press, 1972.

Kristeller, P.O. "The School of Salerno, its Development and its Contribution to the History of Learning." Bulletin of the History of Medicine, vol. 17 (1945), pp. 138-194.

Lechner, Karl. Das grosse Sterben in Deutschland 1348 bis 1351. Walluf bei Wiesbaden: Sandig, 1974. Reprint of 1884.

Lloyd, G.E.R., ed. Hippocratic Writings. New York: Penguin Books, 1950.

Lučić, J. "Povijest Dubrovnika od VII stoljeća do godine 1205." Anali, vol. 13-14 (1976), pp. 6-139.

Macan, T. Povijest hrvatskog naroda. Zagreb: Školska Knjiga, 1970.

Manken I. Dubrovački Patricijat u XIV Veku. Beograd : S.A.N.U., 1960.

Marović, I. "Arheološka istraživanja u okolici Dubrovnika." Anali, vol. 4-5 (1956), pp. 9-30.

Mosher-Stuard, S. "A Communal Program of Medical Care: Medieval Ragusa/Dubrovnik." Journal of the History of Medicine, vol. 28 (1973), pp. 126-142.

Mueller, Reinhold C. "Catalogo dalla Reazione alla Prevenzione." In Venezia e la Peste, ed. Comune di Venezia. Venezia: Marsilio (1980), pp. 77-92.

Neuburger, Max. History of Medicine. London: Oxford University Press, 1925.

Nodilo, N. ed. Chronica Ragusina Junii Restii. Zagreb: J.A., 1893.

Novak, Grga. "Povijest Dubrovnika od najstarijih vremena do početka VII stoljeća." Anali, vol. 10-11, Suppl., 1966, pp. 3-84.

----------. Prošlost Dalmacije. Zagreb: Matica Hrvatska, 1944.

Novak V., ed. Supetarski Kartular (Chartulare Sancti Petri). Zagreb: J.A.Z.U., 1952.

Ostrogorski, G. Istorija Vizantije. Beograd: Srpska Književna Zadruga 1959.

Palmer, R.J. "L'azione della Repubblica di Venezia nel controllo della peste. Lo sviluppo della politica governativa, in Venezia e la Peste, ed. Comune di Venezia. Venezia: Marsilio (1980), pp. 103-110.

----------. "The Control of Plague in Venice and Northern Italy, 1348-1600." Ph. D. thesis, University of Kent at Canterbury, 1978. (unpublished.)

The Plague Reconsidered; A New Look at its Origins and Effects in the 16th and 17th Century England. Matlock: Local Population Studies, 1977.

Pollitzer, R. La peste. Geneva: World Health Organization, 1954.

Premuda, Loris. "Storia della Quarantena nei Porti Italiani." In Acta Medicae Historiae Patavinae, vol. 23 (1976-1977), pp. 45-64.

Pullan, Brian. Rich and Poor in Renaissance Venice: the Social Institutions of a Catholic State, to 1620. Oxford: Blackwell, 1971.

Ravenatis Anonymi. Cosmographia. ed. M. Pinder. Berlin: n.p., 1860.

Razzi, F. Serafino. La Storia di Ravgia. Sala Bolognese; 1980, reprint of 1595.

Rodenwaldt, Ernst. Pest in Venedig 1575-1577: ein Beitrag zur Frage der Infektkette bei den Pestepidemien West-Europas. Heidelberg: Springer, 1953.

Rosen, George. A History of Public Health. New York: MD Publications, 1958.

Ruggiero, G. "The Cooperation of Physicians and the State in the Control of Violence in Renaissance Venice." Journal of the History of Medicine, vol. 33 (1978), pp. 156-166.

Šidak, J. "Hrvati." In: Enciklopedija Jugoslavije. Zagreb: Leksikografski Zavod, 1960, vol. 4, pp. 40-41.

Siraisi, N. The Studium of Padua. Toronto: Pontifical Institute of Medieval Studies, 1973.

Šišić, F. Povijest Hrvata u vrijeme narodnih vladara. Zagreb: Kugli, 1925.

---------. Pregled povijesti hrvatskog naroda. Zagreb: Matica Hrvatska, 1975.

Skok, Petar. Etimologijski rječnik hrvatskog ili srpskog jezika. Zagreb: Jugoslavenska Akademija Znanosti i Umjetnosti, 1972.

Škreb, S. Klima Hrvatske. Zagreb: Geofizički Zavod, 1942.

Stefanutti, Ugo. Momenti Storici del Veneto nel Progresso della Medicina e Chirurgia. Albo del Medici: n.p., 1976.

Sticker, Georg. Abhandlungen aus der Seuchengeschichte und Seuchenlehre. 2 vols Giessen: Töpelmann, 1908-1910.

Suić, M. "Ostaci limitacije agera primorskih gradova u srednjem vijeku." Starohrvatska Prosvjeta, ser. 3, vol. 5 (1956), pp. 7-19.

Tadić, Jorjo. "Dubrovački Arhiv kao izvor za istoriju zdravstvene kulture." In Spomenica 650-godišnjice Ljekarne "Male Braće" u Dubrovniku. Zagreb: Pliva, 1968, pp. 111-117.

----------. "Dubrovnik od postanka do kraja XV stoljeća." In: Historija naroda Jugoslavije. 2 vols. Zagreb: Školska Knjiga, 1953.

----------. "Le port de Raguse au moyen âge. Le navire et l'économie maritime du Moyen Age au XVIII siècle." Travaux du Second Colloque International d'Histoire Maritime, Paris, 1959, pp. 1-21.

Talbot, C.H. "Medicine." In: Science in the Middle Ages, ed. D. Lindberg, Chicago: Chicago University Press, 1978.

----------. Medicine in Medieval England. London: Oldbourne, 1931.

Temkin, Owsei. Galenism: Rise and Decline of a Medical Philosophy. Ithaca: Cornell Univ. Press, 1973.

"Texts and Documents, Regiment de Preservacio a Pestilencia e Mortaldats. Epistola de Maestre Jacme d'Agramont ... de Leyda, 1348." Translated by M.L. Duran-Reynals and C.-E.A. Winslow. Bulletin of the History of Medicine, vol. 21 (1949), pp. 57-89.

Velnić, V. "Ljekarna Male Braće u Dubrovniku." In : Spomenica 650-godišnjice ljekarne "Male Braće" u Dubrovniku. Zagreb: Pliva, 1968. pp. 13-27.

Winslow, C.-E.A. and Duran-Reynals, M.L. "Jacme d'Agramont and the First of the Plague Tractates." Bulletin of the History of Medicine, vol. 22 (1948), pp. 747-765.

Winslow, C.-E.A. The Conquest of Epidemic Disease: a Chapter in the History of Ideas. Princeton: Princeton University Press, 1943.

Ziegler, Philip. The Black Death. London: Collins, 1969.