THE UNIVERSITY OF NAPLES AND THE STUDY AND PRACTICE OF MEDICINE IN THE THIRTEENTH AND FOURTEENTH CENTURIES

by

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INTRODUCTION

The study and practice of medicine associated with the University of Naples in the thirteenth and fourteenth centuries, is a subject about which little has been written, especially in the English language. This is apparently due in part to the fact that so much of the documentation of Neapolitan history has been destroyed and in part to the fact that Hastings Rashdall, the dean of European university studies, presented the city and the University of Naples in a rather unfavorable light. Rashdall concluded that "the position and climate of the crowded city must have made it, during a great part of the year, an unsuitable residence for students from any northern region,"[1] and that "Naples, long the only university in southern Italy . . . played but little part in the intellectual movements of the Middle Age."[2] Such conclusions, by so important a scholar, have certainly discouraged widespread interest in the city and its center of learning. As a result, the University of Naples, chartered as it was by the Hohenstaufen Emperor Frederick II in 1224, has been treated as little more than a training center for imperial and later, royal administrators. Consequently, when it came to medical study in southern Italy, it was the famous schools of Salerno that won the attention of scholars rather than Naples.

Nevertheless, Naples did have obvious virtues as a center of learning and medical activity in the thirteenth and fourteenth centuries. Rashdall's observation to the contrary, Naples, cooled by

sea breezes in summer and warmed by Mediterranean waters in winter, was a place very suitable for academic residence. Not only was its climate less severe than that in some of the more famous university cities to the north but also its situation on the sea made it easily accessible to scholars and ideas of the Mediterranean world.[3] Furthermore, Frederick did not create the university only to provide himself with administrators and officials, although of course, that was a consideration. On the contrary, Frederick's far-reaching intellectual and scientific interests apparently did not allow him to limit teaching in the newly created university merely to matters of law and administration. Consequently arts and perhaps even medicine were taught at the university from its inception. Moreover, this imperial patronage provided the university with the opportunity to have in its midst the numerous well-known scholars who were attracted to the Emperor's court. A similar point can be made concerning the proximity of the University of Naples to Salerno. Instead of being a deterrent to medical learning in Naples, the proximity may have acted as a stimulus since several physicians who practiced in the city and taught at the university had previously studied or taught in Salerno. Also since both cities fell under the same governmental jurisdiction and regulation, the easy flow of ideas was possible. Consequently, it is the intention of this study, to examine the available sources of information relating to both the University and the study and practice of medicine in Naples during the thirteenth and fourteenth centuries and thus to rectify the earlier neglect of the subject. It is undertaken in the knowledge that large numbers of relevant documents have been destroyed either accidentally

or deliberately. Nevertheless, such is the variety and indestructible character of historical evidence that enough remains to provide a representative picture of medical study and practice during this period. German emperors, Italian popes, French princes, Spanish kings and the people of Naples have all left their imprint on the practice of medicine in that city. Unfortunately, however, the inherent hostility of their relationships has taken its toll, as the following very brief historical sketch will make clear.[4]

The political situation in southern Italy, long volatile, came to a head with the death of Frederick II in 1250. His heir to the kingdom of Sicily, of which Naples was part, was his son, Conrad, who was also the elected heir to the Imperial throne. Conrad, however, died in 1254, at the age of twenty-six, leaving as his successor his two year old son, Conrad II, known as Conradin, who was living in Germany with his mother, Elizabeth of Bavaria. That situation encouraged Pope Innocent IV to make an attempt to place the Kingdom of Sicily under Papal control. Conradin's rights in the kingdom were guarded by a bailiff appointed by his father but were threatened further by the ambitions of Manfred, the illegitimate son of Frederick II. By 1261 Manfred emerged victorious over the bailiff and the Pope and was thus in control of all Italy. His success, however, contributed to his undoing when succeeding Popes invited Charles of Anjou, brother of King Louis IX of France, to champion papal claims to the Kingdom of Sicily.

Manfred died defending his prerogatives against Charles of Anjou at the battle of Benevento in 1266. Two years later, Charles had Conradin, then a boy of sixteen, convicted of high treason and beheaded

in the Piazza del Mercato in Naples for the attempt to assert his legal right to the kingdom. This act, which according to Steven Runciman, "shocked the conscience of Europe," also ended an important era of Neapolitan cultural and political history. The reign of the house of Hohenstaufen the "brood of vipers," vilified by Popes Innocent III, Urban IV and others, was over in Naples and southern Italy, and a new regime, that of the Angevins was about to begin.

It is true that Charles, Count of Anjou and Provence, had received the crown of the Kingdom of Sicily from Pope Urban IV, but the new arrangement between Charles and the Pope, as events demonstrated, was not a happy one. It certainly was not so for the papacy which soon realized that Charles had no intention of observing the provisions which had brought him into power. Nor was it satisfactory to many inhabitants of the kingdom who took offense at Charles' favors to his own countrymen, the use of French as the language of government, and to the influx of many Provencal and French colonists.

Charles eventually made Naples the capital and seat of his power but took little notice of any dissatisfaction with his rule as he prepared to improve his political fortunes. However, after March 30, 1282, the date of the infamous Sicilian Vespers in Palermo, he could ignore it no longer. Rebellion began on Easter Monday when the people of Palermo aroused by French insults to Sicilian women and by long pent up anger, rose and massacred the entire French population of the city which numbered some two thousand people. The revolt soon spread to other parts of Sicily, but the city of Palermo, fearing Angevin reprisals, conferred the crown of the Kingdom of Sicily on Don Pedro of

Aragon in August, 1283, thus adding another facet to an international conflict that was to afflict Naples for many more years. By 1302, Pope Boniface VIII and Charles II of Anjou were forced to recognize Pedro's son, Frederick (who was also a grandson of Manfred), as King of Sicily while the Angevins continued to rule the Kingdom of Naples on the mainland. It was not, however, until 1441 that Alfonso V, the Magnanimous of Aragon, temporarily reunited the two crowns, placing Naples in Spanish hands where it would generally remain until the eighteenth century.

This constant international friction and intermittent warfare were obviously not without effect on Neapolitan intellectual life or on the sources requisite for historical reconstruction. Consequently, the ravages of men and war, combined with nature and time, to deplete the archives that were once rich storehouses of the sources of Neapolitan history for the thirteenth, fourteenth and fifteenth centuries.

Of this destruction, Riccardo Filangieri, the late superintendent of the archives of the Archivio di Stato di Napoli, gave testimony when he recorded some of the catastrophes that had befallen the Angevin Registries which in all probability contained important sources for this period of Neapolitan history.[5] From Filangieri's account, it appears that the first recorded destruction of any part of the Registries took place when rain water found its way into the Archives of Sant' Agostino, where they were stored, ruining many documents. Others were destroyed in 1345 during a popular uprising precipitated by the assassination of Prince Andrew of Hungary with the knowledge, if not the collusion of his wife, Joanna I, the Queen of Naples (1343-1382).

And still others were destroyed three years later, in 1348, when the avenging armies of King Louis of Hungary occupied the Castel Nuovo in the harbor district of the city.

Furthermore, to make matters worse and the sources of Angevin history even scarcer, the Registries of the Neapolitan monarchs, Joanna I, Charles III (1382-1386), Ladislaus (1386-1414) and Joanna II (1414-1435), were partially destroyed by the war of succession and the plundering of the Aragonese, probably around the mid-point of the fifteenth century. Other documents disappeared during the pestilence of 1527 and still others in 1701, when the populace of Naples, rebelling against the acts of members of the nobility, devastated the Isle of Capuana and threw many of the Registries, which had been bound into 444 volumes in 1585, from castle windows into a great bonfire. By 1784 their number was down to 294 volumes.

When Filangieri, in 1939, closed his account of the series of destructions with a statement about the "brutality and ignorance" of men, presumably of the past, he could hardly have expected that just four years later he would again have to write of even greater destruction to the sources of Neapolitan history, wrought not by angry peasants of the fourteenth or eighteenth centuries, but by men of his own time.

The account of this latest catastrophe begins in 1943, when in fear of an Allied air attack, the most important historical documents of the Archivio di Stato di Napoli, including the Angevin registries, were packed and transported about thirty kilometers outside the city to the Villa Montesano near the village of San Paolo Belsita. Some months later, on the 28th of September, three German soldiers in search

of food broke into the ground floor of the villa and found instead the 866 bombproof packing cases of Archivio documents. The soldiers departed after being informed of the contents of the cases but returned on the following day with a government official who made a personal inspection of their contents. Between the times of the two visits, however, a German soldier had been killed in the nearby village. This casuality may have influenced the course of events of September 30th. At 9:15 that morning, a squadron of German soldiers appeared at the villa again and this time announced their intention to burn the entire deposit of manuscripts. In desperation, the Director of the Archives stressed the international nature of the documents, their value to German history as a repository of Hohenstaufen documents and the great use that had been made of them by German historians and scholars. But his pleas were of no avail. The noncommissioned officer in charge and the soldiers under his command refused to listen, stuffed paper and gunpowder into the packing cases, and set fire to the storage room. The conflagration consumed 31,606 volumes and 54,372 parchments.[6] Of the once magnificent archival collection housed in the Archivio di Stato di Napoli, there remains today only enough material to provide 219 entries in an handwritten Inventario dei Manocritti which is kept in the Archivio.[7] Of these entries, only twenty-nine are clearly dated as belonging to the period prior to 1500 and none of these makes a significant contribution to our knowledge of the study and practice of medicine in the thirteenth and fourteenth centuries.

Despite this holocaust, however, the sources of Hohenstaufen and Angevin history have not been totally lost. Fortunately some important

documents of this period had already been printed in various collections, others had been reproduced in excerpt form and still others had been summarized, particularly through the efforts of scholars such as Paul Durrieu[8] and Bartolommeo Capasso[9] who had endeavored to provide order and structure for the documents that were still available to them in the nineteenth century. More particularly pertinent to the present study is the fact that many legal documents concerning the history of medicine and surgery during the Angevin period are to be found in a recent work by Raffaele Calvanico entitled Fonti per la Storia della Medicine e delle Chirurgia per il regno di Napoli nel periodo Angioino, which was published in 1962.[10] Calvanico's work contains a total of 3,670 acts from the period 1273 to 1410 which in the author's words offer students "an organic picture of the history of medicine" in southern Italy.[11] Much of Calvanico's work, however, is the result of his "extensive research" into Capasso's guide to the registries and consequently the documents included deal with the involvement of Neapolitan governments with medicine. It thus provides the texts of regulations on medical practice and medical licenses which permitted particular individuals to practice the craft. Consequently, Calvanico's work provides information only on the conditions of medical practice and the names of practicing physicians. But in terms of the substance of Neapolitan medicine, that is regarding the nature of medical opinion and treatment in Naples, there is little to be derived from his sources. Such information is to be found only within the texts of medical writings by persons who can in some way be associated with Naples in the period under study.

The center to which and from which such writers radiated may well have been the University of Naples. Established in 1224, with practicing physicians on its faculty from a very early date, it offered the Baccalaureate in Medicine from 1278 on and possessed a separate College of Doctors of Arts and Medicine after 1430. Of the more than sixty physicians known to have been on the faculty in the thirteenth and fourteenth centuries, the works of approximately a half dozen of them are still known in whole or in part. However, it is the works of three of these physicians in particular which appear most likely to be of value in determining the nature of medical opinion and practice in Naples during these centuries. They are the Breviarium of Arnold, who has been variously identified, but who definitely flourished in Naples late in the thirteenth century, the Supplementum of Francis of Piedmont, who flourished in the early fourteenth century, and the two tracts on the Pestilence, written by John of Penna, who lived until 1387 at least.

Consequently, the purpose of this investigation, centered on the thirteenth and fourteenth centuries, will be threefold: to consider the University of Naples and its role in the teaching and study of medicine, to examine the regulation of medicine by imperial and royal governments, and finally to describe the medical opinions held and treatment offered by three Neapolitan physicians; Arnold, Francis of Piedmont, and John of Penna.

NOTES TO THE INTRODUCTION

[1]Hastings Rashdall, The Universities of Europe in the Middle Ages, 3 vols., Rev. ed. F.M. Powicke and A.B. Emden (London: Oxford University Press, revised ed., 1936) I, 25.

[2]Ibid., p. 24

[3]The amenities of the geographical situation of Naples are, in fact, those things which Frederick stressed in his invitation to scholars to come to the University. That his statement was not merely a public relations gimmick is clear to anyone who has visited Naples. Consider the following quotation from a document attributed to Frederick: ". . . ut civitas ipsa antiqua mater et domus studii, sicut puritate fidei et situs amenitate prefulget . . . Ad hoc igitur tam salubre convivium magistros quoslibet et scholares hilariter invitamus;" Jean L. Alphonse Huillard-Bréholles, Historia Diplomatica Frederici Secundi (Paris: Plon Fratres, 1854) I, pt. 1, 448, doc. I.

[4]The information for the following historical sketch was taken from a number of sources. Foremost among these and most easily accessible is Steven Runciman, Sicilian Vespers (Cambridge: at the University Press, 1958). This work appears to be clear and accurate and one of a very few in English that considers this period of Neapolitan history in any detail. Another work in English which is not as detailed but which is informative and interesting is: Denis Mack Smith, A History of

Sicily, vol. 2; Medieval Sicily 800-1713 (New York: The Viking Press, 1968). Part 2 covers the Hohenstaufen, Angevin and Aragonese years 1200-1375. There are no notes but there is a bibliography at the end of volume three, Modern Sicily after 1713, pp. 547-559. Also it might be mentioned here that Benedetto Croce's Storia del Regno di Napoli (Bari: Giuseppe Laterza and Figli, 1925) has been translated by Francis Frevaye and recently published as the History of the Kingdom of Naples (Chicago: Chicago University Press, 1970). The most complete work on the Angevin period and perhaps the best one is that by Emile G. Leonard, Les Angevins de Naples (Paris: Presses universitaires de France, 1954). A bibliography on pp. 11-12 of that work details many of the sources and earlier work, also in French is E. Jordan, Les Origines de la Domination Angevine en Italie (New York: 1909; reprint Burt Franklin, 1960) 2 vols. Useful informative works in Italian are: A. Cutolo, Il Regno di Sicilia negli ultimi anni di Carlo II (Milan: Soc. edit. Dante Alighieri, 1924); Vincenzo Epifanio, Gli Angioini di Napoli e la Sicilia (Naples: Luigi Loffredo, 1936); Pietro Gannone, Istoria Civile del Regno di Napoli (Milan: Societa Tipo de classici Italiani, 1823) 10 vols.; Gennaro Maria Monti, Dai Normanni agli Aragonesi (Trani: Vecchi and Co. Editori, 1936) and by the same author, Lo Stato Normanno Svevo (Trani: Vecchi and Co., 1945); Willy Cohn, L'era degli Hohenstaufen in Sicilia, trans. into Italian by Guido Libertini (Catania: Tip. Zuccarello and Izzi, 1932). The German title is Das Zeitalter der Hohenstaufen in Sizilien.

Most of the historical information in this introduction can be found in any of these sources. Runciman's work, however, is the most convenient source of information and it has an extensive bibliography on pp. 331-338.

[5]Riccardo Filangieri, "Introduzione," to Gli Atti Perduti della Cancelleria Angioina (Rome: R. Instituto Storica Italiano per il medio evo, 1939).

[6]For the best account of the destruction of Neapolitan documents during World War II and a record of documents destroyed, see the article by Riccardo Filangieri di Candida, "Relazione sulla distruzione del deposito dei Documenti di maggiore pregio storico dell' Archivio di Stato di Napoli operata dai Tedeschi il 30 Settembre 1943," to be found in Appendix 7 "Account of the Destruction of the Naples Archives . . .," in Hilary Jenkinson, Italian Archives During the War and at its close (H.M. Stationery Office, 1947), pp. 44-51. Additional information can be found in Ernesto Pontieri, "Rovine di Guerra in Napoli," Archivio Storico per le Province Napoletane, LXVIII (1943), 269-283. A much briefer account, but in English, may be found in the introduction to the article by Evelyn Mary Jamison, "Documents from the Angevin registers of Naples: Charles I," Papers of the British School at Rome (Published by the British School at Rome, London) XVII (new series, vol. IV) 1949, pp. 87-180.

[7]Archivio di Stato di Napoli, Inventario dei manoscritti.

This volume was prepared in longhand in 1970. I examined it in the summer of 1971.

[8]Paul Durrieu, Les Archives Angevins de Naples: étude sur les registres du roi Charles Ier 1265-1285, 2 vols., (Paris: E. Thorin, 1886-1887).

[9]Bartolommeo Capasso, Inventario cronologico-sistematico dei Registri Angioini (Naples: R. Rinaldi e G. Sellito, 1894). See also by this author, Historia diplomatica regni Siciliae (Naples: 1874) not seen, and Le Fonti della Storia delle Provincie Napoletane dal 568 al 1500 (First edition 1902; Bologna: Forni reprint, 1970). Among catalogs and collections of documents prior to the work of Durrieu and Capasso are: Archivio di Stato di Napoli, Syllabus membranorum ad Regiae Siciliae archivium pertinentium . . ., 3 vols., (Naples: Regia typographi, 1824-45); Camillio Minieri Riccio, ed., Saggio di codice diplomatico formato sulle antiche Scritture dell' Archivio di Stato di Napoli, 2 vols., (Naples: R. Rinaldi e G. Sellitto, 1878-1880). University documents have been published in: Ercole Cannavele, Lo Studio di Napoli nel rinascimento (Turin: Carlo Clausen, 1895) and Tommaro di Marinis, Nuovi documenti per la storia dello Studio di Napoli nel rinascimento (Florence: G. Spinelli, 1904).

[10]Raffaele Calvanico, ed., Fonti per la storia della Medicine e della Chirurgia per il regno di Napoli nel periodo Angioino (Naples: L'Arte Tipografica, 1962).

[11]Ibid, p. V.

CHAPTER ONE

THE UNIVERSITY AND THE STUDY AND REGULATION OF MEDICINE IN NAPLES DURING THE THIRTEENTH AND FOURTEENTH CENTURIES

The study and regulation of medicine in Naples in the thirteenth and fourteenth centuries is the major focus of this chapter but occasionally there are references to material of earlier centuries in order to give a more complete picture of the Neapolitan medical tradition. In the year 1224 Emperor Frederick II of Hohenstaufen, whose scientific and medical interests are well documented, established the University of Naples. He also issued decrees, probably prior to 1231, regarding medical study and training which may have applied to Naples as well as Salerno. Certainly in 1267 the University that Frederick set up and supported was staffed with teaching physicians and there is specific evidence that the Baccalaureate in Medicine was given by the University from the year 1278.

The influence of the University apparently extended beyond the confines of the academic structure. The Hohenstaufen and Angevin rulers of Naples attempted to give the University a monopoly in the fields of instruction and they sought to keep their subjects from studying elsewhere. In so doing they placed the professors of the University of Naples in a position from which they apparently exercised a great deal influence on the medicine practiced in and around Naples. Consequently, when the University physicians took occasion to write treatises on medical subjects their views were apparently very influential not only

in regard to those who studied under them but also on those who were already practicing medicine. Under these circumstances, the influence of the University associated physicians may have extended well beyond the University walls. Thus, the treatises they wrote on medical matters are a primary source of information on the nature of medical opinion and method at the time, and the University of Naples would appear to be the natural starting point for a study of the medical learning in the region.

Included also in this chapter is a consideration of governmental regulations and licensing procedures imposed upon the medical profession. These comprise attempts at such regulation made earlier in the twelfth century by King Roger to protect his subjects from treatment by inexperienced physicians and the thirteenth and fourteenth century regulations issued by Frederick II, his Hohenstaufen successors, and the Angevins. In order to make clear the growing sophistication in the organization and regulation of medical study, the material of this chapter will generally be presented in chronological order.

Of the provision for the establishment of a center of teaching in Naples, Richard of San Germano wrote in his chronicle for the year 1224 that in July the Emperor Frederick II of Hohenstaufen arranged for teaching to be done in a Studium in Naples.[1] This was done, Frederick asserted in the foundation document, so that those "lean and hungry for learning" in the kingdom might have their thirst satisfied near their home and so that they would not be compelled to seek wisdom or go begging in foreign nations.[2] Scholars could now be free from long journeys and from plunderers who would rob them of their possessions,

he explained.[3] What he did not mention, however, was that a Studium in Naples, Frederick's home territory, would provide educated administrators for government service and would challenge the prestige, political and intellectual, of Bologna and the Guelf communities to the north.[4]

Frederick was determined, however, that the Studium in Naples would have more to its credit than convenience and promised to send Roffredo of Benevento and Peter of Isernia, "professors of civil law, men of great wisdom and noted by their virtues and experience," to bring scholars with similar qualifications to the city.[5] In addition, to make the Neapolitan Studium even more attractive to students, Frederick promised to provide housing for each of them at annual stipends of two ounces of gold and the opportunity to borrow money should the necessity arise. The funds borrowed would not have to be repaid as long as the scholar remained at the Studium.[6] All these advantages were to be found in a city where, Frederick said, "ample housing, space and good mores abound," and where the necessities of life, food, wine, fish and other things are abundant, being brought in by both land and sea.[7] Frederick, however, left nothing to chance. Still perhaps not confident that these attractions would draw the requisite number of scholars to his Studium, he attempted to prevent their leaving his realm for universities outside of it. He forbade scholars to leave the Kingdom of Sicily either to study or to teach. And, in addition, required those presently outside of the kingdom to return to Naples by the Feast of Saint Michael on September 29.[8] By the next year, 1225, presumably to prevent competition, Frederick ordered the closing of the schools of Bologna and threatened with

infamy anyone who remained or dared to study or teach at Bologna four months after the ban was imposed.[9] He did this, he said, because the Bolognese did "not hesitate to oppose us in many things. Hence by their cumulative excesses. . .they have incurred the imperial ban with legitimate cause."[10] Nevertheless, not wanting those who sought learning to suffer too greatly from the closing of the schools, Frederick skillfully drew attention to the fact that not far from Bologna was the "noble city of Naples. . . where copious amenities and an honorable society of doctors flourished."[11] If this action was intended to strengthen the position of the Studium in Naples at the expense of Bologna, it was not effective, however, because by 1227, through the mediation of Pope Gregory IX, Frederick made peace with the Lombard League and at the same time rescinded the ban on the Bolognese schools.[12]

The Studium at Naples would have been able in all likelihood to go on without an influx of Bolognese scholars but it could not remain unaffected by the chaotic political situation prevailing in southern Italy at the time. In fact, the swirl of political events forced the closure of the Studium several times in its early years. The date of the first closure, not known for certain, may have been 1229 when Papal troops entered the kingdom,[13] but the schools were reopened again in 1234.[14] They were closed a second time for a brief period in 1239[15] and a third time after Frederick's death in 1250. In February, 1252, Frederick's son Conrad, heir to the imperial title and the throne of Apulia and Sicily, ordered the Neapolitan University transferred to Salerno, apparently because of Neapolitan resistance to

his authority.[16] Conrad pardoned Naples in January, 1253, but it does not appear that he reopened the University. The schools were, however, again in operation in 1254, probably as the result of the efforts of Pope Innocent IV. In October of that year Innocent reopened the schools of theology, and civil and canon law but made no mention of restoration of the study of arts. Nevertheless, the law and theology classes were held in the palace which was formerly the residence of Pietro de la Vigne, the noted literary figure of Frederick's court, who was wrongly credited by some with having given Frederick the idea of establishing a university in Naples.[17]

Under Manfred, and probably in 1258, the first year of his reign, all the faculties of the University, including apparently, the arts, were reestablished. Manfred invited the "devoted sons of philosophy" to come to Naples, and to ensure that they did not go elsewhere, closed all other schools of higher learning in the kingdom, just as Frederick had done earlier. The school of medicine in Salerno was allowed to remain open,[18] however, apparently because Naples did not have a full medical faculty. The reference to Salerno does not mean, however, that courses related and useful to medical study were not taught within the arts program in the University of Naples. In fact, there were scholars present in the royal court in Naples in the early days of the Studium who were well qualified to teach subjects pertinent to medicine in the University and they may well have done so. One member of the royal curia with scientific interests who has been definitely associated with the University, prior to 1250 through a letter by a certain Master Terrisio, is Master Arnold the Catalan. Master Arnold,

a professor of natural philosophy, is reported to have "taught the courses of the stars and the nature of the elements."[19] These were subjects very important for medicine. It is thus quite possible, that prior to 1250, when Master Arnold was teaching the courses of the stars and the nature of the elements in the arts curriculum, young medical scholars sat before him.

The relationship of astrology and medicine is further illustrated by the fact that in later years Arnold of Villanova, who taught in the University of Naples from 1305 to 1311, wrote a treatise on astrology specifically for the use of practicing physicians;[20] and John of Genoa, a physician and member of the faculty in 1338 is remembered only for his writings on astrology and astronomy.[21]

Although Master Arnold the Catalan might be the only scholar of scientific subjects who can be associated with certainty with the University in 1250, or earlier, there was certainly no lack of teaching talent in scientific and medical areas in the courts of Frederick and Manfred. Petrus de Hibernia, who flourished from 1240-1260 and who probably should not be confused with Peter of Isernia, the professor of law at the university in 1224, participated in philosophical and scientific debate in Manfred's court and is reputed to have taught natural philosophy to Thomas Aquinas.[22] Still another scholar, Michael Scot, Frederick's court astrologer, was the translator of Aristotelian and Arabic treatises and commentaries and was the author of many works on astrology, meteorology, physiognomy and medicine.[23] Lynn Thorndike was of the opinion that "Michael Scot may be regarded as the leading intellectual in western Europe during the first third

of the thirteenth century." He pointed out that Pope Honorius III "called him 'singularly gifted in science among men of learning.'"[24] Michael may have taught in the University of Paris in the years 1228-1229 and he is known to be the author of several works that dealt with medical matters, among them especially uroscopy.[25] Consequently since he accompanied Frederick everywhere after he entered the Emperor's service he may well have been available for teaching duties, and perhaps even for the teaching of medical and astrological subjects at the Studium in Naples at some point before his death around 1235. This would appear also to be the case for Master Theodore, "the philosopher," the author of a treatise on hygiene, who suceeded Scot as court astrologer,[26] as well as for Adam of Cremona who composed a treatise on hygiene for Crusaders which he dedicated to Frederick in 1227.[27]

Unfortunately, however, except for Master Arnold, it is not before the late 1260's that professors of arts and medicine can be associated definitely with the University. This is not to say that Petrus Hibernia, Michael Scot or the others did not lecture in the University earlier but that evidence to indicate their association is only circumstantial. The documents for the early period of the Neapolitan University which might have proven the point in one way or another have apparently disappeared as the result of the loss or destruction of the royal registries over the centuries. Consequently attention on medical study in southern Italy in the thirteenth and earlier centuries is traditionally focused on Salerno. Salerno's leadership in medical learning in the kingdom was certainly recognized by Frederick and Manfred when they allowed the schools of that city to

remain open alongside those of Naples when all others were to be closed.

In spite of the lack of extant documents for medical study and practice in Naples, it seems clear that a long tradition of medical teaching there preceded the establishment of the University. In fact, there are some, like Demetrio Roncali, for example, who trace medical teaching in Naples back to the sixth century. In 1922, Roncali, in a course on surgery for medical students at the University of Naples, gave a series of lectures, published in 1930, which traced the origin of medical studies in Naples back to the reign of the Emperor Justinian in 555 AD. Roncali asserted that Naples, conquered as it was by Belisarius in 536 and subjected to Byzantine influence until 763, fell under the Ordinance of the Council of Neocesarea which required hospitals to be established in the provinces on the model of those in Constantinople.[28] This ordinance apparently required the state to provide the city with state hospitals, and compliance with this in turn would have necessitated medical training and medical study in Naples at that early date. Roncali further asserted that under the Rule of St. Benedict of Nursia, Neapolitan monasteries would have been required to establish monastic hospitals in order to care for the sick as the Rule required.[29]

Thus, in accordance with Roncali's view, medical care and medical teaching would have been proceeding in Naples long before 1224, the year in which Frederick gave it a university, and long before Charles I of Anjou formally provided the University with a Baccalaureate in Medicine in 1278.[30] However, the evidence for the

intervening period is meagre. In the twelfth century the Norman King Roger required those who wished to practice medicine to submit to an examination by his officials and judges and threatened with incarceration and ceizure of his property anyone who dared to practice without royal approval.[31] By the thirteenth century, that is in 1231, the Emperor Frederick II decreed that no one could lecture in medicine or surgery, nor assume the title master, unless he had been diligently examined in the presence of the royal officials and masters in the medical art in "or Naples."[32]

The inclusion of the phrase "vel Neapolim" should dispel any doubt that a tradition of medical instruction was already present at Naples in Frederick's time. However, there is apparently still some doubt concerning the inclusion of Naples in his decree. The phrase "vel Neapolim" appears in the text of the Carcana edition of the Constitutions of 1231 that Jean Huillard-Breholles was following for his collection of documents relating to the Emperor. However, this phrase, according to Huillard-Breholles, is lacking in the two manuscripts which he used in conjunction with the Carcana edition: Paris NB 4624 and 4625. For that reason, and because he did not believe that Naples had a medical school in Frederick's time, Huillard-Breholles placed the phrase "vel Neapolim" in brackets.[33] However, the assumption that a school of medicine was not yet in existence at Naples in Frederick's time, does not necessarily mean that there was no medical instruction being given there. Indeed there is more likelihood that such instruction was being given, since along with the teaching of the traditional seven liberal arts

medicine was usually associated, in the Italian universities, with the arts curriculum, as is shown in the Faculty of Arts and Medicine in both Bologna and Padua.[34]

Furthermore, even though Salerno was specifically mentioned in the Constitutions under the year 1231, we actually know very little more about it in the thirteenth century. Earlier, that is from the tenth century on, the schools of Salerno appear to have held a very prominent place in medical study and teaching. Yet, even for the twelfth century, when it was at the height of its fame, according to Paul Oscar Kristeller, practically nothing is known of the organization and institutional development of the school.[35] For the thirteenth century the only evidence regarding the role of Salerno in medicine, in addition to the edict promulgated in 1231, which provided for the examination of candidates for a license, is an edict which outlined the prescribed program for candidates for the license. Nowhere in the document, however, is Salerno mentioned by name and although Kristeller assumed that the edict pertained to Salerno,[36] that inference may not be entirely justified, since the reference could equally well apply to other placed is the kingdom including Naples. The prescriptions in the document are indeed general in nature. They provided that since the science of medicine cannot be known without at least three years prior study of logic, the student might advance to the study of medicine only after he had completed the three years of logic. And during the five years which he must devote to medicine he was to learn surgery as well.[37] In medicine, his studies were to comprise the theory and practice of medicine drawn from the authenticated

books of Hippocrates and Galen.[38] These were the Aphorisms, Prognostics and the Regimen of Acute Diseases of Hippocrates; and the Tegni of Galen. Then after his master certified that he had completed the prescribed course of study, including the study of surgery, the candidate was apparently accorded the license to practice by the government.[39] If all went well, the student under Frederick's regulations, would have been ready to practice after nine years of preparation, that is, eight years of study, comprising three years of logic and five years of medical studies, together with an additional year of internship under a practicing physician.

Although the evidence or documentation for the teaching of medicine in Naples during Frederick's reign is not conclusive, there is reason to believe that the Emperor's interest in medical and other scientific matters certainly affected the city of Naples and may well have influenced the University he established there. Within his court such scholars as Pietro da Eboli, Adam of Cremona, Master Theodore and Petrus Hispanus all produced works on medicine, natural science or philosophy.[40] Frederick himself composed, at the urging of his son Manfred, a treatise on falconry, that is the De Arte Venandi cum Avibus, dealing with matters of veterinary medicine.[41] In 1241, according to Mathew Paris, the Emperor ordered Richard of Cornwall "to be treated with blood-letting, baths and divers medicinal formentations, to restore his strength after the dangers of the sea."[42] On another occasion he appears also to have himself undergone blood-letting to test information given him by Michael Scot.[43]

In addition to the foregoing instances of his interest in medicine

and the testing of scientific accuracy, Frederick endeavored to regulate and supervise pharmacists. He required physicians to bring to the attention of the royal curia any pharmacist who prepared drugs that did not meet the required standard.[44] He also forbade physicians to own their own shops and to keep pharmacists in their employ.[45] In this way the Emperor apparently hoped to protect patients from poorly prepared medicines and also perhaps from nonessential or unnecessary remedies. Indeed, the temptation for physicians to prepare their own drugs and to make personal arrangements with pharmacists must have been strong. This is suggested by the fact that the sale of simple and compound medicines, even after Frederick's edicts, was a lucrative undertaking and brought even higher prices than the prevailing fees for medical services. For example, under the regulations, an ordinary prescription, made with compounds kept in stock for less than a year, could command a price of three tareni of gold per ounce, and those which required less commonly used compounds up to six tareni per ounce.[46] A doctor, on the other hand, who was obliged by law to visit his patients at least twice a day and at their request once during the night, could charge no more than one-half a tarenus of gold or four tareni if he was called beyond the city limits.[47] Thus the fees for the services of the pharmacists were proportionately higher than those for the services of the physicians, and if that ratio existed prior to Frederick's regulation, as it probably did, the profit motive may explain why physicians were tempted to prepare their own medicines, and to employ their own pharmacists or set up their own shops. On the positive side, of

course, such arrangements allowed physicians to maintain personal control over the quality of their prescriptions. However, it is unlikely that Frederick would have restrained physicians from the preparation of medicinal remedies if that had been their only motive.

The pharmacists too were subject to other regulations. Besides the price limits previously mentioned, they were required to take an oath promising that they would prepare prescriptions carefully, in accordance with their best knowledge, at their own expense, and only with a prescription from a doctor.[48] Moreover, to insure proper compliance they were to practice their craft only in certain cities and where possible in the presence of inspectors. Unfortunately the lists of cities referred to here has been lost and again documentation that may have given some insight into the status of Naples in medical matters is lacking.[49] Nevertheless, the regulations mentioned here certainly applied to Naples as they did to all areas of the kingdom and they, combined with the Emperor's strong scientific curiousity, may have stimulated the interest in medical studies in the University of Naples that is more clearly documented for the years following Frederick's reign.

After Frederick's death in 1250, the stormy political events of the decade that followed were not without their effect on the University of Naples. The university schools were presumably closed for several years after Frederick's death.[50] But in the decade following 1260, when Naples and the Kingdom of Sicily fell under Angevin rule,[51] they appear to have been reopened. From that time on it is possible to associate scholars from the field of arts and medicine

with the University of Naples. For example, Pietro Lombardo of Milan, who taught logic in the University from 1269 to 1273, received an annual salary of ten ounces of gold.[52] Giovanni Casamicciola,[53] a royal physician and favorite of Charles I of Anjou, was associated with the University from 1267 to 1282 when, according to Giangiuseppe Origlia, the author of an eighteenth century history of the University frequently cited by later authors, Giovanni received an annual salary of twenty ounces of gold.[54] He also received, in addition to other fiscal concessions, a noble title, at least one and possibly several feudal land grants, and privileges for his son.[55] Giovanni Casamicciola, as a result of his services to the court and especially to the University, had become a very wealthy and influential person in the kingdom, and while there are no extant works that can be attributed to him, his influence apparently was felt by many persons and especially the author of the Breviarium who refers to his master, Casamicciola, many times.[56]

In addition to Giovanni Casamicciola, several other medical scholars can be associated with the University of Naples in the decade of the 1260's. In 1260 Filippo da Castelcielo and Tommaso di Fiorenza joined Casamicciola in the teaching of medicine there. Filippo received an annual stipend of twelve ounces of gold for his services, considerably less than Casamicciola who was apparently the senior professor.[57] According to Origlia, Filippo later received a salary of thirty-six ounces of gold per year, an indication perhaps that his status and rank were steadily improving. Origlia is the only source for this information. He had seen documents no

longer extant or at least no longer available. Consequently, this is about all that is known about Filippo, and, although Tiraboschi refers to him as a famous physician,[58] there are no known works that can be attributed to him, nor is his name known to have appeared on any documents other than one of Charles I which Origlia quotes.

The association of another scholar, Tommaso di Fiorenza, with the University of Naples, is known to have lasted many years. He taught medicine in the University from at least 1269 to 1274 with an annual salary of twelve ounces of gold annually.[59] However is is also known to have examined candidates for a license to practice medicine in the kingdom as late as 1278. On January seventh of that year he and Giovanni di Nigella examined Niccolo di Pontecorve and Master Guillelmo di Sanctis at the request of King Charles I.[60] Consequently it is possible that his association with the University extended to that date as well but this cannot be definitely determined because the examination for a license to practice medicine was independent of the University even though University professors regularly served on examination committees. Nevertheless, from the identification of these scholars it can be said with certainty that by 1269 the University of Naples had at least three physicians among its faculty members in the arts curriculum who were involved in the teaching and preparation of students for medical practice. Note also that these physicians had taught in the University nine years before the University offered the Baccalaureate in Medicine, giving us more reason to suspect that medicine had been taught there as long as arts had been and teaching of the arts can be traced back

to the reign of the Emperor Frederick II.

Furthermore, in addition to the scholars already named, Origlia associated Giovanni di Trano, Pietro Lombardo, Niccolo Lombardo and Palmerio di Riso de Messina with the University and the arts curriculum during the decade of the 1260's. Origlia stated that Giovanni di Trano taught physica at the university in 1268.[61] And there are other references which may be to the same man. For example, Gennaro Monti mentioned a Giovanni da Trani who taught logic in the University in 1290.[62] There is also extant a license to practice medicine, granted to "Giovanni di Hostunio, phisicus," in 1296, which mentions that he was examined in physica by Giovanni di Tocco and "Iohannes de Trano."[63] If all these references are to the same person, Giovanni di Trano may have had a medical career of about twenty-eight years in Naples, with at least part of it associated with the University. Concerning the three Lombardo's and Palmerio de Riso, even less is known. They also, however, taught logic in the University between 1268 and 1283, Morando Lombardo in 1268,[64] Pietro Lombardo from 1269-1273[65] and Niccolo Lombardo and Palmerio de Riso from 1270 to 1283.[66] This information is important in regard to medicine particularly because some years earlier, the Emperor Frederick had specified that no one should consider studying medicine until he had studied logic for at least three years.[67]

Note might also be taken here of the use of the term physician which was, according to Kristeller,[68] Pellegrini[69] and De Renzi[70] only recently used in the twelfth century. In calssical Latin a doctor of medicine was called medicus while the Greek term physicus was used

only in reference to scholars of natural science and natural philosophy. However, by the twelfth century, the term phisicus was in common use for the doctor of medicine, apparently because medicine was considered to be one of the numerous subjects of physica. In Naples in this period the terms phisicus and medicus were apparently[71] used interchangeably and without distinction as can be seen in the cases of Jacob of Brundisi[72] and Jacopo di Esclusis, for example.[73] Each of these practitioners of medicine was referred to as phisicus in one document and medicus in another. Also the classification of medicine as a branch of physica was perhaps another reason why a formal school of medicine was not considered necessary in the University at this time. It is quite likely that Neapolitan scholars did not find it necessary at that moment to make the study of medicine a separate field from the study of physica in the arts curriculum. As G.W. Coopland noted in the introduction to his work on Nicole Oresme, a fourteenth century man of science, "the lines of demarcation between the various provinces into which the study of the universe was later to be so profitably divided were not yet laid down, and a work whose title would appear to indicate a treatise on magic might include much that we should call physics and mathematics."[74] In the same view, the study of physica also included much that we should call medicine, and since it was already taught in the University of Naples, the relatively small number of scholars involved in medical study did not apparently justify a separate medical faculty at this time.

Nevertheless, in succeeding years and after 1270, many more scholars can be associated with the arts curriculum in the University.

Guinta, Fantino, Giovanni d'Amentieri, Fidanza da Todi, Bernardo da Toscana, Giovanni da Mortella and Rodrigo Fernando da S. Giacomo di Galizia all joined the arts faculty of the University during the decade following 1270. Guinta and Giovanni d'Amentieri were awarded salaries of ten ounces of gold for their teaching services, Guinta receiving his stipend from 1270 to 1273;[75] and Giovanni for the years 1271 to 1273;[76] but what they taught is not known. Fidanza da Todi taught grammar from 1271 to 1273,[77] and in 1278, according to Origlia,[78] but grammar had of course been associated with medical study as Isidore of Seville had explained a long time earlier.[79] Fantino taught the arts at the university from 1271 to 1273[80] and Bernardo da Toscana did the same in 1276.[81] Giovanni da Mortella[82] and Rodrigo Fernando,[83] however, were professors of medicine in 1274 and 1277 respectively, but nothing more is known about them than that.

It is interesting to note the lact of French names among this group of arts scholars in the University, especially since the ruler of Naples, at the time, King Charles I of the French house of Anjou, had apparently made a concerted effort to attract French scholars to the university. Thus in a letter directed to "all the doctors and students of Paris," in 1272, a duplicate of which was sent to the scholars of the University of Orleans, Charles had announced that "We have brought here (to Naples) men learned in all branches of scholarship, so that they may come to drink of this university as from an abundant well, both young and old, the beginners and those who have attained recognition, those wishing to study the trivium and the quadrivium, canon and civil law, as well as theology."[84]

The King's purpose was apparently to acquaint French scholars with the course of study in Naples and hopefully to lure some of them to the Italian University. Echoing the sentiments of the Hohenstaufen, Frederick, Charles wrote that Naples ". . . stood high in the opinion of the ancient scholars, and . . . /was/praised by them for the purity of its air, its incomparable and healthful location, its richness in products of soin /and/ its convenience for communication by sea with other parts of Italy."[85] In fact the letter reads like a travel brochure or a modern college catalog that details the advantages of an ideal educational environment. Yet despite his noble efforts, at least in regard to the membership of the faculty of the arts in the 1270's, the program Charles initiated to attract French scholars does not seem to have met with much success. Like Frederick's earlier attempt to attract Bolognese scholars to the University this one too was doomed to failure. Nevertheless, by 1278 the faculty of the University and the officials of government apparently decided to offer a formal Baccalaureate of Medicine degree.

The regulations for the Baccalaureate in Medicine set down by the decree of Charles I differed slightly from the earlier regulations of Frederick regarding medical study.[86] In the decree, dated April 28, 1278, Charles provided that a bachelor in medicine was to have spent a minimum of forty months in medical study if he was already a master or licentiate in arts, or up to fifty-six months of study if he began medical studies without the licentiate in arts. This time period was computed from the first day the candidate attended a lecture in medicine given by a master, exclusive of the vacation period which

began at the end of May and continued until October.[87] Thus the candidate was to have studied for five years in addition to his degree in the arts, or for seven years if he did not posess the licentiate in arts when he began his medical studies.

Under the regulations set down by King Charles, the candidate was required after thirty months of study to respond on two occasions to questions in disputations with his masters.[88] These disputations apparently centered around the Ars medicinae, the standard set of tracts which medical scholars were expected to have mastered through lecture and reading. In the course of his studies, the scholar was required to listen twice to ordinary lectures on all the books of the Ars medicinae with the exception of the tract on urines by Theofilus and the book on the pulses by Philaretes which had to be read and heard only once.[89] Lectures on the treatise on acute diseases, the Regimen acutarum of Hippocrates, had to be attended twice but the four works of Ysaac, the Viaticum, the Dietae universales, the Urina and the Liber Febrium, had to be heard only once.[90] These names, Theofilus, Philaretes and Ysaac are the only ones specifically mentioned, but the unnamed authors of the Ars medicinae included Hippocrates, whose Regimen acutarum is cited, and Galen whose writings served as the basis of much of the study of medieval medicine. Both these ancient authors had, moreover, been mentioned earlier by the Emperor Frederick II.[91]

Further provisions may also be noted. According to the decree of King Charles, the student was required to respond to each regent master individually regarding a specific question in his disputation.

Each of the masters who heard him was to submit his report in writing and under the seal to the Chancellor.[92] Successful completion of this requirement apparently qualified the candidate for an examination by the physicians of the Royal Curia, who upon completion of the examination referred their decision to the chancellor.[93]

The above provisions for examination pertained to the university degree in medicine. It was not the same as that for the granting of a license to physicians and surgeons to practice, however, nor was such a university examination necessary to practice medicine in the kingdom. Actually, examinations for physicians and surgeons, separate from the university, had been in operation in the Kingdom of Sicily for some time. In the twelfth century, as noted above,[94] the Norman King Roger required those who wished to practice medicine to undergo an examination by his officials and judges. Similarly, in the thirteenth century the Emperor, Frederick II, also required physicians to submit to an examination by masters in Salerno. And, while there is apparently no longer any documentation available to confirm the fact, there is no reason to believe that the practice of examining physicians and surgeons stopped in the period between Frederick's death, in 1250, and the date of the first known Angevin license which was granted in April 1273. That first Angevin license was received by Master Giovanni da Bari after an examination in the Royal Curia by unnamed surgeons of the King and it permitted him to practice the art of srugery.[95] Fortunately, however, the availability of documentation increases after that point and from 1273 to 1441 there are over 3500 licenses still extant in whole or in part, which had been granted by the Angevin kings.

The licneses appear to be of four general types: those which allowed the licensee to practice medicine, those which allowed him or her to practice surgery, those which certified that the licensee was skileed in a specialty, and those which spelled out a limited area, usually in surgery, in which a surgeon perhaps with minimum qualifications could practice.

Generally, most of the licenses follow a very similar form, modified where necessary to name the territory in which an individual might practice, the identity of examiners and the area of medicine in which the licensee was qualified. Master Jacobo di Suessa, for example, was licensed on September 22, 1274, during the reign of King Charles I. His license opened with the usual greetings of King Charles by the grace of God, King of Sicily, to everyone in the jurisdiction of Terre Lavoro and the county of Milise, which together included a large area to the north and east of Naples, bordered by Abruzzi, the Adriatic Sea and Capitanata. It said that Master Jacobo, a loyal subject, was examined at the King's request by Adam di Braya, cleric, and Tommaso di Florencia, both medici familiares, and was found skilled in medical science. Consequently, on the basis of the examiner's testimony and after receiving the customary oath from Master Jacobo, the King granted him a license to practice his art in Terre Lavoro and Molise without obstacle or interference. This particular document was granted in "Lacumpensulem" and is only one of many which follow a very similar form.[96]

Unfortunately, nothing is apparently known about Jacobo di Suessa, outside of what is mentioned in the document but it appears

that he was already a master and physician, as he was called phisicus, when he was examined in 1274. The license he won allowed him to practice in all fields of medicine but not everywhere in the kingdom. Rather his practice was limited to Terre di Lavoro and Molise.

Territorial limitation such as this was common among the licenses still available. However, there were some, usually granted to persons who apparently possessed unusual skill or specialties, which allowed them to practice anywhere at all in the kingdom. Maria Gallicia, a female surgeon, for example, was granted such permission in September 1309. She specialized in gynecological surgery and specifically was skilled and licensed to practice the surgical art in the cure of wounds, abscesses and hernias of the womb.[97] As an example of the unusual territorial limitations that were sometimes imposed, Master Luca di Pontremulo in 1322 was like Maria Gallicia, allowed to practice surgery throughout the kingdom. However, when it came to the practice of medical science in which he was also skilled and licensed, he was limited to Molise and a few other districts just as Jacobo di Suessa had been.[98] These territorial arrangements then were apparently designed to assure proper medical care in all districts, and to prevent an overabundance of medical services in more desirable regions and a paucity of service in less desirable ones. Yet when a physician or surgeon possessed highly specialized skills as did Maria Gallicia and Luca di Pontremulo, then it seems that specia licensing arrangements were made so that all districts of the kingdom might benefit from skills of those with special ability.

Gynecological surgery, however, was only one of many surgical

specialties for which licneses were granted during this period. Surgeons received licenses which specifically testified to their skills in the care of fractures and dislocations, in the removal of kidney or bladder stones, in the care of hernias, wounds and abscesses and in the care of the eyes. Some licenses specified only one of these areas while others included various combinations of them. A question that arises, however, is whether these were specialties in the modern use of the term, indicating a particular skill not possessed by general practitioners, or whether they were really licenses which limited surgeons to a few very common tasks. The answer seems to be that there are examples of both situations in the licenses. In areas of very basic medicine, for instance in the treatment of simple wounds, the licenses granted seem to indicate that the surgeon was capable of tending to those matters but not anything much more complicated. An example of this may perhaps be found in the license of Matteo Pagano da Ariano which was granted sometime between September 1341 and August 1342. It states that Matteo was skilled in the treatment of small and sound abscesses and small to medium simple wounds and hernias.[99] But there is an implication here that larger wounds or abscesses or any medical matter more complicated should be treated by someone else.

In other areas of obviously more complex surgery however, some licenses indicate special skills in addition to general knowledge. The license of Stoyo di Scalmonia, for example, testified to his skill in making incisions and extracting stones from the testicles and bladders of men and boys. Stoyo, in 1338 or 1339, was licensed to

practice anywhere in the kingdom,[100] and obviously like Maria Gallicia above, possessed skill that was not to be found in many surgeons. He was a specialist in the modern sense, as were perhaps the four other surgeons who were licensed to extract stones.

One of these four srugeons, Master Francisco di Palo received his license to practice this specialty on January 19, 1302 after he had been examined by Giovanni di Tocco, a physician and professor of medical science at the University of Naples.[101] Another, Master Adam di Massila, was licensed on January 17, 1307 after an examination by two surgeons, Masters Rinaldo and Giovanni.[102] The other two were Master Antonio di Palo and Master Roberto, the latter apparently the pupils of a certain Pietro di Bulcino. They received their licenses in the fifteenth century during the reign of Ladislaus (1386-1414), King of Sicily (Naples) and Hungary, Roberto on July 26, 1407[103] and Antonio a few weeks later on August 7.[104] In the case of the latter two surgeons, both of their licenses specify that the holders were diligently examined first in practical surgery and then in the extraction of stones and hernias. This is perhaps a clear indication that extraction was clearly something beyond that which a common surgeon might attempt or be skilled to perform. However, the treatment, as distinct from extraction, of persons afflicted with hernias and stones may also have been considered a specialty judging from the references made in the licenses.

This observation is based on the license of Master Riccardo di Palo, dated September 22, 1304, which stated that Riccardo was skilled in the cure of hernias and bladder stones but does not mention his

ability to extract them.[105] Of course since Riccardo was a surgeon it is quite possible that the cure for such illnesses might have been extraction but this was certainly not specified in Riccardo's license as it had been in the licenses mentioned above. Master Riccardo was examined by a physician, Master Antonio di Areis, and while it was not unusual for physicians to examine surgeons, surgeons were apparently preferred for the task. When Master Araica di Tessano was licensed, for example, to practice his skill in the care of hernias and bladder stones, the license noted that King Robert (1309-1343) the Wise, "in the absence of surgeons," ordered him to be diligently examined by Master Filippo Fundicario di Salerno, a physician and doctor of medicine.[106]

Surgeons also dealt with fractures and dislocations of bones. In 1311, Deodatos, cirurgicus ydiotus, a designation which probably implies that he was a non-professional practitioner of surgery, received a license which certified that he was skilled in curing dislocations and bone fractures.[107] Some years earlier, in October, 1301, a license issued by King Charles II (1285-1309) testified to Filippo Di Giovanni's experience in dealing with fractures and dislocations, mentioned his examination by Brother Bernard, a surgeon, and gave him permission to practice his skills in the jurisdiction of Capitanata, east of Naples.[108] Master Giovanni Falcono "de terra Montis Aperti," a general surgeon, was on November 22, 1322, examined by physicians and surgeons who testified that Giovanni possessed skill not only in the treatment of dislocations but also in the care of recent wounds and hernias.[109] Thus Master Giovanni straddles several

areas of surgery at once and introduces the treatment of wounds as a specialty.

The treatment of wounds and the care of extrinsic or external abscesses, which were usually grouped together as a single specialty, were probably the least complex of surgical specialties. On the basis of specialty licenses still available to us, it appears that their practitioners were probably the most numerous. Representative of these licenses is one issued to Master Matteo di Manso of Naples on June 17, 1307, which stated that Matteo had been examined by the royal surgeons and was skilled in two areas of the art of surgery, in the care of wounds and extrinsic abscesses.[110] Another license issued a few weeks later on July 21st to Master Jacopo di Fisando da Scalea is similar in content but is additionally noteworthy because it was dated in the "Hospitali Montis Virginis" by King Robert's lieutenant, Niccolo Friczia da Ravello, who took the place of Protonotary of the Kingdom of Sicily during the reign of Robert the Wise and earlier during that of Charles II.[111]

Generally it appears that the licensing examinations were given by the Royal Curia in Naples. In the case of scholars working toward the Baccalaureate in Medicine Charles I stipulated that examiners would be sent to the candidate in Naples if the Curia was delayed in some distant region of the kingdom.[112] This privilege may also have been extended to those seeking medical licenses. However, licenses for the practice of medicine and surgery were granted by representatives of the king in many places other than Naples. Niccolo Friczia, for example, granted licenses by the King's authority in Naples in

October of 1307,[113] but also in Aversa in September, 1304,[114] and Manfridonia, an Adriatic seaport town, in March, 1307.[115] Other licenses were granted in Trani,[116] "Lacumpensulem,"[117] "Turrim Sancti Herasmi,"[118] Avellino,[119] and Aquila.[120] Thus, it is possible that in some of the instances mentioned above, the examiners travelled to the petitioner to administer the examination. It might also be mentioned here that at least three men, beside Niccolo Friczia, had represented Angevin rulers in authorizing the issuance of licenses. Bartolommeo da Capua represented Robert the Wise in Naples in 1330,[121] Archbishop Roger of Bari represented King Ladislaus in 1345[122] and Gurrellus Aurilia of Naples represented King Ladislaus in 1407 in Naples.[123]

The final specialty for which there are licenses available in Naples concerned diseases of the eye. However, ophthalmology as a science was only in an early stage of development during this period, for in none of the four licenses in which eye care is mentioned does it appear by itself or with specialties of known complexity. In the case of Master Nicandro di Vayrano, the license states that he was skilled in the cure of wounds, abscesses and diseases of the eyes.[124] Master Anselmo of Naples was skilled in the cure of hernias and the eyes,[125] and Giovanni di Policastro only in the cure of diseases of the eyes and of simple wounds.[126] This last license is perhaps the most indicative of the status of ophthalmology in the fourteenth century. Certainly an area of medicine about which a great deal was known would hardly be entrusted to a person whose only other area of medical competence was the care of simple wounds. Giovanni di

Policastro was probably limited to certain simple practices, not for any great skill that he possessed in their cure but rather for lack of better medical knowledge. Realistically his license should not be considered a license to practice a specialty in the modern sense. Rather, his status may be more closely akin to that of the modern medic or nurse, qualified to deal with minor medical matters for which the attention of a physician was not necessary or not available.

The fourth license for diseases of the eyes however is particularly interesting because it was granted to Clarice di Durisio da Foggia who specialized in the diseases of the eyes of women.[127] As such she is one of twelve women during the Angevin period whose licenses are still extant. The earliest of these licenses is dated 1307 and the latest 1345. Most of the licenses, such as those granted to Trotta da Troya in 1307 and to Francisca di Vestis in 1308 by King Robert followed the standard form similar to that of Jacobo di Suessa described above, and there is every reason to believe that the procedures followed in granting licenses to women were the same as those for men. Both Francisca and Trotta were examined by Masters designated by the King, Francisca by Master Giovanni, a surgeon,[128] and Trotta by Master Raynaldo.[129] Another woman, Lauretta, wife of Giovanni di Ponte da Saracena Calabria, was examined by Francis of Piedmont,[130] the very prominent physician who taught at the University of Naples for many years and probably examined more candidates than any other Neapolitan physician at the time.

Since these women displayed a degree of competence apparently equal to their male counterparts, they were, so far as can be

determined, given the same rights without limitations. After being examined, Francisca and Trotta were licensed to practice their skills in the jurisdiction of Capitanata. Their licenses mention no unusual limitations and in most cases there is no reason to believe that they were expected to practice their skills on women alone and not on men.

There were a number of other women who also received licenses. Isabella da Ocre, who held a license in general surgery, was skilled in the care of wounds and simple abscesses and had her license renewed in the months between September 1330 and August 1331.[131] Margarita da Venosa[132] and Polisena da Troya[133] received similar licenses in 1333 and 1335. Raymunda da Taberna was licensed to practice surgery in the healing of cancers, simple wounds and ulcers.[134] Margarita di Ruga da Botonto received the "privilegium chirurgie" to heal wounds, abscesses and ulcers between September, 1343 and August, 1344.[135] However, it appears that the surgery in which these women were skilled was primarily of the simplest type. Isabella's renewed letter of certification mentioned only simple wounds and abscesses. Margarita's license mentioned only car of old (and perhaps therefore no longer dangerous) wounds and simple abscesses. That of Polisena da Troya mentioned simple wounds and abscesses. Generally all the functions mentioned would, usually, in the present day, be performed by nurses rather than doctors. Of course simple surgery was not limited to women alone during the Angevin period in Naples. Matteo Pagano da Ariano in 1341-1342 had also been limited to the cure of small abscesses, simple wounds and hernias,[136] for example, so it does

seem that women alone were limited to simple tasks simply because they were women. However, when women got involved in more complex areas of surgery they apparently tended to specialize in the cure of diseases peculiar to women. It is possible that they did so because their interest tended in that direction or because the diseases of women were not properly dealt with or cared for by the males of the profession. Realistically, however, it was probably social convention that forced them into the treatment of other women whether they cared to do so or not. Maira Gallicia specialized in gynecological surgery.[137] Clarice di Durisio da Foggia specialized in diseases of the eyes in women.[138] Margherita di Napoli da S. Maria was skilled in the cure of wounds and abscesses in the breasts and the womb.[139] Maria Incarnata[140] and Francisca, the wife of Matteo di Romano,[141] were however, fully qualified as common surgeons.

It might be concluded from the above licenses that in Naples in the Angevin period, women played an important but generally limited role in the practice of medicine. Their training, if their licenses may be used as a guide, was often minimal and usually they practiced only the simplest form of medicine. Where they did possess more advanced medical knowledge it was exercised almost exclusively in gynecology or at least in the service of the medical needs of women. Whether female surgeons primarily practiced on women out of necessity or whether they developed a primarily female practice out of inclination cannot be known from the evidence available, but it is possible that both factors played a role in the circumstance. Whatever the case, the involvement of women in surgery and medicine in Naples was

apparently quite rare. That only a dozen women can be found among over 3500 licensees from a period of over one hundred and fifty years seems apparent proof of that. However, it is only recently that circumstances have changed to any siginficant degree so that in the participation of women in medicine, Naples may have been ahead of its time in the fourteenth and fifteenth centuries.

Another matter that remains to be considered before formulating some general conclusions in regard to governmental regulations and medical practice under the Angevins is that of the examiners. These men, approximately forty in number for the thirteenth, fourteenth and early fifteenth centuries, made the final decision on who should practice medicine and surgery in the kingdom through the examination procedure for the licenses. Consequently, it was upon their decision that the quality and reputation of medicine and surgery in Naples and the kingdom rested. With such responsibility they should have been and apparently were the most qualified individuals that could be found in the kingdom. All of them were probably personally known to the king, and some of them had even treated him, the royal family and Neapolitan nobility. Others were ecclesiastics and some were associated with the university. As such, they probably represented the highest degree of medical competence available in the kingdom. The most prestigious of the examiners were probably those associated with the University of Naples. Among these were Jacob of Brundisi, Giovanni di Tocco, Simone Guindaccio, Matteo di Platamone, Tommaso di Fiorenze and the man who achieved probably the highest degree of fame and an international reputation, Francis of

Piedmont.

The last named, Francis, whose only surviving work, the Supplementum will be considered in later chapters, was a court physician of King Robert the Wise and is considered to be one of the most illustrious scientists of Italy.[142] He came to Naples, probably very late in the thirteenth century from Salerno where he may have studied. Not much is known about his personal life but he was apparently a man of considerable wealth. He had an extensive practice in the city of Naples, where his patients were members of the most prominent families of the kingdom. He held an annual provision from the King and several fiefs, and he was also a professor of medical science in the University of Naples from which he received a salary of twenty ounces of gold annually until his death in 1320. Thus, when the selection of examiners had to be made, Francis of Piedmont was frequently the choice of King Charles II and King Robert the Wise to administer the examination. As a result his name appears on numerous licenses during the fourteenth century.[143]

Of the others named, Jacob of Brundisi, who was also known as Jacopo Pipino di Brundisi, also achieved something of an international reputation, though he was probably not as well known as Francis of Piedmont. According to George Sarton, Jacov was an unimportant physician because he left no writings,[144] yet Jacob, like Francis, was a court physician to Angevin rulers from 1296 to 1326 and also received several fiefs from Charles II for his services. Jacob taught in the University of Naples from 1304 to 1309 and examined many surgical and medical candidates during this period.[145]

Giovanni di Tocco taught in the University of Naples from 1294 to 1308 for an annual salary of twenty ounces of gold, but he is known more for his political activity than for his scientific achievement. Giovanni, a priest and physician, was sent as ambassador to the papal court of Clement V by Charles II in 1308, and, prior to that, in 1304, he had been named to the Church of S. Croce di Bari. Calvanico refers to him as an uroscopist and ecclesiastic and his name can be found on over a hundred licenses from 1295 to at least 1304.[146]

Simone Guindaccio was another clergyman prominent in Neapolitan medical circles. According to De Renzi, the Guindazzo or Guindaccio family was one of the illustrious families of Salerno[147] but Simone apparently chose to make his contribution and reputation in Naples. Simone was the archdeacon of the Duomo di Capua, Rector or Abbot of the College of S. Giovanni Maggiore in Naples, and professor of medicine in the University from 1278 to 1306. These obligations apparently kept Guindaccio from serving on many examination committees, however, because his name can be found on only two licenses from the years 1305 to 1306.[148]

Unfortunately, these are the only examiners for whom we are able to supply even such meagre information. There is even less known about the others. Of the two other university people, it is known that Tommaso di Fiorenza taught medicine in the University from 1269 to 1274 for a salary of twelve ounces of gold.[149] Matteo di Platamone was Archdeacon of the Cathedral of Cappaccio, Rector of the Church of S. Salvatore di Fundicario of Salerno, and professor

of medicine in the University of Naples in at least 1309. He gave examinations at the request of King Robert to Marrio di Masestro Bonfacio da Verona in surgery in 1319 and, with Francis of Piedmont, in 1320 to Tommaso di Scanzano in medicine.

Concerning the other examiners, in a few instances we have a little information about their lives. It is known that Adam di Braya (fl. 1274-75), a physician,[151] and Brother Bernard, (fl.1301) a surgeon,[152] were both clerics personally known to their sovereigns. Guglielmo di Sandonnino (fl.1296), a physician, was a recipient of the tonsure and administered an examination to Annio di Andrae.[153]

In addition to these examiners, twenty-four others, nine physicians and fifteen surgeons, are known to us in name only. The physicians were Symone Calvomonte (fl.1276-90?),[154] Amando di Grecis (fl. 1278),[155] Jacobo di Esclusa (fl. 1290-94),[156] Guglielmo di Digne (1296-97),[157] Guglielmo di Sancto Sopino or di Sandonnino (fl. 1296),[158] Antonio di Potentia (fl. 1300),[159] Giovanni di Ursis (fl. 1300),[160] Antonio Areis (1303-04),[161] and Guillelmo di Colobienis.[162] The surgeons were Giovanni di Vessero (lf. 1278),[163] Giovanni di Nigella (fl. 1278),[164] Giovanni di Tritis (fl.1300),[165] Torrosano di Tocco (fl.1304),[166] Filippo di Fundicario da Salerno (fl. 1306),[167] Francesco d'Andrea (fl.1306-1307),[168] Guglielmo da Lanciano (fl.1307),[169] Salomone (fl. 1309-10),[170] Matteo Filimarino da Napoli (fl. 1313),[171] G. di Blasio (fl.1313),[172] Bartolommeo Macedonia (fl. 1320-21),[173] Napolitano di Napoli (fl. 1321),[174] Guglielmo di Anglona (fl. 1322)[175] Giacomo Comite (fl. 1322)[176] and Master Raynaldo.[177]

Apparently in many instances the king personally selected the

physicians or surgeons who were to examine the candidate, and while usually only a single examiner was chosen, there were some occasions where the candidate found himself confronted by two or even three examiners. In 1276 for example, Jacobo di Napoli, phisicus was examined in medicine by three physicians, Master Symone Calvomonte, Master Tommaso di Florencia and Master Girardo.[178] The same three physicians also examined Master Cino di Florencia, medicus,[179] in September 1278, less than five months after King Charles I set forth the regulations for the Baccalaureate in Medicine. In 1278, Master Niccolo di Pontecorvo faced two examiners, Giovanni di Nigella and Tommaso di Florencia,[180] just as Master Nicolao, fisico did in 1294 when he faced Jacobo di Esclusa and Giovanni di Tocco.[181]

The reason for these variations in the number of examiners is not clear though it probably had something to do with circumstance and the availability of the persons involved. Yet one may presume that whatever the number of examiners, the candidate did not have an easy time of it and that the examination and licensing procedure did help to maintain the highest medical standards known to the time.

Unfortunately the information provided by licenses is limited. Licenses as a source of information for the nature of Neapolitan medicine for the thirteenth, fourteenth and early fifteenth centuries reveal more about nontypical than typical practices since the licenses that afford the most information are the specialty licenses granted in relatively unusual circumstances. Unusual skills had to be spelled out in these licenses, whereas the more customary methods and procedures of surgeons and physicians, utilized in day to day

practice, did not have to be. Consequently the licenses do not show us the routine methods and medicines that might provide the best understanding of the nature of medical practice in Naples at the time. Also the licenses do not really help to clarify the exact nature of the relationship between physicians and surgeons. They do show, however, that there was a great disparity in the abilities of individual surgeons and that true surgical specialists were better trained and more highly regarded than general surgeons whose practice was limited to the most mundane of medical tasks. But whether the great discrepancy in the training and ability of srugeons served to lower the status of all surgeons in the eyes of the community in general and of physicians in particular is not clear. Nor is it easy to speculate upon, especially since so little is known concerning the training of surgeons in Naples at the time. Physicians apparently possessed a stable and standardized level of competence and ability that resulted from a reasonably standardized training procedure, but whether this is also true for surgery is not known for certain. No mention of surgical study is made in the documents available to us except for Frederick's assertion that the surgeon must have at least one year of training.

Frederick also made further stipulations. He asserted that "no surgeon shall be admitted to practice who does not present testimonials from masters in the faculty of medicine, stating that he has studied at least one year in that field of medicine which develops skill in surgery, in particular that he has learned in the schools the anatomy of human bodies, and that he is proficient in that field

of medicine without which incision cannot be safely made nor healed, once made."[182] Apparently, then, the requirement of examination and licensing before the king was an attempt to impose a specific standard of achievement upon surgeons. Yet, despite the requirement of Frederick, standards still varied greatly many years later as the surgical licenses testify. Nevertheless, the licenses did apparently make clear what could reasonably be expected from a particular surgeon. Serious illnesses and wounds apparently were not treated by a surgeon qualified to care only for simple wounds, for example. And by implication, simple wounds might not have been brought to a surgeon who performed delicate operations either. Consequently, the licenses may have allowed one to know what to expect and they may also have helped to raise the standard of medical and surgical practice at the time.

In medicine, and perhaps in surgery also, much of the training was presumably carried on in the University by teaching physicians within the arts curriculum in accordance with the regulations set down by Charles II in 1278. In the years following that decree and before the fifteenth century, many additional physicians can be associated with the teaching of medicine in the university. In order of the years of their appointments, their names follow. Matteo Franco di Napoli,[183] Benedetto di Aversa,[184] and Giovanni Caracciolo,[185] taught medicine in the university in 1290. Caracciolo, who also taught logic was a member of a well known Neapolitan family. It was perhaps a descendant of his, Octino Caracciolo, the Chancellor of the kingdom of Naples under Queen Joanna II (1414-1435), who became

the first Rector of the College of Doctors of Arts and Medicine in 1430. Riccardo da Sorrento taught medicine and also physica in 1294.[186] Bonino da Bergamo taught medicine from 1299 to 1307,[187] Giovanni Pironte da Ravello in 1301,[188] and Accorsino da Cremona from 1302-1307.[189] Riccardo Fasano taught medicine at the university from 1303 to 1307 and received an annual salary of fifteen ounces of gold in at least one of those years. He died in 1333.[190] Jacob of Brundisi[191] and Matteo Platamone,[192] mentioned previously, taught medicine in the years 1305-1322 and in 1309 respectively.

Nicolas of Reggio, another of the teaching physicians, came to Naples possibly in 1309 at the request of King Charles II. According to Sarton, he had studied medicine and Greek in Reggio, Calabria, and it is largely because of his knowledge of Greek that he became internationally known. Since Nicolas could read the manuscripts of Galen, Hippocrates, and others, in the original Greek, and translate them directly into Latin, it was possible in Naples to bypass the influence of Moslem intermediaries and consequently Moslem influences. Many of the original manuscripts found their way to Naples and into the hands of Nicolas as the result of King Robert's contact with the Byzantine Emperor Andronicis II.[193] Wickersheimer associates Nicolas with the teaching of medicine at the University of Naples in 1309, and it has been asserted, moreover, that he was actively translating Greek treatises in Naples from 1308 and continued to do so until 1345 at least. Sarton is one of the opinion that the main translations of Nicolas were of Galen's treatise on the parts of the body, De usu partium, which he dedicated to King

Robert in 1322, and a translation of the Greek medical text of Nicholas Myrepsos of Alexandria. This later text, when combined with a Salernitan antidotary, remained, the standard pharmacopia in Paris until the seventeenth century.[194]

Arnold of Villanove and Arnold of Naples, who are discussed in the following chapter, have been associated with medical teaching in the university in 1305-1311 and 1319 respectively.[195] Giovanni di Montella da Benevento taught medicine from 1315 to 1317.[196] Pietro di Pirie taught in 1332 for a salary of twenty-four ounces of gold.[197] Bartolomeo da Bisento taught medicine from 1333 to 1349.[198] Tancredi da Arezzo,[199] Landolfo Vermiglia,[200] Ligorio Gizzula da Napoli[201] and John of Genoa[202] taught medicine in 1338. Ligorio Gizzula also taught arts.

John of Genoa, moreover, is known for his writings on astronomy. In 1332 he compiled the canons for the calculation of eclipses and calculated the eclipse of the sun which was to take place on March 2, 1337. Duhem asserted that John was the surgeon and physician of Pope Clement IV in 1348. Duhen, probably incorrectly, has placed him in Paris in 1337, calculating an eclipse,[203] and Monti has him teaching in Naples in the following year.[204] He may have been a very eminent person of the time. Giacomo da Falco Cavaliero, according to Origlia, taught medicine for twelve ounces of gold in 1345. Monti gives the date 1346.[205] Giacomo Gagna da Napoli taught medicine in the University of Naples in 1350,[206] and Angelo di Ceprano in 1393.[207] Thus it appears that by the end of the fourteenth century medical study within the University of Naples was well established and medical regulation in the Kingdom was well organized.

NOTES TO CHAPTER ONE

[1]The chronicle for the year 1224 reads as follows: "Mense Iulii pro ordinando studio Neapolitano imperator ubique per regnum mittit litteras generales." Ryccardi de Sancto Germano Notarii Chronica, Monumenta Germaniae Historica. Scriptorum (Hanover: Impensis Bibliopolii Aulici Hahaniani, 1866) XVIIII, 343-344.

The major secondary work on the University of Naples is that by Francesco Torraca ed., Storia della Universita di Napoli (Naples: Riccardo Ricciardi editore, 1924). A much earlier work commonly used by subsequent authors on the university is: Giangiuseppe Origlia, Istoria dello Studio di Napoli 2 vols. (Naples: Stamperia de Giovanni di Simone, 1753). Rashdall, I, 21-22 lists many works that contain short accounts of the foundation of the University. Included among them are: Heinrich Denifle, Die Entstehung der Universitäten des Mittelalters bis 1400 (Groz: Akademiche Druck-U. Verlagsanstalt, 1885; reprinted 1956), and Charles Homer Haskins, Studies in the History of Mediaeval Science (Cambridge: Harvard University Press, 1924; republished New York: Frederick Ungar Publishing Co., 1960). Two additional secondary sources are: Demetrio Roncali, "Frederico II e lo Studio Generale di Napoli," Archivio per gli Studi Storici della medicina e della Scienzi Naturali, I (1926-1927), c-cxxvi, and Romualdo Trifone, L'Universita degli Studi di Napoli dalla fondazione ai giorni nostri (Naples: Tip. A. Caldarda, 1954). Two works by Carlo di Frede are informative regarding the Renaissance and earlier period. They are: Studenti e Uomini di Leggi a Napoli

nel rinascimento (Naples: L'Arte tip., 1957) and "Note Sulla vita dello Studio di Napoli durante il Rinascimento," Archivio Storico per la province Napoletane, LXXIII (19), 135-146. A third work by the same author is I Lettori di umanita nello Studio di Napoli durante il Rinascimento (Naples: 1960), not seen. Another useful work is that by Michele Fuiano, Insegnamento e cultura a Napoli nel Rinascimento (Naples: Libreria Scientifica Editrice, 1971). Documents for the university can be found in Huillard-Bréholles, Marinis, Nuovi documenti, and Cannavale, Lo Studio, mentioned previously.

[2]"Disponimus autem apud Neapolim, amenissimam civitatem, doceri artes cuiuscunque professionis (et) vigere studia: ut jejuni et famelici doctrinarum in ipso regno inveniant unde ipsorum aviditati satisfiat, neque compellantur ad investigandas scientias peregrinas nationes expetere nec in alienis regionibus mendicare." Huillard-Bréholles, II, pt. 1, 450-51, Doc. III.

[3]"Illos siquidem in conspectu parentum suorum ponimus, a multis laboris liveramus, a longis itineribus et quasi peregrinis absolvimus: illos tutos facimus ab insidiis predatorum; et qui spoliabantur fortunis suis et regus . . ." Ibid.

[4]Antonio de Stefano, La Cultura alla corte di Frederico II imperatore (Bologna: N. Zanichelli, 1950), p. 280; and Haskins, p. 258.

[5]". . . mittimus magistrum R. de Benevento judicem et magistrum Petrum de Ysernia, fideles nostros, civilis scientie professores, viros magne scientie, note virtutis et fidelis experientie, quam nostre semper exhibuerunt et exhibent majestati, de quibus, sicut de aliquibus regni nostri fidelibus, fiduciam gerimus plenioram. Huillard-Breholles, II, pt. i, 451-452, Doc. III.

[6]"Hospitium quod melius in civitate fuerit scholaribus locabitur pro duarum unicarum auri annua pensione. . . Predicta autem precaria a creditoribus non revocabuntur, quam diu scholares voluerint in studio permanere." Ibid.

[7]". . . ubi ample domus et spatiose satis, et ubi mores civium sunt benigni; ubi etiam necessaria vite hominum per terras et maritimas facile trasvehuntur . . ." Also on p. 453 is found the following statement: "De frumento autem, vino carnibus, piscibus, et aliis que ad victum pertinent, modum nullum statuimus, cum in his omnibus abundet provincia." Ibid., p. 451.

[8]". . . et qui de regno sunt extra regnum in scholis, sub pena predicta eorum parentibus injungatis ut usque ad festum Sancti Michaelis nunc proximo revertantur." Ibid., p. 452.

[9]"Hac edictali constitutione sancimus ut nullus, qui sit nostri Imperii et Regni iurisdictioni subiectus, Bononie addiscere audeat vel docere. Quot si quis post quattuor menses a presentis constitutionis

promulgatione contravenire presumpserit, sit ipso iure infamis. . ." This quotation is found in: Augusto Gaudenzi, "La costituzione di Frederico II," Archivio storico Italiano, 5th series, vol. 42 (1908) 356. In this article Gaudenzi published "La costituzione di Frederico II che interdice lo Studio Bolognese" which he discovered.

[10]"Hoc autem Bononienses minime attendendo, in multis se nobis non dubitaverunt opponere. Unde illorum excessibus cumulatis, et culpa ipsorum crescente sine numero delictorum, imperiale bannum causis legittimis incurrerunt." Ibid.

[11]"Et ne doctores et scolares pro debitis ipsorum Bononiensium puniantur, apud nobilem civitatem Neapolis, ubi viget Studium a nobis cum multa diligentia ordina (tum va) dere non postponant, in personis et rebus sub (nostra aucto) ritate et protectione secure; ubi et loci viget amenitas, rerum copia et doctorum societas honorata." Ibid.

[12]Origlia, I, 89.

[13]Origlia, I, 89-90. Page 90 has an excerpt from Richard of St. Germano who is the source for this information.

[14]Francesco Torraca, "Le Origini. L'Eta Sveva," in Storia della Universita de Napoli, ed. Francesco Torraca, p. 7; Gennaro Monti, Lo Stato Normanno Svevo (Trani: Vecchi and Co., 1945) pp. 68-69; and de Stefano, p. 189. Documents to illustrate the fact may be found

in: Eduard Winkelmann, Acta Imperii inedita saeculi XIII et XIV (Innsbruck: Neudruck der Ausgabe, 1880; reprinted, Scientia Verlag Aalen, 1964) I, 649, Doc. 842; and Huillard-Bréholles, IV, pt. 1, 496-97.

[15]de Stefano, p. 293.

[16]Torraca, p. 13; Monti, Lo Stato, p. 68.

[17]Ibid., pp. 11-12. The assertion concerning Pietro de la Vigne, disputed by Torraca, was made previously by Rashdall, p. 23. Sources on de la Vigne are: Jean Louis Alphonse Huillard-Bréholles, Vie et correspondance de Pierre de la Vigne, (Paris: H. Plon, 1865; reprinted Aalen Scientia, 1966) and Epistolarum Petri De vineis, Cancellari Quondam Friderici II (Basil, 1956).

[18]Edmund Martene and Ursini Durand, Veterum Scriptorum et Monumentorum Historicorum, Dogmaticorum, moralium, Amplissima Collectio, (Paris: 1724; republished New York: Burt Franklin, 1968), II, 1218-19; and Torraca, p. 13.

[19]Francesco Torraca, "Maestro Terrisio di Atina," Archivio Storico per le Province Napoletane, XXXVI (1911), 231-242; Haskins, p. 251. Monti, Lo Stato, p. 68; de Stefano, La Cultura, pp. 280-81; and Ernest Kantorowicz, Frederick the Second, trans. E.O. Lorimer (New York: Frederick Ungar Publishing Co., 1931; republished 1957),

p. 133. These authors held that law, medicine, arts and theology were taught at the University of Naples from its inception.

[20]Arnold of Villanova, De iudiciis astronomie, ff. 292vb-295va in Hec sunt opera . . . Lyons: 1509. Se also De virtutibus xii signorum. British Museum Additional MS 23770, ff. 92ra-92vb.

[21]For a more detailed discussion of John of Genoa see below Chapter Two. References to John are to be found in footnotes 202-204 of that chapter.

[22]Reference to Petrus de Hibernia and additional information on the man can be found in the following sources: Haskins, p. 251; George Sarton, Introduction to the History of Science (Baltimore: The Carnegie Institute of Washington, 1927) II, pt. 2, 949; Kantorowicz, p. 268. The article by M. Bateson in the Dictionary of National Biography, 1921-22 ed., s.v. "Peter Hibernicus," however, asserts that "it is probable that the jurisconsult is identical with a Master Peter de Isernia." Peter de Isernia is the person designated by Frederick II to bring capable scholars to the newly created university. The most recent study on Petrus Hibernia is that by Michael Bertram Crowe, "Peter of Ireland: Acquina's Teacher of the Artes Liberales," Arts Liberaux. Actes du IVe Congres International de Philosophie Medievale. Montreal and Paris: (1969), pp. 617-629.

[23]Lynn Thorndike, Michael Scot (London: Thomas Nelson Ltd., 1956)

p. 29.

[24]Ibid., p. 1.

[25]Ibid., pp. 72-78 and appendices, pp. 122-138.

[26]Haskins, pp. 246-47.

[27]Ibid., p. 250.

[28]Demetrio B. Roncali, Il Cancro nella Patologia Moderna (Naples: Officina Grafica Napoletana F. Tessitore, 1930-39), pps. 91-93. See also p. 130. According to Francesco Pellegrini, La medicina militare nel regno di Napoli dall' avvento dei Normanni alla caduta degli Aragonesi (Verona: R. Cabianca, 1932), pp. 140-141, this view is also held by M. Mastrorilli in several works that I have not been able to locate. They are: "L'Insegnamento e il Dottorato nella Chirurgia e nella medicina in Napoli, sotto i Normanni, gli Suevi e gli Angioini" (Naples: Francesco Giannini et figli, 1906) and "I lettori della Scuola di medicine di Napoli dal sec. xii alla fine del sec. xviii," (Naples, 1906).

[29]Roncali appears to be stretching the point a bit here. Pertinent passages of Chapter 36, "Of the Sick Brethren" of Benedict's Rule read as follows: ". . . Let the abbot, therefore, take the greatest care that the sick suffer no neglect. For them let a separate cell

be set apart with an attendant who is God-fearing, diligent and painstaking. . . Let the abbot take special care that the sick be not neglected by the cellarer or the attendants because he is responsible for what is done amiss by his disciples." The Rule of Saint Benedict trans., Cardinal Gasquet (London: Chatto and Windus, 1936), pp. 68-70.

[30]For a more detailed discussion on the Baccaulaureate in Medicine see below.

[31]"Quisquis amodo mederi voluerit, officialibus nostris et judicibus se presentet, eorum discutiendus judicio; quod si sua temeritate presumpserit, carceri constringatur, bonis suis omnibus publicatis. Hoc enim prospectum est ne in regno nostro subjecti periclitentur ex imperitia medicorum." Huillard-Bréholles, IV, pt. 1, 149, titulus LXIV.

[32]"Presenti etiam lege statuimus ut nullus in medicina vel chirurgia nisi apud Salernum /vel Neapolim/ legat /in regno/, nec magistri nomen assumat, nisi diligenter examinatus in presentia nostrorum officialium et magistorum artis ejusdem." Ibid., p. 151, Titulus XLVII.

[33]Ibid., p. 51, footnote a. For editions and manuscripts Hulliard-Bréholles used in the presentation of the Constitutions of 1231 see IV, pt. 1, 1-2.

[34]Nancy G. Siraisi, Arts and Sciences at Padua (Toronto: Pontifical Institute of Medieval Studies, 1973) pp. 59, 69-70.

[35]Paul Oskar Kristeller, "The School of Salerno, its development and its contribution to the history of learning," Bulletin of the History of Medicine, XVII (1945), 145 and 162.

[36]Ibid., p. 174.

[37]"Quia nunquam sciri potest scientia medicine nisi de logica aliquid presciatur, statuimus quod nullus studeat in medicinali scientia nisi prius studeat ad minus triennio in scientia logicali; post triennium si voluerit, ad studium medicine procedat in qua per quinquennium studeat; ita quod chirurgiam que est pars medicine infra predictum tempus addiscat." Huillard-Bréholles, IV, pt. I, 235, Titulus XLVI.

[38]"Magistri vero infra istud quinquennium libros authenticos tam Hippocratis quam Galeni in scholis doceant, tam in theorica quam in practica medicine." Ibid., IV, pt. I, 236.

[39]"Salubri etiam constitutione sancimus ut nullus chirurgicus ad practicam admittatur, nisi testimoniales litteras offerat magistrorum in medicinali facultate legentium quod per annum saltem in ea parte medicine studuerit que chirurgie instruit facultatem, presertim anatomiam humanorum corporum in scholis didicerit, et

sit in ea parte medicine perfectus sine qua nec incisiones salubriter fieri poterunt nec facte curari." Ibid., IV, pt. I, 236-237.

[40]Haskins, p. 257.

[41]This work is most readily available in its English translation published as the Art of Falconry: being the De Arte Venandi cum Avibus, trans. and ed. Casey A. Wood and F. Marjorie Fyfe (Stanford, California: Stanford University Press, 1961). This edition has an extensive bibliography of manuscripts and printed works. For a critical analysis of De Arte see: Charles Homer Haskins, Chapter XIV "The De Arte Venandi cum Avibus of Frederick II," in Studies in the History of Medieval Science, pp. 299-326.

[42]Matthew Paris, Matthew Paris's English History: from the year 1235-1273, trans. J.A. Giles (London: Henry G. Bohn, 1852-54), I, 369. Mentioned also in Edward F. Hartung, "Medical Regulations of Frederick the Second of Hohenstaufen," Medical Life, XLI (1934), 587-601.

[43]Haskins, p. 289. See also Modestino del Gaizo, "Della practixa della anatomia in Italia sino al 1600," Atti della Academia Medica-Chirurgica di Napoli, XLVI (1892), 97.

[44]"In terra qualibet regni nostri nostre jurisdictioni subjecta suos viros circumspectos et fide dignos volumus ordinari et corporali

per eos prestito sacramento teneri, quorum nomina ad curiam nostram mittentur sub quorum testificatione electuaria et syrupi ac alie medicine legaliter fiant et sic facte vendantur." Huillard-Bréholles, IV, pt. 1, 151. Titulus XLVII.

[45]"Non contrahat societatem cum confectionariis nec recipiat aliquem sub cura sua ad expensas pro certa pretii quantitate, nec ipse etiam habebit propriam stationem." Ibid., IV, pt. 1, 236.

[46]". . . de confectionibus et simplicibus medicinis que non consueverunt teneri in apothecis ultra annum a tempore emptionis, pro qualibet uncia poterit et licebit tres tarenos lucrari. De aliis vero que ex natura medicaminum vel ex alia causa ultra annum in apotheca tenentur, pro qualibet uncia licebit lucrari sex tarenos." Ibid.

[47]"Iste medicus visitabit egrotos suos ad minus bis in die, et ad requisitionem infirmi semel in nocte, a quo non recipiet per diem, si pro eo non egrediatur civitatem vel castrum, ultra dimidium tarenum auri. Ab infirmo autem extra civitatem visitat, non recipiat per diem ultra tres tarenos cum expensis infirmi, vel ultra quaturo tarenos cum expensis suis." Ibid.

[48]"Confectionarii vero facient confectionem expensis suis cum testimonio medicorum. . ." Ibid., and "Conficientes etiam medicinas sacramento corporaliter prestito volumus obligari ut upsas fideliter

juxta artes et hominum qualitates in presentia juratorum conficiant." Ibid., IV, Pt. I, 151, Titulus XLVII.

[49]"Nec stationes huius modi erunt ubique sed in certis civitatibus per regnum, ut inferius describitur." Ibid., IV, pt. I, 236. See also footnote 2, p. 263.

[50]Torraca, "Le Origini, L'Eta Sueva," pp. 9-11.

[51]The Angevins ruled in southern Italy from 1266 to 1458.

[52]Gennaro Maria Monti, "L'Eta Angioina," ed. Francesco Torraca, Storia della Universita di Napoli, p. 87. This article will be cited henceforth as Monti, Storia.

[54]Brief biographical sketches of Giovanni Casamicciola can be found in Origlia, I, 141-142; the article by Monti, Storia pp. 99-100; Pellegrini, p. 278; Salvatore De Renzi, Collectio Salernitana (Bologna Forni Editore, 1852-59; reprinted 1966) I, 345-46; Calvanico, p. vii; René Verrier, Études sur Arnaud de Villeneuve 1240 (?)-1311 (Leiden: E.J. Brill, 1949),p. 135; Charles Adolphe Ernest Wickersheimer, Dictionnaire biographique des medecins en France au moyen age (Paris: E. Droz, 1936) I, 46, s.v. "Arnaud de Villeneuve." Casamicciola is a locality on the island of Ischia. Verrier says he taught at the

University of Naples from 1268-1278, p. 129-135. Verrier also said he was the "primat," the first personality of the school of medicine.

[54]Origlia, I, 141-142.

[55]De Renzi, Collectio, I, 345, dates Casamicciola's association with the University of Naples back to approximately 1250. His reasons for doing so, however, are not clear.

[56]See below Chapter Three.

[57]Origlia, I, 141. There are also references to Filippo da Castelcielo in Monti, Storia, p. 84.

[58]Girolamo Tiraboschi, Storia della letteratura italiana (Firenze: Presso Molini, Landi, E C°, 1805-1813), IV, 209-210.

[59]References to Tommaso di Fiorena are to be found in Monti, Storia, p. 84 and in Origlia, I, 141. His name also appears on the following documents in Calvanico, Fonti per la storia della medicina, docs. 134, 141, 180, 203-4 and 227. He is not to be confused with Tommaso di Florentia also known as Tommaso del Garbo who flourished in 1327.

[60]". . . nostros magistros Symonem de Calvomonte, Johannem de Nigella et Thomasium de Florencia dilectos." Calvanico, p. 18, doc. 204.

[61] Origlia, I, 142; and in Monti, p. 84.

[62] Monti, Storia, p. 86.

[63] ". . . examinato in arte phisice per magistros Iohannem de Trano et Iohannem de Tocco." Calvanico, p. 88, doc. 355. The original document was the Angevin Registry no. 87, f. 87t no longer extant.

[64] According to Origlia, I, 140, Morando taught as early as 1268. Monti, p. 86 gives his dates as 1275-78.

[65] Monti, Storia, p. 86; and Origlia, I, 140.

[66] Origlia, I, 140 for Nicolo. For Palmerio, see Origlia, I 140, and Monti, Storia, p. 86. Origlia dates him 1269 and Monti 1270-83.

[67] "Quia nunquam sciri potest scientia medicine nisi de logica aliquid presciatur, statuimus quod nullus studeat in medicinali scientia nisi prius studeat ad minus triennio in scientia logicali." Huillard-Bréholles, IV, pt. 1, p. 235, Liber III, Titulus XLVI.

[68] Kristeller, p. 159.

[69] Pellegrini, p. 33.

[70]Salvatore De Renzi, Storia della Medicina II, 136. C. H. Talbot, Medicine in Medieval England (New York: American Elseview Publishing Co., Inc., 1967) p. 34, makes the distinction between physicus and medicus. The medici were practitioners of medicine while the physici were the learned doctors of the university who dealt with the theories of medicine.

[71]I used the word "apparently" because the sources that Calvanico used for reconstruction were sometimes based on Italian excerpts of Latin texts. Consequently, it is possible that the word medico was interchanged with phisico or phisicus at a later date. Nevertheless, compare Calvanico, docs. 259, 261, 370 and others, where Giovanni is referred to as phisicus, with doc. 3245 where he is called medicus.

[72]Compare, for example, Calvanico, docs. 504, 510, and 511, where Jacob is called phisicus with doc. 508 where he is called medicus. The opening comment in footnote 71 applies here and in the following footnote also.

[73]Compare Calvanico doc. 235 in which he mentions, medicus with doc. 232 which uses the term phisicus.

[74]G. W. Coopland, Nicole Oresme and the Astrologers: a study of his Livre de Divinacions (Liverpool: at the University Press, 1952), p. 6.

[75]Monti, Storia, p. 86

[76]Ibid.; and Origlia, I, 140.

[77]Monti, Storia, p. 86.

[78]Origlia, I, 140.

[79]Isidore of Seville, The Medical Writings, trans. William D. Sharpe (Philadelphia: American Philosophical Society, 1964) p. 9 of Introduction; and Lynn Thorndike, A History of Magic and Experimental Science (New York: Columbia University Press, 1923; reprint 1964) I, 624-25.

[80]Monti, Storia, p. 86.

[81]Ibid., p. 87.

[82]Ibid., p. 84.

[83]"Re Carlo concede licenza a Maestro Rodrigo Fernando spagnuolo di S. Giacomo in Gallizia, medico e familiare del defunto pontefice Giovanni XXI, di potere insegnare medicina ed esercitare la sua professione medica nella citta di Napoli . . . E nello stesso tempo partecipa ad Giustiziero degli scolari della Studio di Naopli che il detto Rodrigo e licenziato in quelle scienze, come resulta da diplomi

relasciatigli dallo studio di Parigi, e percio gli a accordato il miorlegio di reggente nello studio di Napoli" This translation done from the Anjevin register by Camillio Minieri-Riccio "Il Regno di Carlo I° d'Angio, "Archivio Storico Italiano, XXCI (1877) 218; Monti, Storia, p. 84.

[84] Dorothy Louise Mackay, "Advertising a Medieval University," American Historical Review XXXVII (1932-33), 515-516.

[85] Ibid.

[86] See above. Footnote 37-39.

[87] "Postmodum teneatur audire antequam veniat ad conventum sue licentiam quousque compleverit quadraginta menses in universo incipiendo computationem a prima die qua incepti audire medicinam a magistro conventato regente ut superius dictum est. Si fuerit Magister seu licentiatus in artibus et si non fuerit Magister seu licentiatus in artibus debet audivisse qinquaginta sex mensibus. ita quod non computetur nisi illud tempus in quo ut post dicitur regitur Neapoli . . . (p. 163) item tempos lectionum incipiet a primo die Octubris et terminabitur in fine madij." Camillio Minieri-Ricco. Saggio di Codice diplomatico formatto sulle antiche scritture dell' Archivio di Stato di Napoli (Naples: R. Rinaldi e G. Sellitto, 2 vols., 1878-80), I, 162, Doc. CLXX.

[88]"Audivisse per trigenta menses medicinam a Magistro conventato et regente. diende teneatur respondere bis de questione cum disputatione Magistri regentis." Ibid., I, 162.

[89]"Item forma audicionis librorum talis est teneatur baccalarius audivisse bis Ordinarie ad minus Omnes libros Artis medicine exceptis Urinis teofili et libro pulsuum filiarti quo sufficit semel audivisse ordinarie vel cursorie." Ibid.

[90]"Item regimenta acutarum bis ordinarie. Item quatuor libros Ysac scilicet viaticum dietas. Universales. Urinas. librum febrium Semel ordinarie ad minus. de omnibus predictis teneatur baccalarius facere fidem et prestare Juramentum." Ibid., I, 163.

[91]"Magistri vero infra istud quinquennium libros authenticos tam Hippocratis quam Galeni in scholis doceant, tam in theorica quam in practica medicine." Huillard-Bréholles, IV, pt. 1, 236.

[92]"Item teneatur respondere cuilibet Magistro regenti singulariter de questione et disputatione sua et Magistri qui eum audierint depositionem suam ponant singulariter in scriptis et mittant eam clausam sub sigillis suis Cancellario nostro et tunc examinabitur idem baccalarius in Curia nostra per fisicos nostros qui depositionem suam referent eidem Cancellario." Minieri-Riccio, I, 162.

[93]See above p. 23.

[94]See above p. 23.

[95]Calvanico, Fonti, p. 1, doc. 1.

[96]". . . Cum magister Jacob de Suessa phisicus, fidelis noster, de cuius fide et legalitate laudabile testimonium Curia nostra recepit et quem per magistrum Adam de Braya clericum et Thomam de Florencia medicos familiares et fideles nostros dilectos examinari fecimus diligenter, peritus in medicinali sciencia ad curandum et practicandum in ea sufficiens sit inventus, Nos, recepto ab eo solito fidelitatis et quod iuxta tradiciones ipsius sciencie curabit fideliter corporaliter iuramento, licentiam in praticandi in arte ipsa per totum Iusticiariatum Terra Laboris et Comitatus Molisii tenore presencium sibi duximus concedendum. . . Datum apud Lacumpensulem . . .XII septembris III indictionis." Ibid., p. 4, doc. 41. I have not been able to determine the modern equivalent of Lacumpensulem.

[97]". . . Maria Gallicia. . . perita in arte cirurgie et ad curandum et practicandum in ea, videlicet in vulneribus apostematibus et crepaturis et in apostematibus matricis et aliis accidentibus matricis . . ." Dated in the viii indiction Sept. 1309-April 1310. Ibid., p. 141, doc. 1165.

[98]". . . Sane cum magister Lucas de Pontremulo lumensis dyocesis fiscius atque cirurgicus devotus noster de cuius fide et legalitate receptum in Regia Curia testimonium laude dignum et quem per fisicos

et cirurgicos nostros examinari fecimus diligenter peritus in medicinali sciencia ac arte peritus cirurgie et ad curandum et practicandum in eis sufficiens sit inventus. . . videlicit quod idem magister Lucas in arte cirirgie predicta per totum Regnum Sicilie et in predicta medicinali sciencia per Iustitiariatum Terre Laboris et Comitatus Molisii Principatus ultra citraque serras Montorii et Capitinate curare libere valeat et etiam practicare." Ibid., p. 195, doc. 1873.

99 ". . . Matteo Pagana da Ariano . . . perito in apostematibus parvis et salubribus, et in vulneribus simplicibus parviis et mediis, et in crepaturis." Dated September 1341 - August 1342. Ibid., p. 251, doc. 3477.

100 ". . . Stoyo di Scalmonia, chirurgo perito ad incisionem et extractionem lapidum que nascuntur in testiculis seu vescicis hominum ac etiam puerorum." Sept. 1338-Aug. 1339. Ibid. p. 245, doc. 3405.

101 "Cum magister Franciscus de Palo expertus in arte extractionis lapidis et crepaturarum . . . laudabile testimonium guria /nostra/ recepit, et quem per magistrum Iohannem de Tocco, medicinalis scientie professorum, phisicum familiarem et fidelem nostrum examinari fecimus diligenter, peritus in arte predicta . . . magistrum Franciscum curare et practicari in arte predicta per totum eundem Iustitiariatum . . . Datum Neapoli per Nicolaum Frisciziam de Ravello etc. die XVIII ianuarii XV indictionis (1302)." Ibid., p. 65, doc. 482.

[102] "Cum magister Adam d. Massila, cirurgicus, fidelis regius, devotus noster, de cuius fide et legalitate per testes ydoneos recepto in Curia laudabile testimonium Curia ipsa recepti, et quem per magistrum Rinaldum et Iohannem, cirurgicos et familiares nostros, examinari fecimus diligenter in curis extractionis lapidum et crepature per incisionem peritus suffiens sit inventus. . . Datum Neapoli . . . anno Domini MCCCVII, die xvii ianuarii. . ." Ibid., p. 111, doc. 853.

[103] ". . .Pro magistro Robert magistri Petri de Bulcino . . . examinari diligenter in arte practice cirurgie et in extractione lapidum et herniarum et etiam vulneribus simplicibus . . . Datum Neapoli . . . anno Domini millesimo CCCCVII, die XXVI mensis iulii XV . . ." Ibid., p. 280-81, doc. 3653.

[104] "Pro magistro Antonio di Palo . . . examinari fecimus diligentur peritus in arte cirurgie etc. et signanter in extractione lapidum ac in curatione vulnerum simplicium suffiens sit inventus, Nos recepto etc. juramento, licentiam sibi curandi et practicandi in dicta arte cirurgie in extratione lapidum incisione urinarum et curatione predictarum vulnerum simplicium de certanostra scienta duximus concedendam . . . Datum Neapoli . . . anno Domini millesimo CCCVII, die septimo mensis augusti." Ibid., p. 282, doc. 3655.

[105] "Cum magister Riccardus de Palo . . . peritus in cura egritudineum crepaturarum et lapidis vescice et ad curandum morbos predictos sufficiens sit inventus . . . Datum Averse . . .die xxiii septembris

. . ." Ibid., p. 88, doc. 646.

106"... et quem per magistrum Philippum Fundicarium de Salerno, medicine doctorem phisicum et familiarem nostrum, in absentia cirurgicorum, examinari fecimus diligenter, prius in cura egritudinum lapidis vessice et crepaturarem, et ad curandum morbos predictos sufficiens sit inventus . . . Datum Neapoli . . . anno Domini MCCCVII, die XVIIII septembris . . ." Ibid., p. 122, doc. 852.

107"... pro magistro Deodato da Sancto Andrea in Stagnis cirurgico ydiota perito in curandis dislocacionibus et fracturis ossium examinato per cirurgicos nostros." Ibid., p. 177, doc. 1666.

108"Consituts in Maiestatis nostre presentia Philippus de Iohanne de Sancto Andrea in Stagnis. . . supplicavit ut cum de fracturis et dislocationibus humanorum ossium experientiam habeat, licentiam sibi curandi in huius modi fracturis et dislocationibus concedere dignaremus. Nos autem eundem Philippum per fratrem Bernardum, conversum Ordinis Predictorum, cirurgicum nostrum, diligenter examinari fecimus in premissis. . ." Ibid., p. 64, doc. 477.

109"Magister Iohannes Falconus de terra Montis Aperti cirurgicus ydiota fidelis paternus et noster. . . quem fisicos cirurgicos familiares et fideles paternos et nostros examinari fecimus diligentur, peritus in vulneribus recentibus et dislocationibus ac crepaturis et ad curandum et practicandum in eis sufficiens sit inventus . . .

Datum Neapoli per dominum Bartholomeum de Capua etc. anno Domini MCCXXII, die XXII novembris IV indictionis, regnorum dicti domini Patris nostri anno. XIIII." Ibid., p. 199, doc. 1920.

110 ". . . et quem per cirurgicos nostro examinari fecimus diligenter, peritus in arte cirurgie in duobus articulis videlicet: incurandis vulneribus et apostematibus extrinsecis, et curandum et practicandum in ea, in eisdem duobus articulis sufficiens sit inventus. . . Datum Neapoli per Nicolaus Friscziam de Ravello, Locumtenentem Protonotarii Regni Sicilie, anno MCCCVII, die XVII iunii V indictionis." Ibid., p. 114, doc. 881.

111 ". . . peritus in cura egritudinum vulnerum et apostematum extrinsecarum et ad curandum morbos . . . Datum in Hospitali Montis Virginis per Nicolaum Fricziam de Ravello etc. anno Domini millesimo CCCVII, die XXI iulii quinti indictionis." Ibid., p. 115, doc. 882.

112 ". . . quod autem Cancellarium nostrum in aliquis locis superius nominamus intelligi volumus de Cancellario nostro vel eius locum tenenti quod si nostra curia in partibus multum remotis ad Civitatem Neapolis moraretur Magister qui habebit baccalarium examinandum supplicabit quod, si Curia non debeat in brevi appropinquare Neapoli mittamus aliquos vel aliquem de nostris medicis ad examinandum eum et licentiandum vel vices nostras alicui committamus quantum ad hoc huius forme tamen articulis observatis et de hoc nos nostram tunc respondebimus volumptatem. Item baccalarius poterit eligere magistrum

sub quo onventabitur ad volumptatem suam." Minieri Riccio, Saggio, I, 162.

[113]See for example, Calvanico, p. 114. An excerpt from that document appears in footnote 110 above.

[114]Ibid., p. 88, doc. 646.

[115]Ibid., p. 119, doc. 916. Manfridonia, a port in Foggia province on the Adriatic in Apulia was founded by King Manfred in the thirteenth century.

[116]Ibid., p. 1, doc. 1. Trani is a seaport town in the province of Bari which experienced considerable prosperity during the crusades.

[117]Ibid., p. 15, doc. 180. I have not been able to locate "Lacumpensulem."

[118]Ibid., p. 20, doc. 226. I have not been able to locate "Turrim Sancti Herasmi."

[119]Ibid., p. 24, doc. 257. Avellino is a province twenty miles northeast of Naples.

[120]Ibid., p. 24, doc. 260. Aquila, the second city of the Kingdom of Naples was an important city in the 13th century.

[121]Ibid., p. 81, doc. 582.

[122]Ibid., p. 278, doc. 3643.

[123]Ibid., p. 222, doc. 3122.

[124]". . . Die XX ianuarii eiusdem indictionis sub eadem data similes facte sunt . . . pro magistro Nicandro Rogerii de Bartholomeo de Vayrano perito in curandis vulneribus apostematibus et curis oculorum." Ibid., p. 112, doc. 860.

[125]". . . pro magistro Anselmo de Marcia cirurgico habitore Neapoli, examinato per magistro Iohannem et Raynaldum cirurgicos et familiares domini Ducis perito in crepaturis et curis oculorum de cuius fide et legalitate per testes ydoneos laudablile testimonium Curia regia recepit." Ibid., p. 110, doc. 841.

[126]". . . examinato per magistrum Guillelmum de Lanzano et perito in cura egritudinum oculorum et simplicorum vulnerum." Ibid., p. 129, doc. 997.

[127]". . . a Clarice de Durisio da Foggia, chirurga oculista per le donne." Ibid., p. 224, doc. 3127.

[128]"Cum Francisca mulier de Vestis, cirurgica, devota nostra . . . quem per magistrum Iohannem cirurgicum et familiarem nostrum examinari

fecimus diligenter, peritam in arte cirurgie et ad curandum et practicandum sufficiens sit inventa. . . Data Manfridonie per nicolaum Fricziam de Ravello etc. anno domini MCCCVII, die XIIII, marti V indictionis." Ibid., p. 119, doc. 916.

129"Cum Trotta mulier de Troya. . . et quam per magistrum Raynaldum cirurgicum et familiarem nostrum examinari fecimus diligenter perita in cura egritudinum vulnerum ulcerarum et apostematum extrinsecarum et ad curandum morbos predictos. . . Datum Neapoli per N.F. de Ravello, etc. anno Domini MCCCVII, die XVIIII novembris, vi indictionis." Ibid., p. 124, doc. 966.

130". . . a Lauretta, moglie di Giovanni di Ponte da Saracena Calabria, abitante in S. Maria, esaminata da Francesco da Piedimonte, 'in cura egritudinum lapidis, apostematum et vulnerum exteriorum, ad curandum morbos predictos perita ut ydiota.'" Ibid., p. 156, doc. 1413.

131". . . perita in vulneribus et apostematibus simplicibus." Ibid., p. 229, doc. 3195.

132". . . a Margherita da Venosa, chirurga idiota, perita 'in vulneribus veteribus et apostematibus simplicibus.'" Ibid., p. 232, doc. 3226.

133". . . Polisena de Troya, cirurgica, perita et ydiota, ad

curandum et practicandum in vulneribus simplicibus nec non in apostematibus simplicibus et salubribus. . ." Ibid., p. 268, doc. 3598. See also pp. 269-270, doc. 3610. This license dates from the period September 1343 to August 1344 indicating that Polisena practiced at least eleven years from September 1332 to August 1333, the dates of the previous license.

134 "Sane Raymunda de Taberna soror notarii Michaelis de Leonardo de civitate Sancti Marci, fidelis nostra presens exposuit quod ipsa circa principale exercitium cirurgie in medicandis cancris ac vulneribus simplicibus et midiis ac fistulis sufficiens circumspecto in talibus judico regulatur, . . . Data Aversa per venerabilem patrem Rogerium Barensem Archiepiscopum etc. anno Domini MCCCXLV die VIII septembris, XIV indictionis, regnorum nostrorum anno Tertio (Johanna)." Ibid., p. 277, doc. 3643.

135 "Margarite de Ruga de Botonto privilegium chirurgie pro medendis vulneribus apostematibus et fistulis." Ibid., p. 271, doc. 3620.

136 Ibid., p. 251, doc. 3477.

137 See footnote 97 above.

138 See footnote 127 above.

139 "Lettere di abilitazione per Capitanata a Margherita di Napoli

da S. Maria, chirurga perita 'in curandis vulneribus et apostematibus periculosis in mamillis et matrice' esaminata da Nicola di Gaeta." Calvanico, Fonti., p. 256, doc. 3534.

140"Sane Maria Incarnata de Neapoli, fidelis nostra, in Curia nostra presens exposuit quod ipsa Maria principale exercitium cirurgie in medicandis in vulneribus et apostematibus sufficiens. . . Datum Neapoli per Adenulfen Cumananum de Neapoli, juris civilis professorem, Vice Prothonotarium Regni Sicilie, anno Domini MCCCXLIII, die XVIImaii XI indictionis, regnorum nostrorum anno primo." Ibid., p. 261, doc. 3571.

141"Sane Francisca uxor Mathei de Romano de Salerno in Regia Curia presens exposuit quod, ipsa circa principale exercitium cirurgie sufficiens circumspecto in talibus iudicio reputatur. . . Datum Neapoli per dominum Bartholomeum de Capua etc. anno Domini MCCCXI, die X septembris V indictionis, regnorum dicti domini Patris nostri anno II." Ibid., p. 194, doc. 1872.

142G. Bertoni, Il Duecento (Milan: F. Vallardi, n.d.), p. 146. There is no particularly authoritative biography of Francis available, probably because so little is known about his life. Most of the facts known about him are presented below in this study on pages 69-71. The biographical sketches available for the most part pretty much say the same thing. In Italian there are references to Francis in the article by Monti, Storia, pp. 92-93. Several of his references are

to Salvatore De Renzi, Storia documentata della Scuola Medica di Salerno (Naples: Stabilimento Tipografico de Gaetano nobile, 1857), pp. 546-551. Much of the same informatio is also to be found in De Renzi, Collectio Salnitana (Bologna: Forni editore, 1952-59; reprinted 1966) I, 353-354; and in Romolo Caggese, Roberto d' Angio e i suoi tempi (Florence: R. Bemporad & Figlio editore, 1922) II, 389-90, 414-15. Francis is also the subject of a monograph by Giliberti, "Un celebre medico di Re Roberto d'Angio Maestro Francesco da Piedemonte," Rivista Campana (1921) which I have not been able to locate. René Verrier, Études sur Arnaud de Villeneuve, p. 144, footnote 4, mentions the Giliberti article saying that it is useful and rare; that he was able to see it only by the grace and intercession of M. Filangieri and the kindness of Dr. Giliberti. My attempts to locate the work at the Biblioteca Nazionale and the Archivo di Stato in Naples were not so successful. Verrier, coincidentally also has biographical material on Francis on pp. 144-145. Francis is also mentioned in many of the documents in Calvanico, Fonti, (see index of that work) and in the introductory chapter; and in Tiraboschi, V, 274. In German there is an article by F. von Herff, "Die Gynakologie der Franz von Piedmont," (1843), not seen. References to manuscript and early printed works can be found in: Lynn Thorndike and Pearl Kibre, A Catalogue of Incipits of Mediaeval Scientific Writings in Latin (Cambridge, Mass: The Medieval Academy of America, 1963), 265, 493, 578 (henceforth this work will be cited as TK); and Sarton, Intro., III, i, 835-37.

[143] Calvanico, Fonti, contains at least eighty-seven licenses that mention the name of Francis of Piedmont. The index of that work, p. 309, lists them all.

[144] Sarton, Introduction, III, i. 859.

[145] Brief biographical sketches of Jacob of Brundisi can also be found in Monti, Storia, p. 85; and De Renzi, Collectio Salernitana, IV, 582. Origlia mentions him in I, 168; and there is an article by Noe Scalinci, "Il Magister Jacobus de Brundisi, docente trecentesco di Medicina nello Studio di Napoli," Rinascenza Salentia, a. IV, no. 3 (1937) 183ff. (not seen). Eighteen references to him as an examiner are to be found in the documents in Calvanico, Fonti. See index of that work p. 311 for their numbers.

[146] Calvanico, Fonti, p. vii. His name is also mentioned in at least 116 documents there. See index p. 346. See also Monti, Storia, p. 85 and 100; Origilia 168; Francesco Pellegrini, La Medicine Militare, p. 90, 255; Wickersheimer II, 493.

[147] De Renzi, Collectio Salernitana, I, 332-333; and Monti, Storia, p. 84.

[148] Calvanico, Fonti, docs. 770 and 783.

[149] Origilia I, 141; Monti, Storia, p. 84; and Calvanico, Fonti,

docs. 134, 141, 180, 203-4, 227. This Thomas should not be confused with Thomas de Florentia known as Tommaso del Garbo who flourished in 1327.

[150]Monti, Storia, p. 85; De Renzi Collectio I 334-35, III 339; Calvanico, docs. 1757 and 1766.

[151]Calvanico, doc. 41.

[152] Ibid., doc. 415 and 471.

[153] Ibid., doc. 297.

[154] Ibid., docs. 141, 180, 202, 204-5, 225 and 227-31.

[155] Ibid., doc. 227.

[156] Giovanni de Esclusis and Jacobus de Esclusa are mentioned in many documents and are within a few years of each other in date. Giovanni and Jacobus might therefore be the same person. Giovanni can be dated 1292-93 and Jacobus 1290-94. See for Jacobus; Calvanico, Fonti, docs. 232, 233, 235 and others. For Giovanni see Calvanico, docs. 1049, 1068, 1071, 1075 and 1120.

[157] Calvanico, docs. 258, 294.

158 Ibid., docs. 297, 339.

159 Ibid., doc. 427.

160 Ibid., doc. 411.

161 Ibid., docs. 600, 607, 623, 641, 646.

162 Ibid., doc. 356.

163 Ibid., doc. 227.

164 Ibid., docs. 203, 204, and 227.

165 Ibid., docs. 377 and 385.

166 Ibid., doc. 598.

167 Ibid., doc. 820.

168 Ibid.

169 Ibid., docs. 991, 996, 998, 1007-09 and others.

170 Ibid., doc. 1166-1171, 1181, 1204.

171 Ibid., doc. 1489.

172 Ibid., doc. 1504.

173 Ibid., doc. 1716, 1812.

174 Ibid., doc. 1870.

175 Ibid., doc. 1928.

176 Ibid., doc. 1870,

177 Ibid., doc. 841.

178 Ibid., doc. 141.

179 Ibid., doc. 180.

180 Ibid., doc. 204.

181 Ibid., doc. 261.

182 "Salubri etiam constitutione sancimus ut ullus chirurgicus ad practicam admittatur, nisi testimoniales litteras offerat magistrorum in medicinali facultate legentium quod per annum saltem in ea parte medicine studuerit que chirurgie instruit facultatem, presertim

anatomiam humanorum corporum in scholis didicerit, et sit in ea parte medicine perfectus sine que nec incisiones salubriter fieri poterunt nec facte curari." Huillard-Bréholles, IV, pt. 1, 236-37, Liber III, Titulus XLVI.

183 Monti, Storia, p. 85.

184 Ibid.

185 Monti, Storia, p. 85; Origlia, I, 168.

186 Monti, Storia, pp. 73, 85; Origlia, I, 158.

187 Monti, Storia, p. 87.

188 Monti, Storia, p. 85; Origlia, I, 168.

189 Monti, Storia, p. 87.

190 Monti, Storia, p. 85; Caggese, II, 418.

191 See above footnote 144-145 and text, p. 52, for references.

192 See above footnote 150 for references.

193 Sarton, Intro., III, pt. 1, 446.

171 Ibid., doc. 1489.

172 Ibid., doc. 1504.

173 Ibid., doc. 1716, 1812.

174 Ibid., doc. 1870.

175 Ibid., doc. 1928.

176 Ibid., doc. 1870, 1976.

177 Ibid., doc. 841.

178 Ibid., doc. 141.

179 Ibid., doc. 180.

180 Ibid., doc. 204.

181 Ibid., doc. 261.

182 "Salubri etiam constitutione sancimus ut ullus chirurgicus ad practicam admittatur, nisi testimoniales litteras offerat magistrorum in medicinali facultate legentium quod per annum saltem in ea parte medicine studuerit que chirurgie instruit facultatem, presertim

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183 Monti, Storia, p. 85.

184 Ibid.

185 Monti, Storia, p. 85; Origlia, I, 168.

186 Monti, Storia, pp. 73, 85; Origlia, I, 158.

187 Monti, Storia, p. 87.

188 Monti, Storia, p. 85; Origlia, I, 168.

189 Monti, Storia, p. 87.

190 Monti, Storia, p. 85; Caggese, II, 418.

191 See above footnote 144-145 and text, p. 52, for references.

192 See above footnote 150 for references.

193 Sarton, Intro., III, pt. 1, 446.

[194]Wickersheimer, II, 576. The latter statement is found in Sarton, II, pt. ii, 1094. Additional works in which brief information on Nicholas of Reggio, who is also sometimes referred to as Regio or Reggio of Calabria can be found are: Calvanico, vii; Caggese, I, 194, 301 and other pages in that volume and vol. II, 371, 374, 418 and other pages; De Renzi, Collectio, I, 338-340 and III, 335; Gennaro Monti, Dai Normanni agli Aragonesi (Trani: Vecchi and C. Editori, 1936), p. 36. More detailed information can be found in F. Lo Parco, "Niccolo da Reggio Antesignano del Risorgimento dell' antichita ellecia nel sec. XIV da Codice delle Bibliotheche italiana e strainiere e Atti della Reale Accademia di Archeologia, II, pt. ii (1910), 243-317. Lynn Thorndike, "Translations of works of Galen from the Greek by Niccolo da Reggio," Byzantina meta byzantina, I (1946) 213-235 calls this work "faulty and incomplete." Other secondary works are listed in Sarton. Manuscript references are found in T.K. See index of that work.

[195]See below pps. 122-127.

[196]Monti, Storia, p. 85; and Caggese, II, 417.

[197]Monti, Storia, p. 85.

[198]Ibid.

[199]Ibid., p. 87.

[200]Ibid.

[201]Ibid., pp. 85, 87.

[202]The secondary and primary sources for John of Genoa are considerably more numerous than for most of the previously mentioned physicians. They are as follows Monti, Storia, pp. 85 and 87; Wickersheimer, p.424; Sarton, Intro., III, pt. 1, pp. 112, 245, 641; and Cornelio de Simoni, "Intorro alla vita ed ai lavori di Andalo di Negro," Bullettino di bibliografia e di storia delle scienze matematiche e fisiche, VIII (1874), 330-32. The most informative source, however, is Pierre Duhem, Le Système du Monde: histoire des doctrines Cosmologiques (Paris: 1916; reprint ed., Paris: Librairie Scientifique Herman et C ie, 1954) IV, 74-75. Manuscript sources can be found in T.K., 51, 61, 930, 1690. I have in my possession a photostat of Paris BN Lat 7281, ff. 206r-208v, which contains the Canones Eclypsium of John. Unfortunately time did not allow for proper consideration of this manuscript in this study.

[203]Duhem, p. 75.

[204]Monti, Storia, p. 87.

[205]Monti, Storia, pp. 59, 89; Origlia, I, 189, Caggese II, 418.

[206] Monti, Storia, p. 86. There is in TK, 360 a reference to the De Perfectione Specierum of Jacobus de Neapoli with the date 1354. Since dates of Jacobus are close to the date of the manuscript it is possible that he was the author of this work. This association will be considered at a future date.

[207] Monti, Storia, p. 86.

CHAPTER TWO

BACKGROUND OF THREE NEAPOLITAN PHYSICIANS AND THE STRUCTURE AND CONTENT OF THEIR WORKS

The previous chapter established that medicine had been taught in the University of Naples perhaps from its inception in 1224, and that the practice of medicine had been regulated by royal or imperial edict since the twelfth century. The present chapter will consider the background of three Neapolitan physicians associated with the university, and the structure and content of their works, in order that the subject matter of the chapter following on disease, medical opinion and treatment, may be seen in proper perspective. The works of the three Neapolitan physicians to be considered here are the Supplementum of Francis of Piedmont, the Breviarium of Arnold, a Neapolitan who studied under Master Giovanni Casamicciola, and the two tracts on the pestilence written by John of Penna. These four treatises, though not the only medical works still extant by thirteenth and fourteenth century Neapolitan physicians, are, with the exception of the writings of Arnold of Villanova, the only ones from that period that dealt specifically with the symptoms and treatment of diseases and illnesses. The writings of Arnold of Villanova, it is true, cover numerous medical subjects, and are worthy of separate studies in themselves; yet, because none of them can be shown to have been written while he taught at the University of Naples in the early part of the fourteenth century, they may be more reflective of the medical learning of places other than Naples.

Moreover, the writings of John of Genoa and Thadeus of Parma, two other Neapolitan physicians of the period whose works are also extant, will not be included here because of the nature of the subject matter with which they deal. The extant work of John of Genoa, who taught in the university in 1338, is concerned, for example with an eclipse of the sun, while the writings of Thadeus, who also taught in the university in the early fourteenth century, are concerned with medical astrology, which was viewed as an auxiliary science to medicine and will be left, therefore, to a future study. Consequently, the focus of this chapter and the next will be limited to the writings of Francis of Piedmont, Arnold, and John of Penna.

The first section of this chapter will deal with what is known about the life of each of the three authors and the controversy, if any, that surrounds them, while the following three sections will attempt to describe individually, the structure and content of each of the four works. A more detailed account of the diseases, symptoms and treatments with which these works deal will be found in Chapter Four.

The Background of Three Neapolitan Physicians

Francis of Piedmont was one of the court physicians of King Robert the Wise (1309-1343) of the house of Anjou and was considered by one historian, at least, to be among the most illustrious scientists in Italy.[1] That observation is apparently based on the single extant work attributed to him, the Supplementum. The Supplementum is a continuation of the Opera de medicamentis of Mesue the Younger with which

it is usually published, and is said by George Sarton to be "one of the most complete compendia of practical medicine in the Middle Ages and the most scholastic in tone of those written in the fourteenth century."[2]

The early life of Francis is obscure and the date of his birth unknown. According to Giliberti, Francis was born in Piedmont on a small fief of the Abbey of Monte Cassino. He apparently came to Naples late in the thirteenth century from Salerno, where he may have studied, and established a successful practice in the city. Verrier, on the basis of the Giliberti article, gave the years 1302 to 1320 as the years during which Francis taught in Naples,[3] and Salvatore De Renzi, quoting documents now destroyed, mentioned that Francis received a salary for teaching in 1305. De Renzi also asserted that Francis was physician to the Duke of Calabria and perhaps also of King Charles II (1285-1309). His first statement was based on a specific document of the Archivio di Stato and the second on the supposition that only court physicians served as examiners as Francis did in that year.

Nevertheless, it was under King Robert the Wise that the fortunes of Francis apparently improved considerably. De Renzi, citing a document from 1310, asserted that on July 25th, in the first year of his reign, Robert granted the physician ten ounces of gold for services that he had already rendered and services still to be done for the Duke of Calabria's eldest son Charles. This was apparently given, De Renzi wrote, so that Francis might be able to pay for royal rights to properties or holdings in San Germano. Caggese, citing similar information, gave the date July 25, 1313. Nevertheless, in 1314, Francis received one-quarter of all the castles in Elice, Palata

and Celenze in the county of Molise and all the feudal rights and obligations that went with them. In addition, he had a house in the city on the Piazza Capuana and made a good marriage in 1319 to a woman from San Germano who brought with her a substantial dowry.[4] According to Caggese, he also received for his teaching, although irregularly, an annual salary equal to that of jurists who taught, but considerably more than teaching grammarians received. This, Caggese asserted, showed the importance placed on the teaching of medicine and jurisprudence in the University at the time.[5] Francis died probably in 1320 ending an illustrious and successful career in medicine which had, for him, proven to be a very profitable profession.

However, while the background of Francis is fairly clear, that of Arnold, the author of Breviarium, is not, basically because he cannot be differentiated clearly from other persons of that name identified with Naples around the year 1300. René Verrier, who concerned himself with the identity of the author of Breviarium in his Étude sur Arnaud de Villeneuve, noted the presence in Naples, at approximately the right time, of persons named Arnold de Come, Arnold the physician of Pope John XXII, Arnold of Cahors, Arnold of Naples and Arnold of Villanova.[6] And it is, of course, to the last named Arnold of Villanova that all existing manuscripts and texts of the Breviarium have been attributed since the fifteenth century.[7] That happened, noted Verrier, because the authors and scribes in the years immediately after the treatise was written were not aware of the numerous difficulties involved when they attributed the work to Arnold of Villanova.[8] These authors were acquainted with the reputation

of the latter, and were aware of his association with Naples and of his teaching in the university early in the fourteenth century. As a result, when they came across a manuscript by a certain Arnold, they immediately identified him as of Villanova.

By the eighteenth century, however, there were some who questioned that assertion. In 1767, Jean Astruc concluded from the great number of experiences and references relating to Naples in the Breviarium, that the author of the work was probably a native and long-time resident of the city rather than Arnold of Villanova who apparently studied there in his youth but did not return until late in his life to practice and teach. Astruc even suggested that the author was a student of Arnold of Villanova.[9] That thesis, at least so far as it related to the author being an Arnold other than Arnold of Villanova, was furthered by Malacarne in the later eighteenth century[10] and by Girolamo Tiraboschi in the early nineteenth century.[11] By the mid nineteenth century, however, in 1852-1859, when his Collectio Salernitana was published, Salvatore de Renzi denied Arnold of Villanova's association with the work and asserted that the author was Arnold of Naples,[12] a name which he apparently made up, for an Arnold who was definitely a Neapolitan.

His description of the author of the Breviarium as Arnold of Naples may not be totally unjustified. The author had clearly studied in Naples under Giovanni Casamicciola, the highly reputed Neapolitan physician who taught at the university from 1267 to 1282, and made reference to that fact many times. In addition, he mentioned many contemporary Neapolitan physicians, was familiar with the medicinal value of the baths of Pozzuoli, which are near Naples, described an

earthquake that took place near Naples in his time and was aware of a certain powder used by the Emperor Frederick II to conserve his memory.[13] De Renzi also asserted that the author of the Breviarium mentioned that the work was being written in the Cistercian monastery of Casanova which De Renzi identified as being near Naples in the diocese of Penna, and that the author used words common only to the Neapolitan dialect which are not to be found in the authentic works of Arnold of Villanova.[14] For these and other reasons De Renzi asserted that the true author of the Breviarium Practice was not Arnold of Villanova, a physician who spend only a portion of his life in Naples, but a Neapolitan whom he hence named Arnold of Naples.

The question of authorship was, however, again reopened in the twentieth century. In 1909 Paul Diepgen took De Renzi's assertions to task in an article entitled, "Zur Echtheitsfrage des Breviarium" in the Archiv Für Geschicte der Medizin. Rejecting virtually all of De Renzi's arguments, he again asserted the authenticity of Arnold of Villanova's authorship of the treatise.[15] The question was revived once more, in 1949, when Verrier reconsidered the evidence presented by the previous writers on all sides of the question of authenticity, and then added observations based on his own researches. He was, however, still unable to attribute the work to a particular Arnold.[16] In 1969, Juan Paniague, a Spanish author who has done considerable research and writing on matters related to Arnold of Villanova reopened the question of authorship of the Breviarium once more. "My reflection on this investigation," he wrote, "in conjunction with examination of the original texts leads to an opinion decidedly

adverse to Arnold of Villanova's paternity of the debated work."[17] Paniague, in a convincing argument, noted the fact that the author of the Breviarium mentioned the recent death of his master Casamicciola and the fact that the work was written in the monastery of Casanova which Verrier positively identified as being in Abruzzi.[18] Other sources have identified the year of Casamicciola's death as 1282, which would make it possible for Arnold of Villanova to have been his student but almost impossible for him to have been in southern Italy at the time of his master's death or at any time during the next twenty years. The reasons Paniague offers for those opinions are that Arnold of Villanova is known to have been in the court of Pedro III of Aragon on August 18, 1281, and that relations between the houses of Aragon and Anjou were extremely strained and would remain so at least until the end of the century. That would make travel between the two kingdoms, even for scholars of the reputation of Arnold of Villanova, virtually impossible.[19]

March 30, 1282, was, in fact, the day on which the Sicilian Vespers began on the island of Sicily which was part of the Angevin domain in southern Italy. On that day, the people of Palermo, aggravated by oppressive taxation, Angevin neglect of their interests and the insults of Angevin soldiers to a young Sicilian bride, revolted at the hour of Vespers and massacred the perhaps two thousand French residents of the city.[20] As the revolt spread to other cities of the island, the people of Palermo, frightened by prospects of a reaction by Charles I of Anjou, invited King Pedro of Aragon to become King of Sicily. His acceptance precipitated the war between Anjou and Aragon

which, though it experienced periods of relative calm, did not see a general peace established until 1295 and final settlement until 1302 when Charles II of Anjou recognized Pedro's son Frederick as Frederick I, King of Sicily.[21]

These events have an important bearing on the matter of Arnold of Villanova's possible association with the Breviarium because it is unlikely, probably impossible, that a physician who was known to have been in Pedro's court just months before the Sicilian revolt would have been welcomed in a monastery in Angevin Italy before the end of hostilities. In fact, Arnold of Villanova is not known to have been in the vicinity of Naples until at least 1301. By that time, wrote Paniague, Arnold would have been in his sixties and would have already completed his most illustrious accomplishments. If that was so, he concluded further, it is unlikely that at this stage of his life he would have settled down to write a treatise on basic medicine that would merely repeat so much of what he had learned in his younger years under Casamicciola. And it is also unlikely that in these, the later years of his life, he would not have made at least some reference to his extensive earlier writings. Yet, Paniague noted, there are in the Breviarium, no references at all to any of the earlier works of Arnold of Villanova.[22] Furthermore, Verrier had pointed out previously that over forty-five per cent of the sources referred to in the Breviarium were to physicians of what he called the School of Naples: thirty-eight per cent to Giovanni Casamicciola and seven per cent to Michael Scot, Peter Hibernia and Henry of England. Of the remaining references, twelve per cent were to Galen, thirteen per cent to

Hippocrates, one per cent to Aristotle and the other twenty-nine per cent to a few other physicians of very modest reputation.[23] This reliance on local and contemporary sources, Paniague concluded, and the lack of references to classical medical works, was most alien to the style of Arnold of Villanova, especially at a time so late in his career,[24] Consequently, it was Paniague's belief that Arnold of Villanova was not the author of the Breviarium. Nevertheless, while the identity of Arnold, the author of the Breviarium remains hidden, there is no question that the work was written by a Neapolitan physician and that it is therefore illustrative of the medical views held by certain physicians in Naples in the thirteenth and fourteenth centuries.

The third physician whose writings are considered in this study is John of Penna. The year of John's birth is unknown, though the year of death is believed to be 1387. In that year, on April 18, while he was Rector of a church in Altripaldi, John made his last will and testament and left a legacy to the monastery of Montevergine.[25] Gennaro Monti, in Torraca's Storia della Universita di Napoli, using Registries now destroyed, associated John with the teaching of medicine in the University from 1334 to 1387.[26] Beyond that little is known concerning the life of John except the two brief stories, one disputed, concerning two small events in which he may have been involved.

The disputed story concerns Agnese, the Duchess of Durazzo, who fell ill in 1344. The chronicle from which the story was taken stated that John of Penna, summus medicus and filosofo was consequently summoned to Naples for a diagnosis. John apparently examined the

Duchess but postponed an examination of a urine sample until the following day. For some unexplained reason, however, the urine specimen John received from the Duchess on the next day was that of a woman of the court who was pregnant. John, believing that he had examined the urine of the Duchess, declared her pregnant and that outraged the Duke who believed the maternity "infamous." The unfortunate Duchess was poisoned a short time afterward, apparently with the approval of the Duke.[27] This unfortunate incident illustrates a situation where the intercession of a physician may have cost a life rather than saved one. Nevertheless, whether John of Penna was, in fact, the physician involved is not known for certain because another chronicle related the same story and named Angelo de Sotho as the physician.[28] In any case, whoever the physician might have been, it is interesting to note that uroscopy was used in fourteenth century Naples to diagnose pregnancy in its early stages.

There is, however, another situation in which John of Penna was very definitely involved. This was a scholarly dispute between John and Francesco di Zanelli of Bologna over the question whether semen was to be considered a living thing (controversia de animatione seminis).[29] Background information and details of the exact date of this controversy are lacking but the stated opinions of both men were carefully considered by their contemporary, Tommaso del Garbo, who explained that the disputed question had been sent to him from Naples by Master John of Penna. Tommaso del Garbo announced his intention to consider critically and justify the arguments set forth despite the fact that both men were

his dear friends.[30] True to his intention, Tommaso was critical of both: of Francesco, on one hand, because he not only said nothing new on the subject but repeated the judgments of former physicians on the matter without naming them, and of John of Penna, on the other, because he ignored the views of the aforementioned doctors who he believed were not worthy to be considered. This disapproval by his contemporary apparently did not deter John from independent thought as this episode and the two treatises he wrote in 1348 on the Pestilence clearly show. John seems to have been a man of strong and independent convictions who did not consult or report all the usually accepted medical authorities.

This then is all that is known concerning the lives of Francis of Piedmont, Arnold and John of Penna, the three men whose works will be considered here in the attempt to come to an understanding of the nature of medical opinion and practice in Naples in the thirteenth and fourteenth centuries. To that end, the following three sections seek to analyze the structure and the content of the known works of these prominent Neapolitan physicians in order that the presentation of diseases, symptoms, medical opinion and treatment in the following chapter may be seen in the proper context.

The Structure of the Supplementum of Francis of Piedmont

The Supplementum of Francis of Piedmont, when printed, was generally bound together with the works of Joannes Mesue who was probably either a Christian who flourished in Bagdad and Egypt or a Westerner who perhaps assumed an Arabic name. Little beyond this is apparently known about Mesue the Younger except that he flourished in the tenth century and died in 1015 and that several works on purgatives, emetics and pharmacy are attributed to him. His pharmacopia, based on Islamic knowledge, was immensely popular in the West for many years and the work of Francis of Piedmont which supplements it is probably evidence of that fact.[32]

The opening words of the Supplementum in the 1589 edition state that the work is the "supplementum to the second book of secret remedies of Ioannis Mesue which is called De appropriatus."[33] In itself, the Supplementum is a rather lengthy work and in this edition runs from folio 11v through folio 158 v, covering a great variety of material. Essentially, of course, the work is concerned with the cure of illness but while it offers a great number of recipes or prescriptions, it is far more than a simple pharmacopia since it describes diseases, symptoms and causes as well as cures.

Specifically, the 1589 edition is divided into two sections, the first dealing with diseases of specific areas of the body and the second with medicines for such universal illnesses as fever and abscesses. This arrangement is not immediately clear, however, because the headings of the various portions of the work are not consistent. Section I, for example, is divided into five parts. The

five parts are divided into summae which are from two to five in number, and the individual summae into chapters which range in number from three to thirty. Also, Section I does not have a heading of its own. One is only aware of the fact that the work is divided into sections because the heading for each part mentions that it is, for example, Part III of Section I. The second section, however, does have a clear heading of its own, De medicinis aegritudinum universalium, but has only two parts. Nevertheless, it too is divided into summae and chapters in the manner of the first section.

In regard to subject matter, Part I of Section I is concerned with diseases of the heart[34] and is illustrative of the general procedure Francis followed throughout the Supplementum. It opens with an introduction to diseases of the heart in general and is followed by mention of the simple and compound medicines with which they may be treated.[35] Immediately after that the work becomes more specific as Francis concerned himself with the diseases of the heart related to other parts or organs of the body. There, he explained how medical problems of the head, stomach, liver, spleen and intestine might affect the heart.[36] Chapter ten of Part I, for example, is concerned with the cure of diseases of the heart resulting from the flow of blood during menstruation or from hemorrhoids,[37] while the following chapters deal with the cure of ills of the heart caused by pestilential air or poisonous bites.[38] In this part of the Supplementum Francis followed a procedure which is common throughout the work, that is proceeding from a general description and general cure to a specific description and specific cure. Furthermore, while Francis did not

deal with every organ of the body, he did, however, follow the head to toe presentation common to many medieval medical treatises by discussing first illnesses of the uppermost organs and proceeding downward. Consequently, following his presentation on diseases of the heart, Francis related problems associated with the breasts of women. This is done in a brief gynecological treatise, only two folios in length, on the decrease and souring of milk in the breasts and a chapter on abscesses of the breast.[39]

Next, in Part III, there is consideration of diseases and cures of nutritional organs.[40] This part of the work is divided into individual summae on illnesses of the meri, a part of the alimentary canal,[41] the stomach,[42] the liver,[43] and the spleen.[44] The general structure of this portion of the Supplementum is similar to that of the section on the heart. The general statement and the presentation of some general cures are followed by more specific descriptions of the cures and illnesses. The summa on illnesses of the stomach, however, is the most detailed in terms of the subject matter covered and is perhaps the most interesting for its diversity. The first chapter in that summa, following the general pattern, deals with illnesses of the stomach in general and is followed by a consideration of the stomach illnesses that are attributable to unfortunate combinations of humors.[45]

The theory of the four humors, of course, goes back to the school of Cos and the Hippocratic treatise on the nature of man (De natura hominis) which is the main source of the theory.[46] The four humors, blood, phlegm, yellow and black bile, according to traditional

belief, determined the state of health of the body. Each of those four humors were associated with the four Greek elements of air, fire, earth and water, and each humor has a corresponding element within it which shares its qualities. Blood, for example, like air is hot and moist; phlegm is cold and wet like water; yellow bile is hot and dry like fire and black bile, like earth is cold and dry. Good health then was believed to be the result of a proper balance of these humors, while an improper balance resulted in disease which would be of a particular character according to the dominating humor. It would be sanguine, for example, if blood dominated, choleric if yellow bile dominated, melancholic if black bile dominated, or phlegmatic if phlegm became the dominant humor.[47] Consequently, when Francis completed the chapter containing his general statement on the illnesses of the stomahc, he followed it with individual chapters on the cure of bad combinations of heat, cold, dryness, and humidity in the stomach.[48] Other chapters in the summa on the stomach offered cures to end blockage of its passages, cures to end the nausea caused by the stomach being too full or empty, and cures to clear up stomach swelling, roaring, tremors and even gurgling.[49]

Following the head to toe procedure still, Part IV of the first section is concerned with the cure of illnesses of what Francis called the expulsive members. These included in successive summae, the intestinal tract,[50] the urinary tract,[51] the reproductive organs of men and women[52] and finally a summa on illnesses of the stomach.[53] The cures offered and information provided here are again

of great diversity. The summa on the intestinal tract for example, deals with cures for pain in the intestine,[54] and medicines for such ailments as hemorrhoids,[55] sores,[56] fistules[57] and itching of the anus.[58] The second summa, on the urinary tract deals with matters concerning bad combinations of humors in the kidneys and bladder,[59] blockage caused by kidney and bladder stones,[60] diabetes[61] and strangury,[62] among other problems.

The two sections on the reproductive organs of both sexes, however, deal, as usual, with pain,[63] abscesses,[64] humors and cures[65] but the third summa on the male reproductive organs also provided sections on afflictions of the testes,[66] Gonorrhea,[67] sexual intercourse[68] and even a section on the reasons why both men and women take pleasure from it.[69] Summa iv on the cure of illnesses of the organs of generation in women is by itself a gynecological tract that probably could have been tied together with the earlier section on mammillary problems were it not for the apparent desire of Francis to follow the head to toe presentation whenever possible. This latter summa offered the physician information on, among other things, menstruation, sterility, conception and difficulty of impregnation, false conception and natural childbirth.[70] In addition, there are chapters concerned with the medical conditions that might occur in the womb. That portion of the Supplementum consisting of some fourteen folios, combined with the earlier section on gynecological matters, may have been of considerable value to both the male and female practioners of the medical arts of the time, especially perhaps to women such as Maria Gallicia or Margherita di Napoli da S. Maria who had, in

the mid-fourteenth century, received licenses to practice gynecological surgery in the Kingdom of Naples.[71] The treatise of Francis written at some point prior to 1320 may have been a source of the most recent information for them and for the numerous others who would have had need of such information. George Sarton wrote that this section on gynecology and midwifery was of the greatest importance to doctors for several generations, since the account of Francis is one of the most complete of the Middle Ages.[72]

The last part of the first section, Part v, is basically an orthopedic treatise on illnesses of the joints, and it begins in typical fashion with a general essay on the joints, their disposition, and the pains, causes and symptoms of illness related to them. In addition there is also a statement on the first signs of joint diseases.[73] After a chapter on general medicines for their cure, which apparently made no mention of surgery,[74] Francis presented information on pain in the bones of the upper arm,[75] the shoulder blades,[76] the back, the feet[77] and other areas, concluding with a chapter on elephantia.[78] Elephantiasis, the hypertrophy of the skin and underskin tissue in the legs, should probably not be included here since it is the result of circulatory problems rather than of affliction related to the joints. However, Francis was apparently not aware of its actual cause or he saw this place in the work to be the only one in which his observations on elephantia might be placed.

Thus, Section I of the Supplementum, 102 folios in length, is composed of five parts broken down into 153 chapters, each of which deals with a different medical matter. In all, diseases relating to

approximately ten different systems, parts or organs of the body are considered, including the heart, the breast, the meri or alimentary canal, the stomach, the liver, the spleen, the intestines, the urinary tract, the reproductive organs and the joints. These are arranged in descending order starting with those on the uppermost part of the body and working downward.

Section II of the Supplementum, however, is structured differently because it deals with fevers, in Part I,[79] and abscesses, in Part II,[80] and neither malady is related to any particular part of the body. The section of fevers is broken down into only three summae, one on medication for fevers of short duration (febres ephemeres),[81] another on medication of corrupting fevers (febres putridae)[82] and the third on the treatment of hectic fevers (febres hecticae),[83] which are fevers associated with ilnesses that characteristically showed a daily rise in temperature. Of the three, ephemeral fevers appear to have the greatest variety of causes and consequently require the greatest variety of cures. Consequently, Francis provided twenty-one separate chapters to consider fevers brought about by breezes, heat, cold, abscesses, hunger, fear, quiet, anguish, pain, labor and a great variety of other things.[84]

The second summa on corrupting fevers, however, primarily addresses itself to fevers which relate to an improper balance of humors. Chapters were presented within it on medicines for phlegmatic, choleric and melancholic fevers and also on medicines for fevers caused by abscesses and the pest.[85] The problem of pestilential fevers was, of course, to become increasingly serious as the fourteenth century

progressed, particularly after the Black Death struck Sicily in 1347 and Naples very soon after that.

The third summa on hectic fevers is more limited in its scope probably because relatively little was known concerning why some fevers characteristically return daily to patients suffering from certain illnesses. Consequently, the three chapters which followed the general statement made special comments only on the treatment of hectic fevers in the elderly,[86] and on hectic fevers with corrupting complications.[87]

Part II of Section II, on abscesses, is divided into four summae since it was the opinion of Francis that there were essentially four types of abscesses which correspond to the four dominant types of humors, that is, they were either sanguine, choleric, phlegmatic or melancholy. Consequently, in the first summa which is concerned with sanguine abscesses,[88] chapter one describes the sanguine abscess in general terms: its causes, its symptoms and how it is cured,[89] while the following chapters make observations on various types of sanguine inflammations and abscesses. Within that portion are, chapters on carbuncles and cures for them,[90] on carbones which are particularly bad abscesses or tumors,[91] pustules, which are small and sometimes mobile[92] and on various topics related to an abscess with a sanguine nature.[93]

The next summa, the second, deals primarily with abscesses of choleric or mixed matter and its chapters are concerned only with formica, a crawling sensation of the skin,[94] herpes,[95] inflammation, and erysiplate.[96] Erysiplate, which may be the same as the modern disease known as erysipelas or St. Anthony's disease, is characterized

by the eruptions on the skin and severe constitutional symptoms similar to those that Francis mentioned but it is now known to be caused by streptococci rather than by excessive choleric humors. Nevertheless, his observations are interesting if not necessarily correct.

The final two summae of this segment, on phlegmatic and melancholy abscesses, follow a similar pattern in regard to the presentation of information. The third summa concerns phlegmatic abscesses[97] in the spleen,[98] liver,[99] glands,[100] and nodes[101] among other problems and the fourth and final summa of the work, on melancholy abscesses,[102] deals particularly with the problems of cancer[103] and leprosy.[104] These were treated in some detail and consecutively, since they were believed to be related. Leprosy was, Francis believed, a universal cancer which spread throughout the body and took different forms in different individuals. It could be acquired, he believed from infected vapors released from the bodies of lepers drawn together in the vicinity.[105] Yet while Francis believed it to be an essentially hopeless disease, he did offer several procedures for its possible cure in the early stages.

This then is the structure of the second section of the Supplementum which differs from the first only by virtue of the fact that it is considerably briefer, forty-seven folios as compared with one hundred and two folios in length, and that it is not arranged in the head to toe fashion. In all other respects, the structure of the second section is similar to the first. It proceeds from the general to the specific not only in presentation of symptoms and characteristics of particular illnesses, but also in the presentation of treatment for disease. Contemporaries must have found the Supplementum easy

to use and of considerable value since it contained so great a diversity of material and so much information that was considered to be of use.

Yet before proceeding to a more detailed examination of individual sections of this work, the structure of Arnold's Breviarium and of John of Penna's pest tracts must also be considered so that comparisons between these Neapolitan works can be made more easily, and, hopefully also, so that a pattern of Neapolitan medical practice and treatment might also emerge.

The Structure of the Breviarium of Arnold

Just as, the Supplementum of Francis of Piedmont was bound together with the works of Mesue, so also was the Breviarium to be found bound together with the numerous medical works of Arnold of Villanova, even though, as has been shown, recent scholarly opinion does not believe him to be the author of the work. The Breviarium is, like the Supplementum, an extensive work, one hundred and ten folio pages in length, in the 1509 edition, covering a great diversity of material.[106] For this reason René Verrier believes the work to be of first rank importance since it is the only one comparable in its dimensions to our own medical manuals.[107] To be sure that point may be argued, particularly in respect to the scope of the work by Francis of Piedmont just described, but the variety and structure of Arnold's Breviarium is impressive.

At the time the book was written (probably soon after the death of Giovanni Casamicciola in 1282), Arnold explained that it was his

intention to compile a work on practical medicine composed of four books, dealing with the signs, causes and cures of all the illnesses of the human body. Accordingly, he promised to point out cures, applied by various physicians and masters, which had proven useful in diverse instances, cures developed by his master in medicine, Casamicciola, and, all those things in which he himself was expert. Nothing was going to be held back because of either envy (invidia) or avarice on his part,[108] but added, apologetically, "If I have been mistaken, and have said something less well, I entreat all doctors, masters and other good men in medicine, if this work should reach their hands, to amend and correct my words and give indulgence to my simplicity and ignorance."[109] He asserted that anyone who had the book in his possession and understood it correctly would be able to advance, according to its teaching, in the curing of all diseases.[110] Obviously, Arnold was proud of his profession and proud of what he was about to do. And this is no more clearly expressed than in the introduction where he wrote that "the physician is called the friend of truth, he has plenty of friends, money in his pockets and the fame that comes through knowledge of medicine."[111]

Nevertheless, once begun, the work took on a form quite similar to that of the Supplementum of Francis. The four books that Arnold envisioned at the outset contain one hundred and thirty-five chapters, each concerned with at least one medical matter and generally arranged in accordance with the head to toe principle. Book I, in thirty-five

chapters, deals with the head, Book II, in forty-five chapters, with diseases from the neck down, Book III, in twenty-two chapters, with gynecology and poisonous bites, an unusual combination, and Book IV, in thirty-three chapters, with fevers, abscesses and anything that did not appear to fit into the previous sections.

Specifically, the thirty-five chapters of Book I begin with a discussion of problems relating to the head because it is from the brain that "all nerves are said to originate," asserted Arnold, quoting the Tegni of Galen.[112] Consequently, he considered five specific areas: headache pain and medical matters related to the eyes, ears, nose and teeth. On headache pain, twelve chapters are presented to cover the multitude of possible causes. As in the Supplementum of Francis, Arnold's discussions move from the general to the specific. Consequently, the first chapter of Book I is concerned with pain in the head in general.[113] There Arnold explained that the brain could be disturbed by the many diverse humors that are drawn to it from other parts of the body, most frequently the stomach, and also by the hot sun, cold wind, and a number of other things.[114] Having established these facts, Arnold, in the eleven following chapters, described each one of the illnesses individually and offered cures to alleviate those afflictions and those caused by phlegm,[115] melancholy,[116] or the overabundance of these humors in the stomach and liver.[117]

The next portion of the work, chapters thirteen to twenty-two, are concerned exclusively with ophthalmological problems.[118] In one chapter the author considered inflammation, redness and watering of the eye[119] and in others that follow, tumors,[120] darkness of the

eyes[121] and cataract.[122] The chapter on pannus, a complication of trachoma, appears to contain a bit of medical sophistication[123] while the procedure for the removal of lice on the eyelids,[124] on the other hand, serves as a reminder of the lack of proper hygiene that was ever present.

Chapters on epilepsy,[125] apoplexy,[126] paralysis,[127] defective memory,[128] and similar topics, follow, since these illnesses are related to the brain and show Arnold's understanding of their cause simply by their placement amidst chapters on medical problems of the head. These are followed by additional chapters which are concerned with ringing of the ears,[129] abscesses in the ears,[130] nose bleed,[131] and tooth ache,[132] the last of which closes the first book.

Book II begins where the first ended, that is at the neck. Here Arnold concerned himself with harshness and impediment of the voice,[133] swollen glands,[134] and cough,[135] among other matters. The chapter on cough, however, serves to introduce problems related to the respiratory tract, such as asthma and chest pain,[136] but it is the matter of diseases of the stomach that takes up a considerable segment of the second book. In some of these chapters Arnold described the suffering of the stomach, the provocation of vomiting,[137] and its restraint,[138] thirst,[139] lack of appetite, and unnaturally great appetite[140] and even belching.[141] For all these afflictions, he followed the description of the maladies with their remedies.

The next group of chapters deals with the kidney and bladder and other matters relating to the urinary tract. These include consideration of strangury,[142] diabetes, bed wetting[143] and blood in the urine.[144]

There is also a remarkable description of the manner in which stones are generated in the kidney. In it Arnold attributed the creation of the stone to "gross humors,"[145] but the description he gave of the process which takes place in the body is, nevertheless, a reasonably accurate account of the actual process as it is understood today. In the section dealing with male reproductive organs which follows, Arnold dealt with many of the same problems that Francis did. However, he also included chapters on inflammation and burning sensation of the testes,[146] the involuntary emission of sperm,[147] and one which described how lust could be extinguished.[148]

The chapters on the reproductive organs, however, are followed by chapters on diseases of the joints. Where Francis had in the Supplementum, left the discussion of joints until all the problems of individual areas of the body had been discussed, Arnold apparently felt that a discussion of joint disease was proper at this point because one of the joints with which he dealt, the sciatic or hip joint,[149] has proximity to the areas under consideration and the liver and intestines which are discussed next. Of course, in the discussion on joints, Arnold also mentioned problems relating to the knee and podagra, which is the gout,[150] but apparently he placed these here in order that repetition of some points would not be necessary.

Grouped with the chapters on the liver and intestines is one on colic,[151] and another on two types of worms, stomach worms and an intestinal worm called ascaris.[152] These are followed by chapters on lienteria,[153] which is the passage of undigested food in the stool, dysentery,[154] distemper of the liver caused by blockage of its passage,[155]

the effect of humors on the liver,[156] and several other chapters on similar subjects.

Book II concludes with a chapter on dropsy,[157] illnesses of the spleen,[158] and such dermatological problems as scabie,[159] pustules and ulcers of the legs[160] and leprosy.[161] These discussions not only brought Book II to a close, but also marked the end of the head to toe presentation that was characteristic of the structure of the Breviarium to this point. Henceforth, Books III and IV of the work are arranged topically and sometimes, it appears, without regard to any relationship, natural or artificial, between the subjects covered. The first twelve chapters of Book II, for example, deal with gynecological matters and the eight chapters following, with poisons and poisonous bites. Neither subject suffers from proximity of arrangement, apparently because each is reasonably complete in itself, but the reason for that order of presentation is not readily apparent. Nevertheless, in the chapters on gynecology Arnold's account is similar to that of the Supplementum of Francis. Arnold offered, as Francis did, though in a different sequence, chapters on the impediments of conception,[162] the signs of impregnation,[163] and the means by which it might be known if a woman had conceived a male.[164] Also in chapter three he offered a regimen for pregnancy and information on how the embryo could be protected and premature birth avoided.[165] In a further chapter he discussed the difficulty of giving birth and means by which the difficulties of child bearing could be alleviated.[166] There is also a chapter on the procedure for the extraction of the dead fetus,[167] should that be necessary.

Additional gynecological matters are considered in chapters on the retention of menstrual blood and means by which it might be provoked,[168] the constraint of immoderate menstrual flow,[169] the womb,[170] abscesses of the vulva,[171] and pain of the breasts caused by the generation of milk or by abscesses.[172] Then, immediately, and without warning, the subject matter of the following chapters changes. Beginning with chapter thirteen, Arnold concerned himself with bites, poisons and poisonous bites. He included chapters on the bites of spiders,[173] scorpions and lizards,[174] serpents,[175] dogs, cats and even humans[176] and followed this by chapters on poisons[177] and on fistules, cancer and lupus,[178] which is a particularly disfiguring skin disease, closing the third book with a chapter on antrace or carbuncles.[179]

The arrangement of Book IV, however, is even more haphazard. It might be said to be concerned with fevers and abscesses for the most part, but chapters on maladies unrelated to either of these subjects are also included in this book. There are, for example, chapters on ephemeral fevers,[180] hectic fevers,[181] erratic fevers,[182] pestilential fevers,[183] and numerous other fevers and matters related to them. And, there are chapters on abscesses of the liver and spleen,[184] and on other problems related to the liver, stomach, and intestine,[185] but separating these and other chapters relating to fevers and abscesses are chapters on sincopation and tremors of the heart,[186] pleurisy,[187] consumption,[188] frenzy,[189] lethargy,[190] and various other matters which do not always appear to have a direct relationship to the other chapters with which they have been placed. Consequently, Book IV appears to be the repository for subjects that Arnold chose not to fit

into the head to toe presentation of the first two books or not related to the matters of gynecology and poison considered in the third.

Nevertheless, the subjects presented in the fourth book of the Breviarium do certainly round out a very comprehensive presentation of a great variety of medical information. The four books of the Breviarium together set forth one hundred and thirty-five individual chapters, each on a different medical topic, covering one hundred and ten folio pages in the 1509 printed edition. As such the Breviarium, written by a Neapolitan physician of the late thirteenth and early fourteenth centuries, is well suited for a study concerning the medical opinions held by physicians practicing in Naples during the period.

The Tracts on Pestilence by John of Penna

In contrast to the Supplementum of Francis of Piedmont and the Breviarium of Arnold, both of which covered a wide range of medical topics, the writings by John of Penna are brief and limited only to the subject of the pestilence. Although, as noted earlier, Arnold had written on pestilence in the Breviarium, John of Penna approached the problem with a greater sense of urgency since he wrote both of his treatises on the subject while teaching in the University of Naples in 1348, just after the outbreak of the Black Death in southern Italy.

These two treatises on the pestilence were published by Karl Sudhoff, the first in 1912 and the second in 1924-25.[191] Since both tracts are brief and limited only to the pestilence their structure is obviously different from that of the works mentioned earlier which

covered a large variety of medical matters. In the printed texts of these treatises presented by Sudhoff, neither work has any formal division and only that published in 1912 has an introduction relating to the circumstance of its composition. John there stated that he was writing the treatise in order to refute the opinions of a certain Gentile who has been identified as Gentile da Foligno to whom several treatises on the great pestilence have also been ascribed.[192] Following the statement of Gentile, John presented his views regarding the pestilence. He discussed causes, the circumstances of its appearance, noted exceptions to his general observations and prescribed a regimen for avoiding the plague. The second treatise, as indicated, begins abruptly with a precaution against contagion and is followed by a presentation of preventative measures and of treatment for those already afflicted. In addition, the second treatise has further recipes for electuaries and troches, a recipe for a substance to be used in suffumigation and a detailed description of the means for eliminating the corrupt vapors which John believed to be the cause of the pestilence.[193] Thus with this summary account of the careers and works of Francis of Piedmont, Arnold and John of Penna, we may turn in the following chapter to a consideration in greater detail of portions of the writings relating to specific diseases, symptoms, and their methods of treatment.

NOTES TO CHAPTER TWO

[1]G. Bartoni, Il Duecento, p. 146. See also footnote 142 of Chapter One for bibliography on Francis.

[2]Sarton, Introduction, III, i, 835.

[3]René Verrier, p. 144. I did not see the L. Giliberti, "Un celebre medico di Re Roberto d'Angio," Rivista Campana, (1921) article. As was explained in a previous footnote, the article according to Verrier who had seen it, is "useful and rare" and he was able to find it only through the intercession of Filangieri and the kindness of Giliberti. See his comments and additional references in footnote 142, Chapter Two above.

[4]De Renzi, Collectio, I, 353.

[5]Caggese, II, 414.

[6]Verrier, p. 139.

[7]Verrier asserted that fourteen separate editions of the Breviarium are attributed to Arnold of Villanova. Ibid., p. 36.

[8]Ibid.

[9]Jean Astruc, Memoires pour servir a l'Histoire de la Faculté de Medicine (Paris: Cavelier, 1767), p. 164.

[10]Miquel Batllori, "Records de lull i Vilanova a Italia," Analecta Sacra Tarraconensia, X (1934), 11-43. Part II of this article, pp. 25-33 is titled "Un carteig erudit sobre d'autenticitat del 'Breviarium' d'Arnav de Vilanova," and is followed by two appendices. The second appendix is a letter signed simply Malacarne, dated 1789, pp. 40-41 where Malacarne states his views.

[11]Tiraboschi, I, 27.

[12]De Renzi, Collectio, I, 347-48.

[13]Ibid., I, 347.

[14]Ibid., I, 348.

[15]Paul Diepgen, "Studien zu Arnald von Villanova. Zur Echtheitsfrage des Breviarum," Archiv für Geschicte der Medizin, III (1909), 188. This journal henceforth will be cited as AGM.

[16]Verrier, pp. 6ff.

[17]Juan Paniague, El maestro Arnau de Vilanova medico. (Valencia: Cathedra e instituto de Historia de la Medicina, 1969) p. 54.

[18]Verrier, p. 27.

[19]Paniague, p. 54; and see also Verrier, p. 41.

[20]Runciman, pp. 214-227.

[21]By the terms of the Treaty of Catabellota Sicily was to be independent. All Angevin troops were to be withdrawn from the island, and Sicilian troops from the mainland. Frederick was to be King of Sicily for his lifetime after which the title would revert to the Angevins. Runciman, pp. 274-75.

[22]Paniague, p. 54.

[23]Verrier, p. 20.

[24]Paniague, p. 54.

[25]De Renzi, Collectio, IV, 591.

[26]Monti, p. 85.

[27]Dominici de Gravina, Chronicon De Rebus in Apulia Gestis: 1334-1350; in Lodovico Antonio Muratori, Rerum Italicarum Scriptores (Mediolani: Ex Typo Societatis Palatinae, 1728) XII, Col. 558-559. Also in De Renzi, Collectio, I, 356 in an Italian translation.

[28]De Renzi, Collectio, I, 356.

[29]Francesco Puccinotti Storia della Medicina (Livorno: Massimillano Wagner; Proto: Giachetti, 1850-1866) II, pt. 2, pp. 349-50.

[30]"Nos autem volentes hoc quesitum determinare dicemus quod in hoc quesito nobis apparet dicendum: quare uterque istrorum, est nobis amicus et tanquam frater. Diligenter peramplius veritatem amicitia, loquamur de utroque id credimus esse justum et conveniens." Ibid., II, pt. 2, 350.

[31]"Franciscus de Bononia in hoc suo tractatulo nihil novi adinvenit; sed simpliciter quod antiquitas a doctoribus in hac materia dictum est in sententia pure recitavit: . . .Reprehendendus ergo est scribens aliorum opinionem, nullam de illis faciens mentionem; sed predictam opinionem ponens, ac si esset de novo illius Johannes autem de Penna peramplius reprehensionem meretur, quoniam non tam fuerunt inscii et ignari predicti doctores allegati, qui opiniones predicte fuerunt fundatores, quantum in suis verbis multum inhoneste prefert. Turpe namque est de dictis tam illustrium vivorum talia verba proferre et tam clara." Ibid.

[32]Sarton, I, 728; and Lynn Thorndike, A History of Magic and Experimental Science, (New York: Columbia University Press, 1923; sixth printing, 1964), II, 734, footnote 1.

[33]Francis of Piedmont. Supplementum in secundum librum secretorum remediorum Ioannis Mesuae, quae vocant De appropriatus, in Joannis Mesue, Opera de medicamentorum (Venetiis, 1589), ff. 11v-158v.

[34]"De omnibus passionibus cordis in generali. Cap. I." Ibid.

[35]"De medicinis simplicibus et compositis ad omnes passione cordis." Ibid., f. 13va.

[36]See for example: "De cura passionum per compassionem ad hepar. Cap. 6.,"; "De cura passionum cordis per compassionem ad splenem. Cap. 7."; De Cura passionum cordis per compassionem ad intestina. Cap. 8." Ibid., f. 14v.

[37]"De cura passionum cordis, ex fluxu sanguinis menstruorum et haemorrhoidarum. Cap. 10." Ibid., f. 15r.

[38]"De cura passionum cordis ex aere pestilentia. Cap. 13."; 15. "De cura passionum cordis ex morsu venenosorum et assumptione veneni. Cap. 15."; Ibid., ff. 15r-15v.

[39]"De diminutionione lactis. Cap. 1."; "De exuberantia et caseatione lactis et de corruptione eius. Cap. 2."; "De apostemate mammillarum et de earum ulceratione. Cap. 3."; "De mammillarum magnitudine. Cap. 4." Ibid., ff. 16v-17v.

[40]"Particula Tertia sectionis primae, quae est de aegritudinibus membrorum nutritionis." Ibid., f. 18ra.

[41]"Summa I continet. Cap. VI Est generalis sermo in meri et aegritudinibus eius, et causis et signis et cura secundum modum universalem." Ibid. For references to the meri see: Adolf Fohnan, Arabic and Latin Anatomical Terminology (Kristiana: J. Dywad, 1922), p. 92, #2047; and Morris H. Saffron, "Maurus of Salerno: Twelfth-century 'Optimus physicus' . . ." Transactions of the American Philosophical Society, n.s., LXII, pt. 1 (1972), 14.

[42]"Summa II Particulae Tertiae, sectionis primae de medicinis aegritudinum stomachi." Ibid., f. 20va.

[43]"Summa III Particulae tertia sectionis primae: de cura et medicinis aegritudinem hepatis et venarum." Ibid., f. 30va.

[44]"Summa Quarta et Ultima particulae tertiae, primae sectionis de aegritudinibus splensis." Ibid., f. 49vb.

[45]"Summa II Particulae Tertiae, sectionis primae de medicinis aegritudinum stomachi; Cap. 1. De cura aegritudinum stomachi secundum modum universalem; Cap. 2. De cura malae complexionis calidae stomachi simplicis et purae etc." Ibid., ff. 20va-21ra.

[46]Sarton, Introduction, I, 120.

[47]A particularly clear exposition on humoral doctrine can be found in: Stedman's Medical Dictionary, 20th edition, s.v. "doctrine, humoral." See also: introduction by William Sharpe to Isidore of Seville, Medical Writings, Transactions LIV, pt. 2, 23-25.

[48]"Summa II Particulae Tertiae, sectionis primae de medicinis aegritudinum stomachi."; "De cura aegritudinum stomachi secundum modum universalem. Cap. 1."; "De cura malae complexionis calidae stomachi simplicis et purae et c. Cap. 2."; "De cura malae complexionis frigidae stomachi et c. Cap. 3."; "De cura malae complexionis siccae stomachi. Cap. 4"; "De cura malae complexionis humidae stomachi. Cap. 5."; "De cura malae complexionis stomachi compositae et purae. Cap. 6."; "De cura malae complexionis stomachi cum materia. Cap. 7."; "De cura egritudinum in plasmate et primo de regimine eius, cuius stomachus est rotundus et parvus et protensus vel magnus. Cap. 8." Supplementum, ff. 20va-23vb.

[49]"De cura aegritudinum stomachi in viis scilicet oppilationibus eius. Cap. 9."; "De cura repletionis stomachi, sive nauseativae satietatis, et inanitionis ipsius et c. Cap. 10."; De cura inflationis stomachi, rugitus, tremoris et gurgulationis ipsius. Cap. 11." Ibid., ff. 24ra-24rb.

[50]"Particula Quarta sectionis primae, quae est de medicinis aegritudinum membrorum expulsionis." Ibid., f. 53va.

[51]"Summa II. Quarte particulae sectionis primae, et est de medicinis aegritudinum instrumentorum urinae." Ibid., f. 71va.

[52]"Summa III Quarte particulae sectionis prima, de aegritudinibus testiculorum et virgae." Ibid., f. 82rb; "Summa IIII Quarte particulae

sectionis primae, de cura aegritudinum membrorum generationis in mulieribus." Ibid., f. 88va.

[53]"Summa V et ultima et particulae quartae, sectionis primae, quae est de aegritudinibus membrorum appentium and partium ventris." Ibid., f. 102rb.

[54]"De dolore intestinorum et medicinis eius. Cap 1." Ibid., f. 59ra.

[55]"De haemorrhoidibus et medicinis eius. Cap. 5." Ibid., f. 68va.

[56]"De medicinis rhagadiarum ani. Cap. 7." Ibid., f. 70rb.

[57]"De medicinis fistularum ani. Cap. 8." Ibid., f. 70va.

[58]"De pruritu ani. Cap. 9." Ibid., f. 71ra.

[59]"De mala complexione renum et vesicae. . .Cap. 1." Ibid., f. 72ra.

[60]"De oppilatione renum et vesicae, ex lapide, et medicinis eius. Cap. 2." Ibid., f. 72va.

[61]Ibid., Cap. 9. f. 78rb.

[62]"De stranguria et difficultate urinae. Cap. 12." Ibid., f. 80ra.

[63]"De dolor testium. Cap. 6." Ibid., f. 84rb.

[64]"De apostematibus virgae, et corrosione eius. Cap. 14." Ibid.

[65]"De apostematibus virgae et medicinis eorum. Cap. 15." Ibid.

[66]"Summa III. Quarte particulae sectionis prima, de aegritudinibus testiculorum et virgae." Ibid., ff. 82rb-88rb.

[67]Ibid., f. 84va.

[68]"De coitu naturali et praeter naturam et signis eius. Cap. 16." Ibid., f. 85vb.

[69]"De his quae delectationem faciunt in maribus et feminis in coitu. Cap. 211." Ibid., f. 88rb.

[70]"Summa IIII. Quartae particulae sectionis primae, de cura aegritudinum membrorum generationis in mulieribus." Ibid., ff. 88va-104ra.

[71]See above p. for references to Maria Gallicia and Margherita di Napoli.

[72]Sarton, Introduction, III, pt. 1, 836.

[73]"Particula Quinta sectionis primae finalis et ultima, quae est de medicinis aegritudinum iunctuarum." Supplementum ff. 104rb-113vb. See particularly: "Sermo generalis in iuncturis et dispositionibus earum, et doloribus, causis et signis earum; est proemialis. Cap. 1." Ibid., f. 104rb.

[74]"De medicinis iunctarum et cura dolorum ipsarum in generali. Cap. 2." Ibid., f. 105rb.

[75]"De dolore ipsarum in speciali; et primo de dolore humeri, et spatulae, et medicinis eius speciali. Cap. 3." Ibid., f. 106rb.

[76]Ibid.

[77]"De dolore dorsi. Cap. 4." Ibid., f. 109va; and "De dolore podagrae. Cap. 6." Ibid., f. 111rb.

[78]Ibid., Cap. 10. f. 113va.

[79]"Particula I et est ad omnes febres." Ibid., ff. 113vb-143rb.

[80] "Serma generalis in apostematibus, causis, signis, et cura omnium. Cap. 1." Ibid., ff. 143va-145va.

[81]"De medicinis ad febres ephemeras generale. Cap. 2." Ibid., f. 115ra. Chapters 3 (f. 115vb) through chapters 20 (f. 119va) deal

with febres ephemeras of various parts of the body. There is no heading for Summa I.

[82]"Summa II. Particulae primae sectionis secundae, quae est de medicinis febrium putridarum." Ibid. ff. 120va-139ra. Folio 139r is misnumbered 136.

[83]"Summa III. Particulae prima, Sectionis secundae, quae est de medicinis febrium hecticarum." Ibid., ff. 141ra-143ra.

[84]See above footnote 81.

[85]Ibid., ff. 120va-139ra.

[86]"De cura hecticae senectutis et medicinis. Cap. 3." Ibid., g. 143ra.

[87]"De cura et medicinis hecticae et putridae complicatae. Cap. 4." Ibid.

[88]"Summa I est de medicinis apostematum sanguineorum continens." Ibid., ff. 143va-151va.

[89]"Sermo generalis in apostematibus causis, signis et cura omnium. Cap. 1." Ibid., f. 143va.

[90]"De phlegmone, quod antrax dicitur, ac carbunculus et medicinis eius. Cap. 4." Ibid., f. 147ra.

[91]"De carbone, seu prima et igne perfico et medicinis eius. Cap. 6." Ibid., f. 147va.

[92]"De apostematibus parvis, seu pustulis illius generis ut sunt mobile, et variole et medicinis eorum. Cap. 9." Ibid., f. 148va.

[93]See above footnote 88.

[94]Ibid., f. 152rb.

[95]Ibid., f. 152va.

[96]Ibid., f. 151vb.

[97]"Summa III Particulae secundae sectionis secundae de medicinis apostematum phlegmaticorum et eorum, quae illius generis illa sequuntur." Ibid., ff. 152vb-155ra.

[98]Ibid., f. 153vb.

[99]Ibid.

[100]"De glandulis et earum, quae illius generis sunt, et pustulis

glandulosis. Cap. 5." Ibid., f. 154ra.

[101]Ibid., f. 154rb.

[102]"Summa IIII Particulae secundae, sectionis secundae, quae de medicinis apostematum melancholicorum continens." Ibid., ff. 155rb-158v.

[103]Ibid. "De cancro Cap. 2." Ibid., f. 156rb.

[104]"De lepra et medicinis eius. Cap. 3." Ibid., f. 157ra.

[105]See below chapter four, p.

[106]Arnoldus de Villanova. Breviarium practice, . . . in: Hec sunt opera. . . (Lyons, 1509), ff. 150v-205r.

[107]Verrier, p. 13.

[108]"Ego quoddam opus in practica medicine compilare proposui: quod breviarium nuncupabo in quattuor libros divisus: in quo divino favente auxilio signa: causas: et curas: omnium egritudinum pro pauperibus que pro divitibus aggregabo curas diversorum physicorum et magistrorum utiles pro egritudinalibus universis: et specialiter curas mei magistri in medicina expertissimi ibi ponam: et omnia que expertus sum: et quecunque per omnes magistros et viros: et mulieres

etiam simplices et empericos vidi temporibus meis experiri nulla detentus invidia sive avaritia:" Breviarium, f. 150va.

109"Si itaque in aliquo peccaverim minus bene dice supplico universis doctoribus magistris ceteris viris probis in medicinalibus expertis: si opus istud ad eorum manus devenerit: ut mea dicta corrigantet emendent et mee simplicitati et ignorantie veniam impendant."Ibid.

110"ut quocunque hunc librum penes se habuerit: et ipsum intellexerit: et secundum doctrina tradita ibi etiam in curado egritudines universas processerit." Ibid.

111". . .rationaliter medicus et veritatis amicus ab omnibus nuncupetur: exinde enim amicorum copiam:pecuniam in bursa et famam claram pro medicina acquiret." Ibid.

112"Quoniam a cerebro omnes nervi originem ducunt: . . .ut ait Galen in tegni." Ibid.

113"De dolor capitis in generali. Cap. I." Ibid.

114"De dolore capitis ex distemperantia aeris a vento frido. Cap. II." Ibid., f. 150vb.

115"De dolore capitis ex flegmate facto. Cap. VI." Ibid., f. 151va.

[116]"De dolore capitis facto ex melancolia. Cap. VII." Ibid. f. 151vb.

[117]"De dolor capitis ex flegmate in stomacho abundante. Cap. IX." Ibid., f. 152ra; and "De dolore capitis ex sanguine in stomacho vel epate: et de eodem dolore propter indigestionem et corruptionem cibi et potus in stomacho. Cap. XII." f. 152va.

[118]Ibid., ff. 152vb-157r.

[119]"De passione ocularum. Et primo de gutta causa rubedine lippitudine sive obtalmia. Cap. XIII." Ibid., f. 152vb.

[120]"De sanguine ocularum et de tumore pruritu dolore et ardore. Cap. XV." Ibid., f. 154ra.

[121]"Additiones ad caliginem oculorum et conservandum visum." Ibid., f. 155rb.

[122]"De cataractis. Cap. XVII." Ibid., f. 154vb.

[123]"Additiones ad pannum oculorum sive cataractam. . ." Ibid., f. 156 va.

[124]"De pediculis in palpebris et fistula lachrymali. Cap. XIX." Ibid., f. 157ra.

[125]"De epilepsia. Cap. XXII." Ibid., f. 158ra.

[126]"De apoplexia. Cap. XXIII." Ibid., f. 159rb.

[127]"De paralysi. Cap. XXIIII." Ibid., 159va.

[128]"De defectu memorie et de iuvantibus memoriam. Cap. XXVII." Ibid., f. 162ra.

[129]"De passionibus aurium: et primo de surditate tinnitu et sanitu. Cap. XXX:" Ibid., f. 163vb.

[130]"De dolore auris propter caliditatem et frigiditatem vel sanguinis repletionem vel apostema ibi natum. Cap. XXXI." Ibid., f. 164va.

[131]"De fluxu sanguinis a naribus. Cap XXXIII." Ibid., 165ra.

[132]"Additiones ad dolorem dentium:" Ibid., f. 166ra.

[133]"De raucedine seu impedimento vocis. Cap. III." Ibid., f. 167va.

[134]"De scrophulis. Cap. V." Ibid., f. 168rb.

[135]"De tussi. Cap. VI." Ibid., f. 169ra.

[136]"De asmate et dolore capitis. Cap. VII." Ibid., f. 169vb. While the title mentions head pain the subject matter concerns pain of the chest. The 1483 incunabula edition, Breviarium practicae medicinae (Milan: Christophorus Valdarfer, 1483) f. 145vb, titles this chapter: "De asmate et dolore pectoris" which more appropriately describes the subject matter.

[137]"De Passione stomachi et primo de vomitu provocando. Cap. X." Ibid., f. 170va.

[138]"De vomitu restringendo. Cap. XI." Ibid., f. 170vb.

[139]"De siti. Cap. XII." Ibid., f. 171ra.

[140]"De defectu appetitus et de inaturali appetitu ut de appetitu comedendi curdas carnes et huiusmodi. Cao. XIII." Ibid., f. 172ra.

[141]"De eructatione et singultu. Cap. XVI." Ibid., f. 172va.

[142]"De stranguria dissuria et furia. Cap. XIX." Ibid., f. 174vb.

[143]"De diabete et mingentibus in lecto. Cap. XX." Ibid., f. 175ra.

[144]"De mingentibus sanguinem. Cap. XXII," Ibid., f. 175va.

[145]Ibid., f. 173rb. See footnotes 91-94 of Chapter Three for

Latin text.

[146]"De inflatione rubore ardore et excoriatione testiculorum. Cap. XXVIII." Ibid., f. 177rb.

[147]"De involuntaria spermatis amissione. Cap. XXVII." Ibid., f. 177ra.

[148]"De extinguenda libidine et voluntate coeundi removenda. Cap. XXVI." Ibid., f. 176vb.

[149]"De arthetica: sciatica: chiragra: podagra: genugra. Cap. XXXI." Ibid., f. 178rb.

[150]Ibid.

[151]"De colica et yliaca passione. Cap. XXXII." Ibid., f. 179va.

[152]"De lumbricis et ascaridibus. Cap. XXXIII." Ibid., f. 180ra.

[153]"De lienteria: et diaria. Cap. XXXVI." Ibid., f. 181va.

[154]"De dissynteria epatica: et intestinorum. Cap. XXXVII." Ibid., f. 182ra.

[155]"De distemperantia epatis in caliditate seu frigiditate et

opillatione seu duricie ipsius. Cap. XXXVIII." Ibid., f. 182va.

[156]"De mala complexione calida epatis seu frigida humida: vel sicca. Cap. XXXIX." Ibid., f. 183ra.

[157]"De hydropisi. Cap. XLI." Ibid., f. 183vb.

[158]"De passionibus splensis. Cap. XLII." Ibid., f. 184rb.

[159]"De scabie seu pruritu. Cap. XLIII." Ibid., f. 185ra.

[160]"De pustulis: et ulceribus tibiarum. Cap. XLIIII." Ibid., f. 185va.

[161]"De lepra. Cap. XLVI." Ibid., f. 186ra.

[162]"De causis impedientibus conceptionem. Cap. I." Ibid., f. 187ra.

[163]"De signis impregnationis et utrum mulier conceperit masculum an non. Cap. II." Ibid., f. 188rb.

[164]Ibid.

[165]"De regimine pregnantium et de conservationem embryonis et de cautela aborsus. Cap. III." Ibid., 188va.

[166]"De difficultate pariendi et alleviantione partus. Cap. IIII." Ibid., f. 188vb.

[167]"De extractionem fetus mortui et de mola et ad faciendum aborsum. Cap. V." Ibid., f. 189rb.

[168]"De retentione menstruorum et ipsis provocandis. Cap. VII." Ibid., f. 189vb.

[169]"De fluxu menstruorum immoderato constringendo. Cap. VIII." Ibid., f. 190rb.

[170]"De suffocationem matricis. Cap. IX." Ibid., f. 190va.

[171]"De apostemate vulve. Cap. XI." Ibid., f. 191ra.

[172]"De dolore mamillarum et generantibus lac et de apostemate mammillarum. Cap. XII." Ibid., f. 191va.

[173]"De morsu rutelle et aranearum. Cap. XIIII." Ibid., f. 192ra.

[174]"De morsu scorpionis stellionis et lacefte. Cap. XV." Ibid.

[175]"De morsu serpentis vipere et similium. Cap. XVIII." Ibid., f. 192va.

[176]"De morsu simie seu catti canis domestici vel hominis. Cap. XVI." Ibid., 192rb.

[177]"De his qui venena sumpserunt in cibo vel potui et de cautela circa venenum habenda. Cap. XX." Ibid., f. 192vb.

[178]"De fistulis cancris lupo et similibus. Cap. XXI." Ibid., f. 193ra.

[179]"De antrace seu carbunculo. Cap. XXII." Ibid., f. 193vb.

[180]"De effimera. Cap. II." Ibid., f. 194ra.

[181]"De ethica. Cap. III." Ibid., f. 195r.

[182]"De febribus erraticis. Cap. XXIX." Ibid., f. 204ra.

[183]"De febribus pestilentialibus propter aeris corruptionem: factis: et de regimie sanorum in pestilentia observando. Cap. XXX." Ibid., f. 204va.

[184]"De apostemate epatis et splenis. Cap. VIII." Ibid., f. 197rb.

[185]"De apostemate stomachi et intestinorum. Cap. IX." Ibid., f. 197va.

[186]"De sincopi cardiaca et tremore cordis. Cap. IIII." Ibid., f. 195vb.

[187]"De pleuresi. Cap. V." Ibid., f. 196ra.

[188]"De periplemonia. Cap. VI." Ibid., f. 196vb.

[189]"De frenesi. Cap. X." Ibid., f. 197v.

[190]"De lytargia et subeth. Cap. XI." Ibid., f. 198va.

[191]"Pestschriften aus den ersten 150 Jahren nach der Epidemie des 'schwarzen Todes' 1348," Archiv für Geschicte der Medizin, V (1912) 341-348; XVI (1925), 162-167. The text of Consilium . . . contra pestem published in 1912 is from Leipzig University Library MS 1178, XVth cent., fols. 54r-57r. The text of the second work, Tractatus de peste, published in 1925, is from the MS at Wiesbaden, Codex 61, XVth cent., fols. 50r-51r.

[192]Lynn Thorndike, History of Magic and Experimental Science (New York: Columbia University Press, 1934) III, Chapter XVI, 233-252. For texts by Gentile see: Karl Sudhoff, "Pestschriften aus den ersten 150 Jahren nach der Epidemie des 'schwarzen Todes' 1348," AGM V (1911), 83-86; and Lynn Thorndike, "A Case of Snakebite from the Consilia of Gentile da Foligno." Medical History V (1961), 90-95.

[193]For a more detailed analysis of the contents of both of these works see Chapter Three below.

CHAPTER THREE

SYMPTOMS, DISEASES, MEDICAL OPINION AND TREATMENT IN NAPLES DURING THE THIRTEENTH AND FOURTEENTH CENTURIES AS SEEN IN THE WRITINGS OF ARNOLD, FRANCIS OF PIEDMONT AND JOHN OF PENNA

Since the careers of Arnold, Francis of Piedmont and John of Penna have already been considered, together with the structure and content of their works, it is now possible to draw some conclusions regarding the medical views of these physicians and the methods they used to comfort and cure those who sought their assistance. These three Neapolitan medical practioners, who wrote as well as practiced, treated a great variety of medical ills from minor aches to major epidemics. In their medical tracts on these matters, which were probably read by many of their contemporaries, they exhibited a rational approach to medical situations which speaks well of their logical education, training and experience. This is not to say that there are no gaps in their knowledge, for indeed, there are many, nor that at times they did not reach some rather curious conclusions. They did that also, as the following study on occasion demonstrates. But generally, these Neapolitan physicians, and possibly the many others who worked or studied with or under them, dealt with the varied medical situations they faced with considered and trained observation. Consequently, it would appear that there were many occasions where their actions did much to comfort, cure, and perhaps even protect from further illness, those who sought their assistance.

An analysis in depth of the major works by the three physicians named, is not possible here because of their considerable length and

the rather complicated and diverse matters with which they dealt. However, a consideration of representative portions of the Supplementum by Francis and the Breviarium by Arnold, in addition to the treatises on the pestilence by John of Penna, should provide an insight into the attitudes, opinions and methods of these physicians and their Neapolitan contemporaries. This at least is the goal of the present chapter of this study which is organized loosely after the model of the treatises it considers in that it begins with a consideration of the material concerning the head, and proceeds on to matters of the lower portions of the body. This head to toe arrangement is utilized here probably for the same reason it was used in the Middle Ages, that is for convenience and easy reference. Matters that could not be fitted into this structure, such as leprosy or pestilence, which cover the entire body, and not merely a part of it, are considered at the close of the chapter, as they may possibly have been in the thirteenth or fourteenth century works. Consequently, there are included in this section such topics as the cause and cure of headache, the procedure for restoring sight to an eye afflicted with cataract and medical opinions on diseases of the meri, which is a portion of the alimentary canal. These will be followed by a consideration of the afflictions of the stomach, abscesses, kidney and bladder stones, diabetes, cancer, leprosy and pestilence in that order.

Medical considerations of the afflictions of the head are contained in sixteen folios of the 1509 edition of Arnold's

Breviarium.[1] In them consideration is given to the eyes, the brain, the ears, nose and teeth and various causes and cures for headache pain.[2] In general, the individual accounts are brief. On the head the topics are: the general cause of headache, head pain caused by cold or heat, and head pain caused by an excess of any of the four humors present in the head or other parts of the body. For the most part, general matters are considered first and more specific ones subsequently.

In the opening chapter of this book, Arnold, citing the Tegni of Galen explained that a medical presentation beginning with the head was advantageous because the origin of the nerves lie in the brain.[3] Hence, what happens to the head could have an effect on the whole body and conversely what affects the body also affects the head. Consequently, Arnold recommended that the physician be very solicitous and attentive to the afflictions of the brain because from them a patient may suffer catarrh, paralysis, pains in the ears and teeth and many other illnesses.[4]

It was Arnold's expressed view that the brain was divided into four parts and that one of the four humors flourished in each of these. The sanguine humor, he believed, flourished in the anterior region, phlegm in the posterior, the choleric humor in the right segment and melancholy in the left.[5] He did not, at first, explain the significance of this arrangement but later in the work he did link particular illnesses to these individual brain segments.[6] Nevertheless, in all the chapters related to matters of the head, Arnold gave considerable attention to the presentation of the symptoms

by which the various causes of headache pain might be recognized. In the chapter that concerned pain that resulted from exposure to wind, snow or cold, he explained that the head of the patient would ache from the cold, his nose would be clogged, and a fluid like clear water in appearance would flow from it. He might also cough, lose his voice and experience an aching heaviness in the entire body.[7] If, on the other hand, a patient should be exposed too long to heat, a possibility, for example, when the patient remained too long in the sun or too close to a fire or too long in an overheated locality, then the symptoms, Arnold asserted, would be quite different. There would be pain in the entire head, maximum heat and dryness in the forehead and constriction in the nose with heat, dryness, and little purgation present.[8]

If the pain was caused by the humors, however, there would be an even greater diversity of symptoms. For example, an excess of choleric humors would be recognizable by an acute sharp pain on the right side of the head. This was apparently the result of Arnold's belief that the right segment of the brain was the abode of choleric humor. Its excess in the body was also believed to cause thirst and sleeplessness because of the excessive dryness. Consequently, the tongue of the patient might be rough, his mouth might take on a bitter taste and he might experience a dizziness which Arnold described as vertigo. In addition the pulse might become rapid and violet and the urine would lack color. If the excessive humor was sanguine, on the other hand, that fact would be evident by pain with heat in the forehead, the

sick appearance and redness of the eyes and by the fact that the veins of the temples were visible. Here too the pulse rate would be fast but in this case the urine would be a reddish, ginger color and thick.[9]

Obviously such subtle distinctions in regard to the causes of headache marked an attempt to isolate the various causes that bring it about. It is noteworthy that under all circumstances, these symptoms were attributed only to natural causes and that uroscopy was used as an auxiliary science in diagnosis. However, it is also important to recognize that the isolation of specific causes made it possible for Arnold to prescribe specialized remedies. For example, Arnold felt that the symptoms which he attributed to overexposure to the cold could best be alleviated through the inhalation of medicated fumes or smoke in a procedure known as suffumigation. In the treatment Arnold suggested a prescription which included a mixture of the leaves of laurel, pennyroyal, narcissus and other herbs boiled with fine red wine in a covered vessel that did not permit the fumes to escape. The vessel containing the mixture was then to be brought to the patient who remained in bed and inhaled the steam from the mixture through the nose and mouth.[10] To better contain the fumes, Arnold suggested that the head be covered with a cloth, and attributed the idea to a "certain Saracen" who had also suggested that steam could be created by pouring the wine and herb mixture over two or three tiles that had been heated in the fire until they were "very red." Regardless of the method used, suffumigation was to be done two or three times, day and night, or more frequently if necessary. Arnold added that he had cured many

in this way.[11]

Interesting alternatives to the inhalation of the wine mixture vapors were the inhalation of the vapors of chicken soup, cooked with a lot of pasta,[12] or bathing of the legs of a patient with a salve made from wine and the chaff of barley cooked together. If, however, the patient was not cured by these remedies, Arnold suggested that the wine mixture or oil of pennyroyal, of sambuco, a type of herb, of camomile or of similar herbs be applied to the brain and temples by means of plaster. The oils or the wine mixture were similarly to be applied in the same manner.[13] These suggestions, however, were to be followed primarily when the previously mentioned remedies were not successful. If a cough was also present, Arnold suggested that the reader refer to his chapter on the subject where he mentioned the use of ordoriferous wines fortified with herbs but diluted with water.[14]

The symptoms of head pain caused by excessive exposure to heat were treated rather differently, however, In such situations, Arnold preferred bathing the head with one of several concoctions. One was a mixture of the yolks of three raw eggs and the finest barley. After it was applied, the head was wrapped in a woolen cloth.[15] Another recipe included oil of roses or oil of violets mixed with a little mother's milk and vinegar. Into that concoction a linen cloth was to be dipped and applied to the temples and forehead. Before that could be done, however, the temples were to be rubbed vigorously until they reddened.[16] This was intended, presumably, either to open the pores and permit penetration of the

medication or to allow the internal heat causing the pain to escape.

The alternative to the application of these substances to the forehead and temples was again suffumigation, but in this case the vapors to be inhaled arose from rose oil and laudanum, an opium derivative. Arnold's instructions required that these substances be boiled in water and inhaled through vapor or steam. Following this the patient's feet and legs were to be washed with water in which ointment of roses was cooked. He also suggested that simple cold water be forced into the nose, apparently with the idea of cooling the head. The smelling of roses, camphor or other things with strong and distinct odors was also considered beneficial.[17] If in addition the headache was due to seasonal variati[illegible] and was accompanied by heaviness in the chest and a coug[illegible]eding from the veins of the head, but only if[illegible]

In the treatment of pair[illegible]pproach differed considerably. Where[illegible]s head maladies he relied primarily [illegible]ied to more varied methods. In this situati[illegible]anguine humor was the cause, phlebotomy was tried [illegible]e, with the blood letting from the left arm in winter and in cold seasons, and from the right arm apparently at other times.[19] If the pain had not ceased by the sixth, eighth, or tenth day, Arnold suggested that a potion that would cleanse the blood be given. For this Arnold recommended several recipes. One of these required among the ingredients, twenty-five Damascene prunes and the flowers of boragine which were noted for

their soothing and perspiratory qualities. The ingredients were he
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Arnold did not believe that remedies should be administered in
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If the medicine could not reach the illness, he wrote, its effect wo
be of no use. In Arnold's opinion, critical days should be avoided
and remedies should be given on days three, six, eight and not on
days two or four which were critical.[21]

Perhaps the most interesting and, in many respects, the most
fascinating chapter of Arnold's Breviarium, by virtue of what it
attempted, is the chapter on cataracts. A cataract is a condition
of the eye caused by an opacity of the lens. This condition, which
is today relatively easy to remedy with the proper surgical procedur
and care, could, however, be frought with complications as Arnold
recognized in the thirteenth century. He observed that some cataracts
are curable and others are incurable. Those that are curable are
white and thick and the pupil can be seen to contract and dilate.
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In the treatment of pain caused by humors, Arnold's approach differed considerably. Whereas in the treatment of previous head maladies he relied primarily on suffumigation, he now turned to more varied methods. In this situation, especially if the sanguine humor was the cause, phlebotomy was tried first as a cure, with the blood letting from the left arm in winter and in cold seasons, and from the right arm apparently at other times.[19] If the pain had not ceased by the sixth, eighth, or tenth day, Arnold suggested that a potion that would cleanse the blood be given. For this Arnold recommended several recipes. One of these required among the ingredients, twenty-five Damascene prunes and the flowers of boragine which were noted for

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Perhaps the most interesting and, in many respects, the most fascinating chapter of Arnold's Breviarium, by virtue of what it attempted, is the chapter on cataracts. A cataract is a condition of the eye caused by an opacity of the lens. This condition, which is today relatively easy to remedy with the proper surgical procedure and care, could, however, be frought with complications as Arnold recognized in the thirteenth century. He observed that some cataracts are curable and others are incurable. Those that are curable are white and thick and the pupil can be seen to contract and dilate. The rest, that are incurable are so because the defect caused by the cataract is in the interior of the eye. They are usually accompanied by internal or external complications. The most common internal complication

was bad digestion in old age and the most common external ones, damage caused by a blow to the eye or simply too much rubbing.[22]

Cataracts, once removed by modern procedures do not occur. Arnold believed, however, that cataracts could return if troublesome humors were present or if the patient was disobedient, presumably to his physician. Furthermore, premature surgery commonly performed by non-professional medical practitioners (Ydiote) who removed the cataract before it was confirmed or mature, a very dangerous action, according to Arnold, was another frequent cause of their recurrance.[23]

Arnold described the cataract as caused by a paniculus which covered the entire pupil of the eye, which is incorrect. His failure to recognize the true cause did not, however, prevent him from understanding that it was the inability of the lens to allow light to pass through to the retina which was the cause of the inability of the patient to see. Also, while Arnold did believe that it was possible to remove cataracts without surgery, he did apparently recognize that non-surgical procedures rarely or never worked and that surgery was the most effective cure once the cataract was confirmed or matured.[25] Nevertheless, he did suggest, before surgery was attempted, that the diet of the patient be regulated for some days in accordance with suggestions that were made in another portion of the treatise, and that specific medicines be applied.[26] If the cataract could not be raised by these procedures, and Arnold gives the impression that he did not have much confidence that it could, then the cataract could be removed only by surgery. The procedure to be used was apparently

that of his master Giovanni Casamicciola.[27]

Under that procedure, as noted above, the patient's diet was to be regulated several days prior to surgery. Then, in preparation for the actual operation which was to take place on a clear and serence day the patient was to lie in bed with his head raised, and then the patient, following the example of the physician should rub between his teeth fennel of Ciminus with a little salt. The physician was then to sit on a bench beside the patient and hold the patient's head between his legs. Then the physician was to open the patient's eye and blow on it, to clear it of fluid. If the patient had a good eye, meaning apparently, one that did not have a mature cataract, a silk cloth dipped in egg yolk was to be applied to it, apparently to keep it closed. With an assistant or student (discipulus) holding open the lower lid, and the physician himself holding open the upper lid, he was to take up an instrument, preferably made of silver, copper or gold, which was the best, as was to pierce to the cataractious lens directly above the mid-point of the pupil. This was done at an angle so that the pupil of the eye was itself not touched. Obviously the point had to be extended with maximum precaution and care, since touching the pupil with the instrument, Arnold explained, would immediately cause the cristalline humor to come out and vision to fail. If that happened, he warned, "blame to you the physician would follow."[28]

The procedure Arnold described did not record in detail the actual removal of the opaque lens, as present medical procedure dictates, to remedy a cataract. Rather the purpose of the procedure he described was to free and push the opaque lens from its position

behind the cornea and pupil down into the cavity of the eyeball which contains a gelatinous fluid, called the vitreous humor, that could hold the displaced lens. With the lens out of position, light could again reach the retina, restoring sight, though of course, without the benefit of the refracting ability of the dislodged lens. For the light to reach the retina, Arnold explained, the needle would have to move the lens to "the lowest point of the eye so that it could not again rise up."[29]

Following the operation, silk dipped in eggwhite or egg yolk, depending on the physician's preference, was to be placed on the eyes and repeated for nine days, four times a day, both day and night.[30] During those days the patient was obliged to remain in bed, spending most of the time, apparently, on his back. By the fourth day he was to be allowed to rise and sit on the bed. On the ninth day the patient was to be allowed to walk through the house but his eye was apparently still heavily bandaged with a strong cloth around the front of his head and temples so that reum or discharge did not run to the eye. The patient was not to leave his house, however, until the eye was well purified of blood and if the blood did not recede from the eye within a reasonable time Arnold prescribed a procedure by which it could be removed.[31]

This type of operation, known as couching for cataract, had been practiced by surgeons in the East at a very early date. It was mentioned by Galen in the second century A.D. and had been practiced by Arab physicians in the Middle Ages.[32] According to Singer and Underwood, these operations, which had previously been

performed in the West by "wandering quacks who were, however, often very skillful," were by the sixteenth century practiced by recognized medical practioners.[33] Arnold's treatise, however, seems to indicate that they were being performed by Neapolitan physicians at least two hundred years earlier and at least as far back as 1267 to 1282 when Arnold's master, Giovanni Casamicciola taught at the University of Naples.[34] Arnold, however, did not mention the rate of success or failure of this procedure to remove cataracts, nor did he actually mention that he performed such operations himself. He was, however, obviously familiar with the details of the procedure and the problems which might be encountered. Consequently, it may be that even if he personally did not perform the operation, he may well have been the student or discipulus who had assisted at one. What is interesting and important, however, is that the technique described by Arnold could and apparently did restore sight to many persons during the Middle Ages.[35]

For the progression from medical problems of the head to those of the lower portions of the body, an abundance of material is provided for consideration in the first section of Part Three of the Supplementum. There Francis of Piedmont concerned himself with the diseases of the nutritive members, that is with the ills related to the stomach, liver, spleen and the meri.[36] Francis used the latter term to designate a portion of the digestive tube or alimentary canal which presently takes on different names in the various parts of its course. In the Prologue to this section Francis proposed to

offer various kinds of medication for illnesses of these members. Among these he named both simple and appropriately tested composite medicines which the first philosophers had discovered by the use of "reason and method," and ancient physicians had approved by "judgement and experience," and which he himself had seen to work effectively "according to God's grace which inspires and illuminates philosophers and physicians, ministers whom he created from heaven."[37]

Francis went on, following a brief table of contents for this portion of the work, to present a general sermon on the diseases of the meri. He described the meri as a member, similar to the intestine in appearance, concave and oblong, and composed of two membranes which extends from the opening of the stomach. From there it pierces the diaphram and proceeds upward between the pulmonary pipes and spinal portion of the neck, and terminates in the throat from which it receives food swallowed by the mouth.[38] As Francis went on to explain, the purpose of the meri was to swallow food and drink and to bring nutritive materials to the stomach. This task was accomplished by the process of swallowing which he also described. According to that description, food is forcefully worked to the inner places by the natural strength of villi[39] situated horizontally on the meri. The slipperiness of those villi encourages swallowing down and also conversely prevents swallowed matter from moving upward. That is the reason why, according to Francis, vomiting is more difficult than swallowing.[40]

After this explanation of the nature and function of the meri, Francis described the problems that commonly affect it and how they

could be recognized. Difficulty in swallowing was obviously the prime symptom, but as Francis noted, that symptom could also be caused by other members located in the civinity of the pain. These members, the epiglottis, the windpipe, the muscles of the windpipe or even the vertebrae of the back could all contribute to swallowing difficulties.[41] Consequently, Francis explained that particular signs must be recognized and known perfectly in order that the true cause of the problem might be identified. Thus he set down specific symptoms by which maladies of the meri could be recognized. For example, if a patient swallowed food without haste and it became lodged in the meri causing pain with the retention, the couse could be, according to Francis a blockage of some kind. If that was the cause it could be recognized by giving the patient a small amount of liquid. If the patient was unable to swallow even a little of the liquid or if, when he tried, the liquid exited via the nose,[42] then the physician would know that the blockage was caused by the bad constitution (complexio) of the meri. Consequently the problem was then to determine the specific cause.[43] To aid in that determination, Francis offered the following information in a later chapter. If the cause was related to heat, "there would be the feeling of inflammation and combustion and heat in the upper surface of the mouth and tongue and dryness. . ." If cold, the signs were contrary.[44] If, however, there was mild humidity, the sumptom would be humidity of the mouth and the tongue and the lack of dryness. If dry, the signs would again

be contrary.[45] Moreover, if natural humidity was present, and pain was also experienced in the upper portion of the meri, accompanied by a sharp prickling pain in the neck and between the two shoulder blades, particularly in the presence of swallowing or vomiting, the cause of those symptoms might be an abscess or tumor.[46] Consequently, as Francis explained it, afflictions of the meri were usually attributed to one of two causes, that is, to the unfortunate interference of some form of blockage associated with heat and cold, or to the growth of a tumor.

Nevertheless, it was his belief that both of those problems generally could be cured in one of two ways: either by the application of medical preparations externally on the body, between the two shoulder blades, as Galen suggested, or with medicines taken internally, retained in the mouth or licked, but not swallowed.[47] Swallowing probably would have been impossible anyway, because of the obstruction, but Francis wanted the medicine retained in the mouth because from there it would have closer proximity to the source of the difficulty. Francis does not mention which method was most likely to succeed but rather went on, in the chapters that followed, to describe specific regimens and special medicines to be used apparently when these general cures did not work.

There is nothing startling or brilliant in any of these ovservations nor can it be said that the diagnosis are for the most part medically correct. Yet, their presentation does show how Francis described the organs of the body, and their functions, and the manner

in which he attempted to isolate symptoms and relate them to specific causes. Nevertheless, the chapters on the meri, the passageway to the stomach, were conveniently tied with chapters concerning other passages connected to the stomach.[48] In one of those chapters Francis appears to have been of the opinion that many stomach problems result from the stomach and other organs of the body.[49] In his view, therefore, specific stomach disorders could be related to any number of interferences. If, for example, the nerves between the brain and mouth do not function properly they inhibit the transfer of sensation to the brain leaving an individual incapable of recognizing the nature of the object in his mouth.[50] If there is a blockage of the pores between the stomach and the spleen, melancholy, which excites the appetite would not flow to the stomach and would cause a person presumably to suffer a loss of appetiti.[51] If the passage between the mouth and stomach, that is, the meri, was obstructed, the stomach could not receive nourishment.[52] If the veins between the stomach and liver were obstructed, the liver could not nourish the stomach with blood.[53] If the passage between the stomach and anus, the intestine, was blocked the stomach could not "transfer superflous matter,"[54] just as the meseriacis[55] veins could not transfer chyli, a pale yellow fluid from the intestine to the stomach if theywere blocked.[56] Hence, because of the interdependence of various organs of the body the reasons for stomach disorders were numerous. Francis, however, was of the opinion that all of them reulted from external cuases, and, furthermore, that the specific causes could be identified

through the characteristic symptoms which he described in detail. The obstruction of the veins of the liver, for example, was, in his view, characterized by an intense thirst which decreased as the illness progressed and by the desiccation of the whole body brought about by the drying effect of the liver on the stomach.[57] Iliac pains, on the other hand, were symptomatic of blockage of the intestine.[58] For those ills, Francis believed the cures to be both general and specific. The general cures related to the use of aperitive and blocking medicines.[59] The specific cures on the other hand required the use of a medicine consisting of aloe powder, absynth water and the bark and syrup of the caper bush,[60] special diets,[61] a concoction of hiera, absynth, cusconine and eupatorium,[62] provision for the application of clysters and a potion contianing honey water and hiera.[63]

In none of these recommendations, however, were there any clear directions regarding the strength or proportions of the ingredients in the particular compounds nor were there suggestions on dosage. In fact, judging from what was written in the treatise, there is little to show that Francis had any first hand experience with the disorders mentioned or with the administration of any of the cures he described although it is certainly possible and even likely that he had.[64]

A further matter about which both Francis and Arnold wrote was that of abscesses. In the Supplementum Francis dedicated an entire section of the work to various types of abscesses and divided it into four summae and twenty-nine chapters. Each summa dealt with abscesses caused by a different one of the four humors and the chapters of each summa dealt with more specific problems related to each type. In addition, there were ten other chapters scattered throughout the work that dealt with abscesses of various parts or organs of the body. For instance, Francis provided a chapter on abscesses of the breast in the section of the work on gynecological matters, on abscesses of the meri, in the section on the meri and stomach, and additional chapters on abscesses of the liver, spleen, anus, kidney, testicles, penis and the womb in other portions of the work.[65]

Arnold, on the other hand, did not go into as much detail in the Breviarium but he diddevote nine chapters to abscesses and related problems. The second book has chapters on abscesses and ulcers of the kidney and bladder, and on pustules, carbuncles and fistules of verile members; while the third book contains chapters on abscesses of the vulva and breasts and on fistules and carbuncles. In addition, in the fourth book there is a chapter on abscesses of the liver and spleen and another on abscesses of the stomach and intestines.[66]

Characteristic of the viewpoints in both works is a chapter of several folios in the Supplementum of Francis dedicated to a general sermon on causes, signs and cures of abscesses. In this general dis-

cussion, which introduces chapters on more specific abscess related maladies and remedies, Francis explained that abscesses are classified according to their causes and that their medication and cure vary accordingly. However, to understand the causes Francis believed that it was necessary to understand Galen's theory of causation as Galen taught it in the tract to Glanco. There, Francis asserted, Galen taught that the causes are four in number, the material, formal, effective, and final causes.[67]

This doctrine of the four causes attributed to Galen is related to that of Aristotle who presented the causes not as causes in the modern sense but as aspects of a situation that had to be known and understood if one was to understand the situation itself. Thus, to Aristotle, the material cause referred to the matter from which an object was made; the formal cause referred to the form or shape of the object; the efficient cause initiated the process of change and the final cause was the reason for which an object was brought into being.[68] Consequently, to Francis in discussing the causation of abscesses, the material cause referred to the matter or material from which the abscess was made; the formal cause referred to the shape or form the abscess took on when it was fully realized; the efficient cause referred to the agent through which the abscess was produced; and the final cause considered the reason for which the abscess came into being. Consequently, Francis, by using the causation theory of Aristotle and Galen, covered considerably more than the causation of abscesses. By doing so he considered their development, nature and consequences.

The explanation by Francis, concerning the material cause is, however, extremely complicated and philosophical in nature when it proceeds beyond the observation that abscesses come forth from the four humors, wateriness, and windiness. What is germane and obvious, however, is that Francis believed abscesses to be formed as a result of the presence of these substances and that they could, consequently, for the purpose of understanding and classification be divided into two groups, those which are hot and those which are cold. Hot abscesses, according to Francis, are caused by blood or choleric matter or a combination of those humors, while cold abscesses are caused by phlegm, melancholy, wateriness, windiness, or a mixed combination of them.[69] These substances, the substances from which abscesses are made, constituted, in the opinion of Francis, the material cause.

On the matter of efficient cause, the cause thatinitiates the change which brings the abscess or tumor into existence, Francis asserted that it could be internal or external. The internal cuase of an abscess could be plethoria or cacochymia,[70] a natural debility of an organ,[71] or a malady of a diverseconstitution or of other internal causes proceding from the regimen or the nature ofthe organs.[72] The external cause could be simply bad regimen not only in food and drink, but also in other necessary non-natural things resulting in an excess of humors in the abscessed member.[73] Francis did not explain how the excess of humors takes place, however, his dependence on Galen for much of the material in this section is an indication that he might agree with Galen's description of the process as it was described in his On the

Natural Faculties. There Galen had explained that ". . . when the nutriment becomes altered in the veins by innate heat, blood is produced when it is in moderation, and the other humors when it is not in proper proportion. . .Thus those articles of food, which are by nature warmed are more productive of bile, while those which are colder produce more phlegm."[74] This immoderate amount of nutriment referred to by Galen is apparently the matter which initiated the change that brought the tumor into existence and is therefore the efficient cause to which Francis referred.

The discussion in the Supplementum concerning the formal cause is considerably simpler since it is merely concerned with the form an abscess takes on once it has come into existence. Consequently, Francis had simply to explain that a large sized abscess is called a tumor, a moderate sized one is called an abscess and a smaller one is known as a pustule or bothor.[75] Not much more explanation was necessary. However, on the matter of final cause, which is concerned with the purpose for which the abscess comes into being, Francis made some interesting observations. He noted that an abscess could be wholesome and life giving or it could bring about death as its final purpose, depending upon what happens to it. The best things that could happen to an abscess are that it might be resolved or that it might mature and become healthy. The worst things could be that it might open suddenly, suffocate or become corrupted. The former group would presumably be wholesome and life giving and the latter group could cause death. Between these extremes, however, an abscess might become hard or stone-like or it might change in

form, and that, according to Francis, could have good or bad effects.[76]

Nevertheless, Francis of Piedmont's observations on the causes of abscesses, when separated from the causation formulae of Aristotle and Galen, are informative. They can be summarized by the statement that abscesses are the result of improper regimen or the presence of excessive humors in certain organs of the body, and furthermore, that abscesses are dangerous if they open suddenly or become corrupt, but are not dangerous if they disappear. This brief summary does not do justice to Francis' learning and his understanding of his sources, Aristotle, Galen, Serapion, and Avicenna (Abuhali), or to his attempt to provide theoretical as well as empirical information regarding causation of abscesses. However, it does show that in his attempt to present the material derived from authorities in a manner acceptable to his comtemporaries, Francis also provided much practical information on various types of abscesses, derived in all probability from his own experience.

In his presentation, Francis also asserted that the signs of the genera, species and causes of abscesses had to be investigated if complete cure was to follow.[77] Obviously the physician who understood the theory had also to be able to recognize the illness and that could only be done through recognition of sumptoms. Consequently that was the next matter Francis considered. In doing so he explained that the exterior abscess is easy to recognize because it appears as a tumor or swelling on an external portion of the body.[78] The presence of a tumor inside the body, however, is not so easily

discerned. However, it could be recognized by certain essential signs which are common to all internal tumors. This includes sudden reduction in weight, concavity of the eyes, and heaviness and swelling of the body. The genus of the tumor, on the other hand, could be determined from the presence of inflammation and strong acute and lasting pain together with the symptoms mentioned previously if the abscess was hot.[79] Furthermore, Francis explained that Hippocrates in the Aphorisms had written that pains in the sides and chest or in other parts of the body are bad omens, as is fever, especially if the abscess should be near the heart and putrified.[80]

In addition to the presentation of the above mentioned symptoms, Francis also provided an account of a procedure for ascertaining the species of an abscess. The signs, he explained, are the same as those of the matter from which the abscess is composed. In other words, if the abscess is hot, the matter from which it is made may be blood or the sanguine humor and the aforementioned symptoms will be dull. If the matter is choleric, the symptoms are intense. If dry they would be more intense. If cold, the pain would be minor and the tumor would not be great nor acute since the matter is diffuse and will not collect nor will there be fever unless this should result from putrification.[81] In addition to these symptoms, Francis discussed many more by which the causes and state of the abscess could be recognized and better understood. All of these symptoms were further treated in more detail in the following twelve chapters where individual types of abscesses were considered separately.

Nevertheless, this general introductory discourse presumably enabled the reader to recognize the problems with which he must deal. In any case, Francis apparently considered it to be a solid, theoretically oriented presentation that provided preparation for the chapters that followed on the sanguine abscess and its healing, on abscesses of the glands, on an inflammation called anthrax, on the healing of bad tumors and small abscesses, on the general means of their termination and other related subjects.[82]

In comparison with this extensive treatment, Arnold, in the Breviarium, did not deal with theoretical matters or the general causes of abscess as did Francis. Rather, he concerned himself with abscesses only when they related to specific organs. For example, in chapter eight of the fourth book, he described abscesses which formed on the liver and spleen.[83] There he presented the view as did Francis, that abscesses of the liver were caused by the presence of excess humors, and more specifically by the presence of hot or cold humors.[84] An abscess in the liver, caused by a hot humor, he asserted could be discerned by the presence of acute and sharp pain in the right side of the abdomen (hypocundrum), excessive thirst and by the yellowish or reddish color of the eyes and body. In addition, the urine might become reddish in color and the color might vary depending on the circumstances, but the abscess would usually terminate on the seventh day through a flow of blood through the nose.[85] If, however, the problem was caused by cold humors, then the symptoms would vary somewhat. Here again the patient might experience pain in the right side of the abdomen, but it would be

worse than if the troublesome humor was hot. Also the patient might be thirsty but the thirst would be more moderate and it is possible he might not be thirsty at all. In addition, and these were symptoms not associated with hot humor, the urine would be discolored and turbulent, the eyes livid and the figure or appearance of the individual pallid.[86]

Arnold was also of the opinion that the position of the abscess on the liver might also have some effect on the symptoms experienced. If, for example, an abscess developed in the sima of the liver,[87] heaviness or pain would be intense and vomiting would result from compressing the stomach. Pain would not be aggravated, however, if the area above the liver was touched by the hands.[88] If, on the other hand, the abscess should be situated in the hump (gibbo) of the liver the patient might experience difficulty in breathing and a cough might result from compression of the respiratory tract. Moreover pain would be felt if the hand was held in that place.[89]

Arnold attempted to cure these abscesses in several different ways. For example, he asserted, that if a hot abscess was diagnosed and the patient was strong enough, phlebotomy might be performed on the middle vein of the right arm. At the same time, and apparently just as soon as the presence of the abscess was recognized, a syrup of grain mixed with the water in which the grain had been cooked, should be administered while the painful area was dressed with a concoction of oil of roses or oil of violets, the herb, mallow, and water that had been cooked with several other ingredients. If constipation was a problem the patient was to be given an enema

The patient was then to be soothed and clensed. If the abscess (or tumor as he called it here) did not burst after seven days, the troches mentioned in a previous chapter were to be administered together with two additional syrups for which Arnold provided the recipe.[90] Apparently the purpose was to attack the abscess both internally and externally. If the tumor or abscess was the result of the presence of an excess of a certain humor, it made sense to Arnold and other physicians of the time to try to eliminate that excess. Phlebotomy and enema were seen as measures to pruge the body of the excess humor causing the problem. Troches and syrups, on the other hand, were to deal with the problem from within the body, while the ointment or plasters, to be applied in the presence of cold tumors, were to work from the outside.

Kidney and bladder stones were the subject of the twenty-seventh chapter of Arnold's Breviarium, book two. There he explained that stones were generated from gross and crude material which descends to the kidney with moisture drawn from blood in the veins. It was Arnold's opinion that kidney stones resulted either from gluttony, as when young boys take in too much food and drink, or from a debility in digestive strength which frequently happens in the very old.[91] But whichever of these was the reason or cause, the process of stone formation was pretty much the same. According to Arnold, when a kidney is healthy, urine is evacuated through it without difficulty leaving no gross humors behind.[92] If, however, the passage of the kidney should be restricted and its expulsive

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ability weakened, gross humor is retained in the kidney and a stone is generated as the sediment dries up and hardens from the vehemence of heat.[93] Actually, excluding the mention of vehement heat and excusing his lack of knowledge concerning the nature of crystals present in the urine, Arnold's description is not far wrong. Present medical opinion holds that when a kidney does not function, it allows uric acid or other crystals to collect, forming stones which are very close to those of nature in appearance.

Arnold expressed the view that the gross humors present in the body, from which these stones are generated, could be the result of several causes. They could be, he held, the result of a gross or bad diet, inordinate eating, or the result of drinking slimy and turbid water. They could also develop from the retention of corrupted kidney matter which, when retained, becomes hard and thick.[94] Stones could also form in the bladder, especially in boys, because of a restriction in the neck of the bladder and because of their gluttony and coldness. Their gluttonous and cold nature generates thick and viscous humors, he asserted, which are unable to pass the bladder because of the restriction and thereby remain, forming stones. Such conditions, he wrote, could not occur in women as the neck of the bladder of women is short and wide.[95]

Once kidney or bladder stones form, however, the symptoms, according to Arnold, are these. First there is pain, pressure and a prickling sensation in the kidney and pain in both thighs. In addition, the patient would feel that his feet had fallen asleep and a man would experience pain in the testicles and pain on

urination. Moreover, blood would be present in the urine. The pain, however, would not be stable in the sense that it had always to be felt in the same place. Sometimes the stone would appear to move from place to place and the pain with it, while at other times the stone and pain remained stationary.[96] If the stone was in the bladder rather than kidney, it could be recognized by pain in the neck of the bladder and the penis, the painful discharge of urine (strangury), and the fact that the urine appeared white or transparent with the presence of grains of sand in it.[97] Arnold here noted the Aphorisms of Hippocrates, for the view that those over forty can rarely or never be freed from this affliction.[98]

Yet the opinion of such an authority as Hippocrates, that persons over forty could not be cured of this ailment, did not prevent Arnold from setting down a large variety of possible cures. He described syrups, electuaries and other medical remedies, of which he attributed some to his master, Casamicciola and others to Aviconna. Arnold appears, however, to have been opposed to the methods of surgeons and the use of surgery to remove stones from either the bladder or the kidney, for in one section of the treatise he wrote: "Likewise the stone is perceived in the neck of the bladder if the finger is placed up the anus: as for instance these surgeons do who cut into stones. That I do not approve. It is dangerous and mortal. Whence any honorable physician would not consent to this procedure."[99]

Arnold preferred, instead of using surgery, to try to dissolve the stones with the application of internal and external medicines. He asserted that "in the beginning we ought not to insist on cleansing

and encouraging the passage of urine or on breaking down the stone. Rather, we should first make ointments and gently and frequently soften the places should be annointed with various oils and butter and possibly other substances.[100] At the same time another unguent should be applied to the space between the genitals andtthe anus and later a plaster should be applied above the place in which the stone lay.[101]

In addition to the above, the patient might seek comfort and cure from baths known for their medicinal qualities. It was Arnold's expressed opinion that baths can be very beneficial to the sufferer, especially those taken in fresh water or in the waters of the meadows along the seacoast between Naples and Puteoli.[102] Here is proof, if proof is needed, that Arnold was familiar with the city of Naples and the facilities available in the area, but it is also noteworthy that these medicinal waters were used as internal remedies as well. Arnold held that the water of these baths or a syrup made with it, when taken internally, would break down the stone and allow it to be eliminated. "I saw these tried by many persons and often observed that the kidney and bladder were freed of the stones through the virtue of these baths,"[103] he asserted. However, he also suggested alternatives if the baths were not available to the patient, or if they did not have the hoped for effect. For example, if the pain became intolerable, he suggested that it could be mitigated by the application of a plaster. This plaster was to be prepared from two or three onions which were cut open, sprinkled with wine and heated above hot tiles. It was then to be placed above the kidney or the peritoneum, which

is the membrane that encloses the intestine.[104] If that did not work, Arnold had suggestions for other plasters and cures, including several internal remedies that were to be taken over a period as long as fifteen to twenty days. Among the latter were a syrup and electuary from his master, Casamicciola, a medicament taken from Abuhali who was also the source of a recipe for a troche that was supposed to be effective in the breakup of kidney stones,[105] and a "marvelous syrup for the cure of the King of the Franks composed by several master physicians."[106]

Arnold did not precisely state which of these remedies would be more effective nor which would be most effective under specific circumstances. However, it is possible that he listed his remedies in the order of personal preference. The baths of Puteoli, for example, whose medicinal benefits were known to him were suggested before the remedies noted by Avicenna of which he had apparently read or heard about. In addition many kind words were lavished on the benefit of the baths but Avicenna remedies were presented without commend, a fact that probably speaks well of his preferences.

The personal experiences presented in Arnold's chapters on kidney and bladder stones are in sharp contrast to the matter-of-fact presentation of Francis in his chapter on diabetes. There in eleven precise paragraphs Francis consdiered different aspects of the disease in a most business-like, scholarly and impersonal manner. The first paragraph contains a definition borrowed from Galen that describes diabetes as a disease of the kidneys.[107] The second

attributes diabetes to superfluity and describes the nature of the disease; the third describes the progression of its symptoms and the fourth, the cure. Those which follow supplement the matters taken up to this point in an efficient fashion without benefit of personal experience or recollection.

Specifically, Francis believed diabetes to be caused by an excess of heat or cold in the kidney. These excesses, he believed, had internal causes which were subject to external influences in much the same way as abscesses.[108] However, Francis, before he explained the cure for diabetes, described the progression of its symptoms. He explained that diabetes, when it was caused by an excess of heat, could be recognized through the presence of heat in the loins or genital organs, and much urination.[109] The excess of heat, in the early stages of the disease, he asserted, causes a deficiency in the liver, and, particularly, a deficiency in the size of the passage that drains blood out of the veins. This in turn causes an abundance of blood to be transmitted to the kidneys with natural water causing the urine to become red in color.[110] He explained that when the blood in the veins was lessened, other changes take place causing the urine to become thick and white. That stage was followed by consumption from which death frequently occurred.[111] If, on the other hand, the cause was an excess of cold, that fact could be recognized from the sensation of coldness in the genital organs. Urination would not be excessive in the early stage of this disease, however, as the illness worsened, urination would increase and the symptoms would be similar to those above.[112]

In regard to cure, Francis held that several things had to be done. First the internal and external causes of the problem had to be removed and the flow of urine lessened. Then a proper regimen had to be provided so that the suffering caused by the disease, the excessive thirst, the consumption of the members of the body, and the rapid exit of the urine could be relieved. In regard to the first matter, Francis asserted that excessive heat could be diminished if the hot food and drink and hot diuretics that provoked urine were eliminated. He also recommended that the external sources of heat be reduced by minimizing the activities of the body and kidneys and this could be done by avoiding pressure on the loins, certainly hot baths and staying out of the sun. He also suggested that the patient avoid copious sleep and be careful not to lie on the kidneys. Furthermore, Francis urged that the patient should not be treated with hot unctions, plasters or similar medications that might warm the kidneys, liver, humors and members of the body.[113] On the contrary, to dissipate the heat already present, he suggested phlebotomy, enema, appropriate gentle pharmacy[114] and the intake of foods that were essentially cold in nature. The foods he recommended included spinach, lettuce, quince, melon and prunes among others. However, Francis emphasized that it was very important that only the meat and not the seeds of the fruits be eaten since seeds stimulate the flow of urine and that was not desirable for someone already suffering from diabetes.[115] If, however, the symptoms were caused by excessive cold the cures Francis suggested followed the same pattern as those for excessive heat, with the necessary modification,

of course, that the intent was to warm rather than cool the body. To assist in that Francis suggested a rub down followed by baths and the administration of antidotes that were thick and therefore unable to penetrate quickly and become urine.[116]

If the methods mentioned here were successful in alleviating the symptoms of diabetes, they would, of course, diminish the flow of urine, but its flow could also be diminished if the body could find other means by which to eliminate the excess of fluid. Two such alternatives were perspiration and vomiting. To stimulate perspiration, Francis suggested annointing the body, and particularly the spine, with oils, dills, white wine and hot water.[117] To induce vomiting, which he believed to be more beneficial because it eliminated fluid without urination and reduced internal heat at the same time, Francis suggested drinking wine. The wine, he believed, would force the inflammation to be drawn back to the stomach where it could be eliminated with the vomit.[118] Once eliminated the flow of urine would also diminish.

Concerning the regimen for those suffering diabetes, Francis suggested that the patient remain in a place with cool syptic air, where he might have the opportunity for quiet moderate sleep, and where he might take foods that were cold and very heavy in nature. In any case, the patient was to take such foods as barley, lentils, the flesh of cattle and their feet and fresh fish with vinegar.[119] This regimen would hopefully curb excessive thirst, consumption of members and swift and excessive urination. However, Francis mentioned a recipe from Avuhali for troches[120] and an "invention" of his own

which might have been helpful in alleviating those symptoms also. The recipe for the troches of Avicenna had been mentioned in a previous chapter but Francis' original invention was a recipe for a medicine that could be applied directly to the outside of the body in the area of the kidneys or liver or by means of a poultice or given internally through an enema.[121] The mention of the fact that it was his invention, however, is the only personal observation Francis allowed himself in this chapter, and it appeared at the end rather than at the beginning of his presentation for the treatment of diabetes. Whether it was placed at the end of the chapter out of humility or in deference to the more important remedies proceeding it cannot be determined, although the latter explanation is perhaps most likely, in the light of the humble nature of Francis' remedy.

A chapter of the Supplementum of Francis of Piedmont, that is of considerable interest is the one in which he focused his attention on the dreaded illness of cancer. His chapter on the subject not only defined the disease and set forth his explanation of its cause but also presented a wide range of advice and suggestions on how various types of the disease might be cured. Francis described cancer as a diffuse melancholy abscess with little swelling, which resulted from the abundance of melancholy or black bile in the body.[122] Cancer, he said, is mobile and active in nature and, except for its cancerous color, is similar to a crab in appearance. It has a round form at the center and roots spreading from it which take on the appearance of the claws of a crab grabbing for food.[123] Cancer,

Francis believed, could result from a combination of causes. The melancholy which caused the cancerous abscess could result from the patient's natural constitution, a poor regimen or a diet rich in harsh things, lentils, old meats and melancholic foods. However, so long as the spleen functioned properly, it was possible for the body to eliminate excess melancholy. If it did not function properly, however, the melancholy could be spread to other members of the body and cancer could result. Francis then went on to describe among the causes of cancer the melancholy caused by unnatural heat.[124]

Francis asserted that cancer usually struck the delicate soft parts of the body such as a woman's breast, the flesh of the upper arm, the nose, the legs and particularly those areas where superfluity of melancholy was accustomed to flow, as in the penis and testes of men and the womb and anus of women.[125]

Francis also described the symptoms of cancer. An early sign is a swelling, like a bean, chick-pea or hazel in appearance, small, hard and round, dark in color, in which there is some heat and strong pain. When it endures, it advances in magnitude and continues to ulceration on account of the sharp and pungent nature of the melancholic material. Sometimes, however, ulceration does not occur because it is dry and at other times the ulceration although begun, simply comes to a halt. Francis held that in the early stages this type of cancer could be cured by cauterization. "Healing is done with the iron," he wrote, "the lip of the swelling is made thicker and harder and if it is cauterized the corroding matter is resolved and consumed."[126]

The usefulness and success of cauterization, Francis held, was limited to situations where the cancer was accessible to the iron and

was still in an early stage of development. However, when that stage passed or when the cancer was inaccessible, it might still be curable through surgery and a proper regimen. If not curable, then, at the very least, a proper regimen could be helpful in controlling its growth. Francis explained that,"regimen in the cure of cancer is diverse according to the diversity of the time, disposition and place of it and if it is in the early stages and in a manifest place before it reaches confirmation, magnitude and ulceration." Beyond that point cancer, in most instances, could not be cured without surgery.[127]

Consequently, because of these variables, Francis presented a two-fold regimen for the cure of cancer, that is universal and particular. With regard to the universal regimen, he considered four matters: a universal diet, evacuation, the rectification of members generating the matter and the correction of conditions associated with cancer. Concerning the diet, Francis suggested that it tend toward cold and moist foods that would prevent the regeneration of matter with the changing air, and foods that would be soothing to mind and body. This diet included milk derived foods and cold and moist herbs and vegetables such as spinach, beets and cucumbers and the like. In addition he also suggested that the patient be given various fruits, fresh water and milk, fish, barley, egg yolks and barley water or delicate white wine.[128]

The purpose of universal evacuation was to eliminate the melancholy that caused cancer from the veins and the body. This was to be accomplished by provoking menstruation in women, by the use of leeches on hemorrhoidal veins, and by phlebotomy.[129] These

procedures would hopefully halt the generation of melancholy by restoring harmony in the body and ending the dyscrasia, or abnormal condition of humors.

On the last matter, the matter of correction of the conditions associated with cancer, Francis suggested that pain could be mitigated with cold repercussives or with hot anodyne. And, if the interior heat of the patient was vehement it could be extinguished with coriander water, the repercussives and the intake of other cold things.[130]

The particular aspect of Francis' regimen for the cure of cancer, on the other hand, had as its purpose one of four alternative actions: the destruction of the cancer itself if that was possible, the prohibition of its growth if it could not be destroyed, the prohibition of ulceration if it continued to grow, and finally, the care of cancer if ulceration was confirmed.[131] In regard to the first matter, the destruction of cancer, Francis suggested here that coriander and other herbs be tried first. However, where resolution was not possible, surgery was the only alternative, particularly if the cancer was found in an extremity such as the foot, hand, or breast.[132] If surgery was necessary, Francis advised that the incision be a large one so that all the parts in which cancer was established could be cut away. That included the cancerous area around the organ and the cancerous veins emanating from it. No cancerous material could be allowed to remain.[133] Once the surgery was completed, Francis suggested that the incision be cauterized by fire to loosen the remaining bad matter, comfort the member itself

and hold back hemorrhage. If, however, the surgery was ineffective, nothing more could be done to halt the spread of cancer beyond more radical surgery, but Francis did not expand upon that suggestion.[134]

Thus, if it came to the point that the growth of cancer could not be stopped, Francis proposed to strengthen the affected organ and bring down the swelling. This, he suggested, could be done with repercussive medicines used in the form of a linament in the hope of prohibiting ulceration.[135] If the ulceration could not be stopped, then Francis implied that the situation was hopeless and that the only alternative was the application of plasters to give the patient at least some comfort. Not much else could be done in the treatment of terminal cancer.

Leprosy was another affliction considered in both the Breviarium and the Supplementum. In the Supplementum, discussion of leprosy followed immediately after discussion of cancer apparently because of Francis' view that leprosy was a universal cancer. He believed that it was caused by the presence, internally, of choleric materials which mixed with the blood and spread by way of the veins through the entire body and underskin parts where it remained and putrified.[136] His explanation of how this condition originated is interesting and was shared by Arnold who also considered leprosy in a chapter in the Breviarium. Both men believed that leprosy could be caused by hereditary factors. Arnold wrote, for example, that when a leper copulates with a woman the generation of the foetus may produce a leper because it is nourished from impure blood or is generated from

corrupt sperm.[137] In addition, Francis noted that the presence of a leperous embryo in the womb could be explained by the fact that conception took place at the time of menstruation which caused the melancholy humor to saturate the uterus.[138] In that circumstance, neither parent apparently would necessarily have to have been leperous even though the foetus was. It is apparent, however, that Francis did not realize that impregnation during menstruation is impossible. Nevertheless, neither Francis nor Arnold held the cause of leprosy to be exclusively hereditary. Both agreed, in fact, that leprosy could be acquired in a number of other ways. Francis believed, for example, that it could be acquired from a bad regimen, "as when melancholy and choleric materials were brought together in foods and particularly in fishes and milk."[139] Similarly Arnold was of the opinion that leprosy could result from the immoderate consumption of such phlegmatic and melancholic foods as the meat of certain asses or the meat of infected cows or hogs.[140] "It may also be affirmed," he continued, "that one becomes leperous on account of the excess use of foods with garlic and pepper and even from the immoderate use of pure wine. These are used immoderately by Gauls and Burgundians," he explained, "and for that reason many of them are lepers."[141] That conclusion, however, is perhaps more revealing of Arnold's distaste for the Angevin French who had taken over control of Naples than it is of his medical wisdom.

Nevertheless, both men, Francis and Arnold, were also of the opinion that leprosy was contagious and that this could be another cause of infection. Francis, for example, explained that the air

of a region could be corrupted because of the pestilence or from infected vapors released from the bodies of lepers drawn together in the vicinity.[142] Arnold shared that view and that is apparently why he suggested that lepers ought to be segregated. In fact, he went so far as to suggest that they be brought together to live in a remote place so that the vapors they generated might not cause the spread of leprosy.[143]

Francis attributed the development of leprosy to a defect in the function of the spleen, which is not unexpected, since he considered leprosy to be a form of cancer. Thus, according to Francis, the debility of the spleen made it incapable of eliminating certain humors through hemorrhoids, menstruation or the pores of the skin. As a result, the humor multiplied in the veins and violent and bad inflammation took place which nature could not regulate. As a result, the excessive humor could, depending upon certain variables, cause cancer, skin eruptions, universal black lesions or leprosy.[144]

The term leprosy, as it is used by Arnold, is a general one for four distinct species of skin diseases which characteristically alter the form and appearance of the individual they strike. He believed that all four of the forms, leontiasis, alopecia, elephantiasis and tiriasis,[145] were generally incurable although elephantiasis and tiriasis, if caught in their early stages, before "the terrible signs" of disfiguration appeared, could be cured.[146] Leontiasis, however, seemed to be a hopeless disease. It received its name, or so Francis believed, because the face became disfigured and "terrible, in the manner of a lion holding rapaciously to its prey."[147]

But that, according to Arnold, happened gradually and not at once. In the first stage the veins became prominent and the eyes bulged, taking on a round shape. Later the voice became rough, the skin harsh, and "corrosion" began in the gums. Finally, the nose, eyes and other extremities fell off and with that the face took on the look of a lion. This, according to Arnold, was caused by an excess of choleric humor.[148]

The second species of leprosy described by Arnold was alopecia. In this form he noted that the eyebrows and beard fall off and because of this it is called alopecia, the loss of hair giving the appearance of the fox mange. Also the eyes of those afflicted are inflamed, and the face is reddened by pustules which affect the entire body and give off an offensive odor, as does also their fetid breath. Moreover, the nose is enlarged, the cheeks are swollen, blood flows from the gums and occasionally drops of blood are discharged in the urine.[149] Francis, moreover, in the Supplementum described as further signs of this form of leprosy, the reddening and putrefying of the skin, excessive swelling and the emission of blood and putrid matter.[150]

Both Arnold and Francis agreed that this form of leprosy, named alopecia, and that designated as leontiasis were incurable. However, the two other forms of leprosy, namely elephantiasis and tiriasis, Arnold held were sometimes curable although they were generally believed incurable.[151] Elephantiasis, Arnold described as arising from a natural melancholy and as characterized by the round appearance of the eyes, wrinkled eyelids, increasing narrowness of the nose and harshness of the voice. However, the most obvious characteristic of

this species was the great heaviness of the bodies of those afflicted.[152] Francis wrote that this indisposition was called elephantia by Galen and that, like alopecia, it corroded the roots of the hair, created baldness, corrupted the body and changed the color of the skin. And he then asserted that leprosy itself begins from these things.[153]

Nevertheless, in regard to cure of elephantiasis, when caught in the early stages, Arnold asserted that he himself had cared for many leprous persons with phlebotomy and purgation. Phlebotomy was applied first on the left arm and then on the right, while purgation was accomplished by a concoction for which he provided the detailed recipe as well as by pills that worked to loosen and evacuate the leperous material from the stomach.[154] In addition to purgation Arnold suggested daily bathing in plain water, rubdowns and extraction of natural oils from the face with a cupping glass. Following that he advised wrapping the patient in a good garment after the application of various oils and waiting a full hour. When the hour was passed an emetic containing absinth and wine, a medicine made up of four ingredients and a pill taken in strong wine were to be administered.[155]

This treatment was followed by a most unusual fare, a meal of the meat of vipers or serpents prepared in accordance with specific instructions. These involved separation of heads and tails, washing, removal of the internal organs and cooking in new vessels to which oil, dill, salt, pepper, a little cinnamon and a few other ingredients had been added. The meat was boiled in this mixture until the flesh separated from the bone and was given to the patient who was required to eat the flesh and drink the juice in which the exotic ingredients had been cooked.[156] In addition, the leper was expected to refrain

from eating such things as roasts, vinegar, salts and strong wine and to abstain from intercourse.[157] The patient could, however, make up for these sacrifices with a diet of boragine, beets, cucumbers, lettuce, chicory, spinach, the milk of almonds, chicken, partridge, mutton and clear and subtle smelling wine that was well diluted.[158] Many of these foods had also been recommended in the regimen for cancer and other diseases that resulted from an excess of heat.

Tiriasis, the fourth species of leprosy which Arnold described, appears to have been less serious than the other types. Characterized by a softening of the skin and glands, its most prominent symptoms appear to have been rash, blockage of the nose and harshness of the voice. According to Arnold, this type of leprosy may have been caused by phlegmatic material. But in any case, he did consider it curable if caught in time and treated in the manner previously mentioned for the cure of elephantiasis.[160]

Before concluding these observations on leprosy and proceeding to the final matter of this chapter, it should be noted that Arnold also provided several procedures by which a physician might determine whether or not an individual had in fact caught leprosy. Then, as now, early detection was considered to be of great importance in the cure of a disease, especially with one so irreversible in its later stages as leprosy. The source of these procedures apparently was a Brother Albertus, who many possibly have been Albertus Magnus.[160] In one of these Albertus suggested that a small amount of burned lead should be placed into a blood sample taken by phlebotomy. If the

lead went to the bottom, the patient was or would shortly become leperous. However, if the lead stayed afloat the patient was not leperous, for lead "never descends in the case of a healthy person."[161] In another experiment, the blood of the patient was cooled and rubbed with the finger. If the blood felt as if it contained beads of sand, then here again the patient was or would soon be leperous.[162] The value of these experiments seems dubious but they are nonetheless interesting for what they attempted to do.

The final matter to be considered in this chapter is that of pestilence, on which there are three Neapolitan tracts from the period under discussion. One of these is simply a chapter in Arnold's Breviarium but the other two are the separate treatises on the subject written by John of Penna.[163] John's two treatises date from 1348, the year of the Great Plague in Europe which had reached southern Italy as early as 1347. The chapter by Arnold in the Breviarium dates back at least some three decades earlier in the fourteenth century. Yet the views expressed by both Arnold and John on the prevention and methods of treatment are remarkably similar.

In the earlier work, Arnold described specific preventative measures for remaining free of the pestilence, the means by which, he believed, it was contracted, the symptoms of the disease, and the methods of treatment. He also described the conditions which had preceded outbreaks of the pestilence in the past. He explained, for example, that unusual but apparently natural and explainable signs appeared in the beginning of autumn which were sometimes

accompanied by rain, thundering, trembling and dark clouds. On those occasions also very red fires appeared in the sky and certain creatures multiplied, such as flying ants and flies,"generated from putrid matters," and extraordinary serpents and animals who appeared above the earth in an attempt to flee a certain place on account of the corruption of the air. Birds of the day, he asserted, were wont to fly at night and to break up their eggs and nest. At the same time, the wind became pungent or ceased completely, further signs, which were to his experience, evidence of the fact that the pestilence was near.[164]

Initially, despite the above vivid descrition, Arnold merely recounted the means by which the presence of pestilence could be recognized and he did not attribute it to any particular cause other than the corruption of the air. At one point he mentioned an earthquake that preceded a pestilential outbreak, and concluded that the pestilential air arose from a trench opening in the earth near Naples where the quake had struck. And from the ruins of that mountain serpents had issued forth as if they were the dead rising from the earth.[165] Arnold's opinion here seems to be that the earthquake was associated with the corruption of the air through its side effects, that is the infection of the air arising from cadavers of dead men, horses or other animals. However, he held that the air could be polluted not only by the side effects of natural disasters but also by deadly herbs such as the dane-wart and the hemlock and

by sulfurous and aluminous minerals.[166] He was obviously of the opinion that all epidemics had natural causes and his only suggestion of belief in a superstitious explanation is the view that "the air was polluted from a principal source of corruption, from the putrification coming from subterranean regions. Of this he was made aware by the emergence of various monstrous serpents and animals issuing forth from their caverns, and making their appearance above the earth to men who discerned that the corruption of the air came from creatures of the lower regions who could not remain in their accustomed places and thus thrust themselves upward on the earth.[167]

Arnold went on then to describe the symptoms of the pestilence and the harm brought about by the corruption of air. He asserted that heat or fever was minor in the early stages of the disease. He did warn, however, that fevers in such situations were very slow and deceptive and that they were reflected in the breath, bowel movements and superfluities emitted from the body which were very foul and fetid. Other symptoms might be excessive thirst, pain and aching in the shoulder blades, labored breathing, vomiting and evacuation of some very fetid and hard things. Patients who experienced these symptoms, asserted Arnold, frequently fell into a swoon and died.[168]

Thus since so little time passed between the appearance of the first signs of illness and death, it is obvious that prevention was at least as important as cure. Consequently Arnold expended

considerable effort in the consideration of preventive medicine. His first piece of advice in that regard was that all persons, healthy or sick, should fly from the area immediately upon the appearance of the first signs of pestilence.[169] However, for those to whom this was neither practical nor possible, there were still other measures that could be taken to safeguard them from contagion, measures which would, coincidentally, also be useful in caring for those already stricken. One of these was the "alteration" or purification of the air inside the home. This could be done by washing or "moistening" the floors and walls of a room with a concoction composed of the leaves of myrtle, sandalwood and other ingredients cooked in vinegar and water. In addition, cold herbs were to be scattered throughout the room and fifteen to twenty marine sponges, soaked in strong vinegar or the aforementioned concoction were to be hung all around the walls. These are powerful in purifying the air, Arnold asserted, and are especially effective, if the room is daily ventilated with a fan "because through such ventilation the air is purified and protected against putrification."[170]

By way of treatment for those afflicted with pestilence, Arnold recommended that they should partake of barley gruel, chickpeas, and lettuce with little course foods, sour wine or sugar of citrus fruits.[171] Arnold also believed that the fragrance of citrus fruit was very beneficial for good health in these cases because, "miraculously," he said, "it has strength against putrification of the air."[172] Other fruits were useful if their

odor was inhaled, especially by healthy men. The fruit's fragrance, according to Arnold, preserves the body and especially protects healthy men from the putrification of pestilential air. It also generates joy, comforts the spirit and makes the entire body sterile.[173] Consequently, it appears that he was of the opinion that the fragrances of certain substances could somehow overcome or purify the corruption found in the air. Further on that matter he suggested that fumigation or suffumigation, was as valuable as the fruit and especially for those in health and in time of pestilence.[174] It could also be particularly beneficial at other times in the treatment of epileptics and others suffering from ills related to the heart, nose, ears, mouth, teeth and gums.[175]

Arnold warned, moreover, particularly in the case of pestilence that it is better to remain indoors, with the windows closed and the air cooled. If, however, it was essential for some persons to venture out, they should not ". . .walk the earth until the air had been first purified by the sun, as happens around the third hour," or nine A.M. If it was necessary for persons to get about earlier, Arnold strongly suggested that they always carry in hand and sniff one of the fruits mentioned above that give off a fragrance. Still, he concluded, "it is safer to remain in the room in which the air has been purified as I have shown above."[176]

The preceding information was intended for the treatment of pestilence but not apparently the bubonic plague which was going to strike Europe and Italy in 1347-48, some decades after this treatise was written. Consequently, there is no reference here to the dreaded buboes or the presence of coughing and sneezing which were characteristic

of bubonic plague. The pestilence which Arnold discussed was probably dysentery or cholera or some similar disease which may well have been the side effect of the earthquake he mentioned early in his treatise. Natural disasters such as that one could cause the contamination of drinking water or account for the great numbers of dead whose decaying bodies became a further source of contagion. Dysentery bacilli, can be transmitted by flies, which Arnold mentioned, and by contaminated water and food. It is also interesting to note that dysentery, when it strikes in areas where there are changes of season, usually strikes in late summer or fall which was the season of the year Arnold mentioned. Its symptoms are acute diarrhea, spasms in the bowels and bloody excretions,[177] which are similar to those which Arnold described but which are similar also to symptoms of other pestilential diseases. Cholera, for example, is also characterized by diarrhea, vomiting and a high mortality rate, and it too can be caused by contaminated food or water and transmitted by flies.[178] Other diseases may also fit the situation, but the fact remains that Arnold's observations and suggestions for prevention were certainly pertinent and probably would have been of some use in virtually any pestilential outbreak.

In 1348, however, the year in which the treatises by John of Penna were written, the situation was very different. John was concerned, in those treatises, with the bubonic plague that struck Naples, southern Italy, Europe and other parts of the world from 1346 to 1361. The consequences of this plague or Black Death were horrendous. Various sources estimate that from one quarter to three quarters of the population of Europe died as a direct result.[179]

According to the Chronicler of Este, 64,000 people in and around Naples died of the plague in two months,[180] a figure which is believed to be highly possible.[181]

In Naples, one of the physicians who worked to cure patients struck by the plague and also to record his opinions on the subject, was John of Penna. In 1348, he apparently wrote at least two treatises on the cause and cure of the Great Pestilence, and, in one of them, took issue with the views of Gentile da Foligno, to whom several consilia on the pestilence were also ascribed. One of Gentile's consilia was written at the request of the University and city of Perugia when the plague struck there[182] but John, nevertheless, bluntly rejected his opinions, especially those on the causes of the pestilence. John did not present Gentile's viewpoints in his own works, but when he gave his views on the cause of the pestilence he said that it resulted from the presence of choleric material mixed with the blood in the veins. "This choleric material," he wrote, "flourishes in accordance with the regimen of the heart and rages of heat. . ."[183] John believed that the cause of this corruption came from outside the body, and further that it came "from the air itself which is mixed with the corruption or from certain immutable conjunctions of the stars."[184]

Thus John, despite his protestations against Gentile, was not at total variance with him on the cause of the plague, since Gentile also believed that the outbreak of the pestilence had something to do with astrological causes, as Lynn Thorndike pointed out.[185] Both men believed not only that the plague may have had astrological causes

but also that the corruption which caused the plague was airborne. The point on which they diverged, however, was the cause of the airborne corruption when it went beyond astrological causation. Gentile apparently was of the view that astrological factors actually produced the poisonous air that was introduced into the chest and heart.[186] John, on the other hand, believed that the disease was transmitted by direct contact with an infected individual and particularly by breathing in the same air. "It can be caught from the breathing of infected persons in conversation. One can get it by just being with them in the air contaminated by them,"[187] John wrote and therefore suggested that the best way to avoid the plague was to live in distant, well wooded and remote areas where the air is fresh, cold and dry and where the wind should come from a direction opposite to that where the pestilence might be. He further suggested that "those wishing to be preserved from this pestilence should choose their habitation in pure solitary mountain air when they can."[188] However if that was not possible, or perhaps even if it was, as an added precaution, he suggested that the air inside the home could be improved in a manner very much like that suggested by Arnold in the Breviarium. Arnold there suggested washing the room with a vinegar water solution, the hanging of treated sponges on the walls, and daily ventilation with a fan.[189] Similarly John now suggested that the branches of myrtle and even grape vines be frequently sprayed or soaked with strong vinegar and hung on the walls. In addition, he asserted, a vessel filled with one-third vinegar, and two-thirds water of roses mixed with other substances should be kept inside the

house to give off an odor at all times and, hopefully to overcome the corruption present in the air.[190] John did not explain why these precautions would be effective or how they would overcome the corruption, but through these actions he apparently hoped the pestilence could be avoided.

Nevertheless, since meetings between persons could be dangerous John suggested they be avoided or at least be kept as brief as possible.[191] Particularly to be avoided, he held, were meetings with people coming from regions known to be infected and, certainly, journeys to regions touched by the plague.[192] Above all, however, John felt it to be very important that people recognize the natural cause of the pestilence and not be like the "ignorant physicians and common persons who say that it procedes from God and from heaven."[193] Simply put, John of Penna believed that the best way to avoid the plague was to recognze its natural cause and do all that was possible to avoid contact with other persons. This was, in fact, wise and prudent advice which speaks well of John's scientific approach to the matter and his keen sense of observation. The plague, as he witnessed it, had apparently taken on the form by which the infecting bacilli were being transmitted on the breath and sputum of infected individuals. Consequently, there really were corrupting forces in the air and these forces were indeed being spread by inhaling the causative bacilli transmitted by persons already infected.

Perhaps with the intention of preventing infection through inhalation, John suggested that individuals do all they could to avoid the tiredness and fatigue that might induce a person to breath hard.

He approved of moderate exercise but warned that exercise could corrupt if the air in the vicinity was known to be infected. In that situation, one is then best served by rest, he asserted. This required not only avoidance of manual labor and abstention from intercourse but also the avoidance of all distress, anguish and melancholy.[194]

In addition, one's ability to resist infection could be improved John believed, by adherence to a diet of plain and simple foods selected for ease of digestion and taken only in small quantities. Gross foods such as meat, pasta, fish, salt and vinegar were to be avoided,[195] while foods that were cold in nature and of the type which generate good blood were to be taken in moderation. These included the meat of chickens, young animals and veal, and such fruits as pears, and the service berry (sorba) which were beneficial in keeping the stomach lubricated, while drink was apparently to be limited to subtile white wine "either weak or sufficiently mixed with water."[196] He also offered the recipe for an electuary made up of a great variety of ingredients to be taken before and after meals,[197] a recipe for a troche to be taken with wine,[198] and a recipe for a solution to be used in suffumigation.[199] These were to be used in addition to previously mentioned preventative measures when the pestilence was present in an area and the threat of infection was particularly serious.

Nevertheless, despite the best preventative measures, the reality of the situation in 1348 and the years following was that the plague did strike, and, that when it did so, it struck down all

types of persons both young and old, men and women, without distinction. Its presence was recognized by a kind of tickling in the chest, a heaviness of the body, the swelling of the glands, headache, strong fever, "putrid exhalations," and vomiting. The cause of this, the choleric material itself, mixed with the blood which became "dry and annoying to the nature of man."[200] A little of this material, John explained can affect an individual within a very short time and he can die from it, "as many robust men did very quickly because of the turbation in their powerful nature."[201] Boys and women, on the other hand, died from the pestilence not because the choleric material was more ample or severe in them (rather John believed it to be less,) but because the corruption was more contrary to their nature. Furthermore the old and decrepit did not escape its effects because their rarified warmth and strength made them more susceptible to it.[202]

Nevertheless, despite the awesome character of the disease which frequently brought death to its victims on the first, second or third day,[203] John was not one of those who believed that nothing could be done to comfort and cure a patient any more than he believed that nothing could be done to avoid the dreaded plague which some considered to be evidence of the wrath of God. Since he believed that the plague was caused by the presence of choleric material in the body, it was his view that the lessening of that substance in the body could have only a good effect. To accomplish that reduction, he suggested that choleric material be altered through purgation by phlebotomy, by the administration of a medicine that would cool the body, and by a further adjustment in regimen and rest.

At the first sign of the pestilence, John recommended that purgation and phlebotomy be undertaken immediately, in the belief that the material sustaining the pestilence in the body had to be purged before the disease established itself any further and before the patient was too badly weakened. For purgation, John suggested the fruit juice described by John the Damascene or a concoction made from goat's rue, various herbs, barks and flowers, prunes and warm water.[204] He also considered tamarinds to be particularly valuable here since their maximum humidity, he said, suppressed the material of the pestilence and at the same time drew it out.[205]

"With the invasion of the pestilence," he wrote, "men must be purged not once but many times," and likewise they must take at least once or twice a week, pills composed of aloe, two parts juice of citrin and one part rhubarb, sweetened with the juice of absinth. Moreover he suggested that phlebotomy be applied to the veins of the left arm and repeated frequently, for the repetition of the procedure within the tolerance of the body will purify many areas of it and confine the pestilence.[206] This was apparently all that could be done for a patient. However, once the pestilence seriously took hold, and this could be recognized by tickling movements in the chest or the heaviness of the body or any of the other symptoms of the disease mentioned above, phlebotomy was depended upon even more and purgation became the treatment of the second order. Of those afflicted who did not die, John wrote that most of them were dangerously ill and needed the most effective remedies. But John also explained that the remedies they needed had to be more moderate

in strength than others previously mentioned.[207] The diet for those seriously ill was to be plain and cold in nature as before, however, whereas in the regimen to be observed to resist infection persons were allowed meat, John now recommended only gruel and egg for those afflicted. Where earlier the patient was given wine, now he was to be given the juice of grain with water or water alone or water with a little sugar.[208] Likewise, when food was given it was to be given at "normal" temperature and not warmed, apparently in the belief that warm food would strengthen the hold of the fever and choleric material causing the illness. Also, to aid the stomach in digesting and retaining the food taken in, John suggested that two types of electuaries be used, one which contained rose sugar and rose syrup[209] and the other, the better one, made from rose water, sugar, coriander, a double amount of sandalwood, a measure of sweet cinnamon and suprisingly, a precious stone called the bone of stag heart which was presumably well pulverized.[210]

With these electuaries and by these procedures John attempted to return the body to its normal condition and to, as he explained it, "alter the body in a way that comforts the heart and alters the principal and intrinsic cause of the pestilence."[211] Yet, apparently, despite his best efforts to relieve the suffering, the plague often rushed through the various stages which he had described. Following the first stage, many persons afflicted with the plague or corrupting forces, fell into a delirium which John described as raging, frenetic and maniacal, accompanied by thirst and vehement pain in the head.[212] For those afflicted with these and similar

symptoms, John suggested that the physician cleanse the malignant humors from the body through evacuation with the aid of an enema. This treatment, however, was not to be postponed even if the patient seemed weakened.[213]

If the patient experienced delirium, that stage of the illness was usually accompanied by the appearance of abscesses or swellings which John believed to be both inside and outside of the body. The presence of these abscesses in the lungs and in the chest brought about the expectoration of blood which caused many to die very quickly.[214] Once the illness reached that point, not too much apparently could be done. Yet John still held that it was very important, particularly in case of external swellings, to apply certain remedies directly to the area of the body afflicted.

Consequently, he asserted that when pain and swelling were perceived under the skin or under the arms or in the area of the groin or testicles, those glands or buboes should be immediately treated so that an extraction of matter to the outside could be accomplished. This could be done with hot water and an ointment of camomile oil mixed with butter and applied to the outside of the bubo. If this did not give relief then a plaster of fermented and dried figs, wheat flour, ammonia and other substances was to be applied.[215] And if that did not produce positive results he offered still another remedy which was to be applied until either the worst happened or the natural way of its termination became evident. That result, John asserted, is what the prudent physician hopes for.[216]

John did not offer a great diversity of medicines for treatment

of the plague because as he explained it, the plague did not result from a great diversity of causes.[217] In spite of the varied constitutions of individuals, the pestilence, in his view, had one manner and one form in all persons afflicted by it. It did not arrive through corruption of phlegm in one and through corruption of choleric matter in another, he wrote. Only from choleric matter does the corruption arrive at all. Consequently, it is necessary, John wrote, to order a regimen that is the same in specie for all those afflicted. Therefore, the substance and the root of the regimen ought to be the same and only the quantities and grade used should be different.[218]

From the foregoing account of the opinions and methods of three Neapolitan physicians regarding various medical matters, several significant points may be stressed. First, based on the writing of Francis of Piedmont, John of Penna and Arnold, it is apparent that scholarly medical opinion in Naples was not confined to the doctrines of any particular school of medical thought. Instead these authors made reference not only to such classical authorities as Hippocrates, Aristotle and Galen and such writers of the Moslem world as Serapion, Abuhali and many others, but also to their own contemporaries and their own experiences and observations. In doing so they frequently noted the differences of opinion where these were manifested and took sides when necessary. But above all, and this point must be stressed, the writings of these authors, and particularly those of Arnold and John, leave one with the strong impression that these physicians had great familiarity with the matters they discussed, a familiarity that

could only have been derived from personal experience, critical observation and independent thought.

Secondly, it is clear from the very structure of their work and the attitudes they expressed that these were practical men. Their work were written for use by surgeons and physicians in day to day practice. The material they considered is arranged in orderly and useful fashion in the customary head to toe manner for easy reference. Their accounts are full of practical information not only on treatment but regarding causation as well. If, at times, their information appears naive or incorrect, it might be mentioned that modern medicine too may one day be similarly looked upon. Thirteenth and fourteenth century physicians did not lack the desire to know the "natural cause" or cure of disease but often what they did lack was the methodology and technology that would make the understanding and cure possible.

There is, and this is perhaps the third point to be noted, an almost complete absence of superstition in these writings. In every situation, in one way or another, specifically or by implication, there is an emphasis on the need to search for the natural cause. John spoke well for the others when he stressed how important it was for physicians to recognize the natural cause of disease and not be like the "ignorant physicians and common persons who may say that it proceeds from God and Heaven."[219] Arnold certainly recognized that need when he explained the natural causes that preceded an outbreak of pestilence in Naples as did Francis when he attributed leprosy to such natural factors as heredity, diet and spleen malfunction.

It was this search for natural causation that apparently prompted

these physicians to attempt to isolate the symptoms of the numerous diseases they discussed, a task that was done with great accuracy, one might add. Anyone, whether medieval or modern, who has suffered from kidney stones, would, for example, have no trouble in recognizing what it was that Francis was describing. Equally important too, was the fact that the isolation of symptoms made possible specific recommendations for cure that were of great variety and possibly very beneficial. Indeed, the special diets, suffumigation and the variety of troches, syrups and herbal compositions which were recommended may have been very helpful in the proper circumstances, and this may be said also for their presentation of the surgical procedures for cancer and the removal of cataracts. In summation, if the works of Arnold, Francis of Piedmont and John of Penna are at all representative, the physicians of Naples in the thirteenth and fourteenth centuries were dedicated individuals who sought answers to the medical questions of their time not only in the writings of ancient and contemporary authors but also through the use of their own reasoning ability, observation and experience.

NOTES TO CHAPTER THREE

[1]Breviarium, ff. 140va-166vb.

[2]See above pp. 141-142 for a complete description of the subject matter with which these chapters deal.

[3]"Quoniam a cerebro omnes nervi originem ducont: cum sit radix omnis sensibilitatis: ut ait Galen in tegni." Breviarium, f. 150va.

[4]". . . videmus ex his causis egrotare: quoniam ex reumate a cerebro descendente sunt catarri, branci, corize, dolores aurium et dentium: paralysis squinantia: peripleumonia. ptysis. et quoque plures alie egritudiness." Ibid.

[5]"Et nota quoque cerebrum in quattuor partes dividitur. Scilicet in anteriori et posteriori: dextro et sinistro: in anteriori viget sanguis: in posteriori viget flegma: in dextro colera: in sinistro melancolia." Ibid., f. 150vb.

[6]See, for example, footnote 9 below for reference.

[7]"Doloris capitis ex frigidi aeris distemperantia facti signa erunt hec. prima a vento vel nive vel alio frigido aere quantumcumque fatebitur se suisse lesum: totum caput cum frigiditate dolet nares opilantur: et quasi aqua clara per ipsas nares emittitur tussiunt etiam quoque Aliquando

etiam denegatur vox eis et fere omnia corporis membra cum quadam gravedine molestantur." Breviarium, f. 150vb.

[8]"Doloris capitis ex calidi aeris distemperantia facti: signa sunt hec. Prima fatetur se in sole vel iuxta ignem: vel in alio loco calido nimis stetisse adest dolor i toto capite cum caliditate et siccitate maxime in fronte: adest narium constrictio cum siccitate et ardore et modica purgatione per ipsas nares." Ibid., ff. 150vb-151ra.

[9]"Accidit quandoque dolorem capitis fieri propter coleram in capite immoderate superabundantem: cuius signa sunt hec: dolor est maximus acutus pungitiuus: et maior est in dextra parte capitis: et adest sitis et vigilia cum instantia propter excessum siccitatis colere lingue asperitas cum oris amaritudine. Et quandoque cum quadam circumuolutione que vertigo dicitur: urina citrina adest vel subcitrina et tenuis et pulsus velox et acutus:" Ibid., f. 151 rb. On the sanguine humor Arnold wrote the following: "Si ergo dolor capitis fuerit ex sanguine ibi existente hec sunt signa: dolor est cum calore et frontis: gravedine rebuscunt oculi: et vene tymporum plene esse videntur: pulsus plenus: urina subrussa et spissa et membra omnia gravescunt:" Ibid., f. 151ra.

[10]"Curetur itaque huiusmodi dolor in hunc modum fiat suffumigium. Recipe farine foliorum lauri pulegii betonice rosismarini zinzi narcisci abrotani an. M. j. bulliant hec omnia in vino russo optimo invase aliquo cooperto: sic quoque fumus expirare non possit. Et patiens in lecto stans optime coopertus fumus per os et nares recipiat:" Ibid., f. 150vb.

[11]"Aliud quod didici a quodam saraceno accipiantur ii vel iii. tegule et calefiant fortiter in igne sic quoque sint bene accese igne et bene rubee. Deinde superium fundatur vinum optimum et prima fumu per nares et os recipiate capite cooperto: et melius quidem est si in ipso vino cocte sint herbe calide suprascripte: et hoc bis vel ter si fuerit necesse inter diem et noctem fiat: etiam pluries: quia multos hoc modo curavi." Ibid.

[12]". . . et cum intrat lectum recipiat fumum de una gallina in pasta decocta sub pasta plena de optimis speciebus." Ibid.

[13]"Quod si per predicta re media patiens non curatus fuerit: ungatur caput eius oleo muscellino pulegina sambucino camomillino et similibus: mitridatem vel esdra: aurea vel tyriaca cum vino in quo pulegium vel calamentum cocta fuerint distemperentur: et cerebro et tymporibus ad modum emplastri applicentur:" Ibid.

[14]". . . si tessus cum ipso reumate fuerit: fiant remedia que in capitulo de tussi domino concedente dicam vinum odoriferum et suave bibant et lymphent cum aqua decoctionis pulegii thimi passularum et foliorum lauri." Ibid., f. 150vb.

[15]"Curetur nuiusmodi dolor hoc modum accipiatur li. j. ptisane ordei optime: et cum ea misceantur tria vitella ovorum curda et insimul tepefiant: et cum tali mixtura lavetur caput: et stati cum gausape ligetur:" Ibid., f. 151ra.

[16]"Recipe parum olei rosae vel violeae et parum lactis mulieris: et parum aceti et omnia simul misce; et petiam lini in huic liquore intigas et supra fronte et tympora apponatur precedente prima fricatione frontis et tymporum ita fortiter: quoque locus incipiat rubescere." Ibid.

[17]"Experimentum bonum ad idem suffumigetur facies cum aqua in quo rose olibanum et laudanum cocta fuerint capite cooperto: post pedes et crura abluantur et cum aqua decoctionis myrum rosarum: vel simplicem aqua frigidam naribus attrahant rosas odorent camphoram: et similia." Ibid.

[18]"Si fuerit dolor capitis ex calidi aeris distemperantia vel propter solem vel alio modo: et hoc si fuerit in principio estatis: et apparverint signa aliquis pleuretudinis et pectoris fuerit gravitas: et tussicule: et si virtus permiserit fiat minutio de vena cephalica:" Ibid.

[19]"Primo igitur invia curationis huius capitis doloris ex sanguine facti minuatur prima tempore etate et virtute permittentibus de vena cephalica dextri brachii: detur sibi syrupus acetosus vel oxizaccara cum tepida omni mane. Hyeme vero et tempore frigido minuatur de cephalica sinistri brachu: post detur syrups. . ." Ibid.

[20]"Si iterum propter hoc dolor non cessaverit in vi vel. viii vel. x die detur hec decoctio sanguinem mundicicans. Recipe pruna damascena

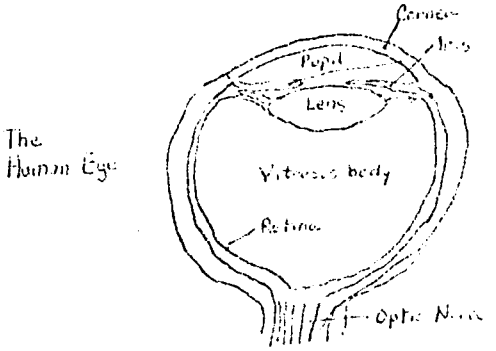
xxv iuiub. xv violarum. secundum florum boraginis. . .quartis in aqua bulliant usque ad consumptionem medietatis et. . .et cum syrupo viola exhibeas in potu." Ibid.

[21]"Et nota quoque in hac passione et ceteris egritudinibus in quibus competit stomia semper die fieri in die non cretica: et iii et vi et viii et sic deinde: et non in ii vel iiii et idem dico de medicina laxativa: quod in febribus velin aliis egritudinibus peryodicis nunque die exhiberi medicina in die cretica. Et ratio talis est: quod natura pugnat contra morbum. videlicet in die cretico: queadmodum pugnarent duo pugiles: et propterea si tunc temporis flobotomiam seu farmaciam exhibemus: esset natura tunc attenta circa morbum vel circa flebotomiam vel circa pharmaciam: vel circa utrumque." Ibid., f. 151rb.

[22]"De cataractis nota quod quedam sunt curabiles: quedam incurabiles. Curabiles sunt alba vel bene grosse: ita quod non videat pupilla aliquid: et si videris pupillam constringi et dilatari. cetere sunt incurabiles habent etenim fieri cataracte in oculo vitio interiorum. . ." Breviarium, ff. 154vb-155ra.

[23]"Item nota quoque hec passio consuevit multotiens facere recidivam: tum propter humoris tum propter malam obedientiam patientis tum etiam propter cultum medici ydiote volentis ipsam cataractam cum instrumento cirurgico removere antequam conformata sit sive matura: quod est valde periculosus." Ibid., f. 155ra.

[24]"Cataracta est paniculus quidam occupans totam pupillam." Ibid. In modern medical terminology, a paniculus is a layer of tissue and if that is what Arnold believed to be the cause of the cataract, then modern medicine has proven him incorrect. The cataract is, in fact, caused by the loss of transparency of the crystalline lens of the eye rather than by the presence or growth of non transparent tissue.



The Human Eye

[25]"Quod si cum fortitudine predictorum medicaminum et dicendorum nequeat cataracta tolli: tollatur cum instrumento cirurgico secundum doctrinem mei magistri in hunc modum datem ab eo." Ibid.

[26]"Primo igitur in via curationis ordinetur dieta per dies aliquos in principio huius tractatus scripta." Ibid.

[27]"Et nota quoque post quod cataracta est confirmata raro vel nunquam nisi cirurgico instrumento curatur: et modum inferius tradam." Ibid.

[28]"Uno die claro et sereno facias patientem in lecto manere, teneat caput altum: et tum teres inter dentes tuos se feniculi cimini et parum salis et patientem finalis faciat sicut tu facies: hoc facto pone te

in bancho: et prima sit apud te supine et teneat caput suum inter crura tua: et tu medice aperias oculum patientis et insuffla fortiter in eo: ita quod lachryme inde exeant: et si bonum oculum sanum habuerit: claude ipsam apponendo vitellum ovi cum bombice desuper: deinde aperi oculum in quo est cataracta a parte superiori: et discipulus tu ab inferiori parte: et tunc accipe acum ferream eream argenteam vel auream: quod melius est et sit subtilissima: et ab angulo: minori quasi in medio supra pupillam: ita tu quod ipsam pupillam non tangas: ipsam acu pungendo et utendo cum maxima cautela et diligentia ducas semper vertendo ipsam acum supra medium pupille: et cavendo: ut dixi ne dictam pupillam tagas: quia statim humor cristallinus exiret: et sic visus deficeret et vituperium exinde tibi medico consqueretur." Ibid.

[29]"Unde plane facias et leviter premendo sic inferibus acum ut cataractam cum summitate acus plane ad inferiora deponas: ne possit plus ascendere: et sic semper voluendo acum: parum extrahe eam:" Ibid.

[30] ". . . et statim intingas bombicem sive stupam in album ovi et oculis suppone: et quidam apponunt solum vitellum ovi et quidam vitellum et album quodcunque autem predictorum apponatur: vel etiam si utrumque apponatur per ix. dies renovando semper super oculos predictum vitellum et album quater ad minus infra diem et noctem: et ipse patiens per illas ix dies semper in lecto supinus iaceat capite suspenso et non moveat se aliquo modo." Breviarium, f. 155ra.

[31]"In secundum vero die fac ei strictorium: quod est dictum in

capitule fluxum lacrymarum et liga ipsam fortiter cum ferti panne circa frontem et tympora patientis ut reuma ad oculum non descendat: et sic patiens predictis diebus permaneat in camera valde obscura locatus. In quarto vero die iubeas ut surgat et in lecto sedeat. Nono vero die iubeas quod per domum vadat plane et suaviter et non exeat de domo usque dum oculus sit bene purificatus a sanguine post hoc si non bene recesserit sanguis ab oculis suis fiat remedia dicta in capitulo de sanguine oculorum removendo:" Ibid.

[32]Aryeh Feigenbaum, "Early History of Cataract and the Ancient Operation for Cataract," American Journal of Ophthalmology, XLIX (1960), 305-326, believes that the ancient operation for cataract originated in India and spread to the eastern Mediterranean in the time of Alexander the Great. Among ancient and Medieval writers who wrote on the cataract are: Celsus (c. 30 A.D.), Demosthenes Philalethes (1st c. A.B.), Rufus of Ephesus (1st and 2nd c.), Galen (2nd c.), Oribasius-Syopsis (4th c.), Actius of Amida (6th c.), Paulus of Aegina (7th c.), Hunian Ibn Ishaq (809-877), Rhazes (850-923), Abu'l Hassan at-Tabari (fl. 970), Ali Ibn (fl. 960), Ammar Ibn of Mosul (990-1020), Khalifa al Halabi (13th c.) and Salah ad-Din (13th c.).

[33]Charles Singer and E. Ashworth Underwood, A Short History of Medicine (2nd ed. revised, New York: Oxford University Press, 1962), pp. 643-644.

[34]For Giovanni Casamicciola see above pp. 30-31.

[35]The type of cataract operation described by Arnold, which attempted to break up and displace the opaque matter below the pupil, was apparently continued in the West until at least the mid-point of the eighteenth century when Jacques Daviel (1606-1762) invented the modern cataract operation. With the Daviel procedure the opaque lens is completely removed from the eye. Using the new procedure Daviel reported only eleven percent of failures. See: Singer, pp. 643-44. It is interesting to note, however, that in a letter to another physician in 1748 Daviel wrote that he had cured sixty-one of eighty-five cases of cataract using a long thin needle of a type described by Arnold, with the couching technique. That would have been a failure rate of nineteen percent. Of course this is not to say that Arnold and his co temporaries experienced the same degree of success. However, it does show that it was indeed possible for Neapolitan physicians to restore sight to many persons in the thirteenth and fourteenth centuries. For the letter of Daviel see Feigenbaum, AJO, XLIX, 322.

[36]Francis presented a brief table of contents for this portion of the work which reads as follows: "Continet autem haec particula tertia sectionis primae summas quatuor Summa Prima est de medicinis egritudinum meri, qui stomacho transglutiendo ministrat.

	fol. 18
Secunda de medicinis aegritudinum stomachi	fol. 20
Tertia de medicinis aegritudinum hepatis et venarum.	fol. 40
Quarta est de medicinis aegritudinum splenis.	fol. 40"

Supplementum, f. 18rb.

[37]"Protulimus hucusque sermonem nostrae mentis explicantem conceptum

in medicatione egritudinum membrorum deservientium spiritui. In quo intentiones, et modos curationis summavimus debite ordinando, nec non inservimus medicinas simplices, et compositas proprias, et expertas, quas primi philosophi ratione et methodo invenerunt; et antiqui medici iudicio, et experimento approbaverunt; et quas secundum intentionem nostram efficaces vidimus opere, in effectu, prout Dei gratia inspiravit, qui illuminat philosophos, et medicos suos ministros quos de caelo creavit." Ibid., f. 18ra.

[38]"Sciendum autem, quod meri est membrum ad formam intestini existens, concavum, et ob longum, ex duabus tunicis compositum, continuatum cum orificio stomachi, et perforans diaphragma et procedens superius inter cannam pulmonis, et spondyles colli cum suis lacertis transiens terminatur in guttur. Quo mediante transflutiendo recipit cibum ab ore." Ibid., f. 18rb.

[39]The term villi or villus in the singular, is used in both Latin and English. By definition villi are minute hair like projections found on mucous membranes that give the membrane a velvety appearance and aid in the movement of substances.

[40]". . . cibum et potus, qui sunt materia nutrimenti ad quorum transglutionem ordinate stomacho desiderate et trahente movetur tanquam sibi serviens delatorie. Et ambabus suis tunicis ex quibus componitur operatur interiori attrahente naturali virtute, cum villis in longitudine situatis in ea, et exteriori exprimente aliter cum villis

lasitudinaliter seu lacertis in ea positis, recipientibus neruum a nucha, mediantibus colli, qua in vomitu solum operatur. Inquit enim Galen transglutio stomacho desiderante, et trahente sit, sed vomitus nulla oris desiderante particula et trahente, sed sola exteriori tunica exprimente cum villo latitudinalis in ea situato. Adiuuat autem transglutionem gravitas, et lubricitas substantia ipsorum, qua petunt descensum; et proinde difficilior transglutione vomitus esse comprobatur, et etiam fluxu ventris. nquit enim Galen vomitus omnibus difficilis est, patet, inferior autem purgatio facilis." Supplementum, f. 18rb.

41"Signa ex quibus relinquitur, quod nocumentum transglutionis, quod plurimum est difficultas ipsius, commune est signum omnium generum praedictarum aegritudinum possibilium fieri in ipso meri, et etiam aegritudinum aliorum membrorum, quorum vicinitate poterit pati, ut est spiglottis, vel canna pulmonis, et eius lacertis; et spondyles dorsi inter quae situatur, et stomachus, et totum corpus, et cerebrum cui supponitur." Ibid.

42". . .nisi figatur in parte meri visibiliter, et constringatur illic sive extendat, et sentiatur dolor cum retentione eius quod transglutietur. Illam vero cuius causa est / mala compositio, et oppilatio, ostendit impotentia transglutionis etiam rei parvae liquide et potus: et cum conatur transglutire egreditur per nares. . ." Ibid., ff. 18rb-18va.

[43]"Mala complexio meri, aut est pura, aut cum materia. . . . Si vero sit cum materia, erit ibi inventio antecedens causa cum infectione oris, et linguae ex humore; cuius specimen tibi calor, et sapor ostendit, et fluor humiditatis si adsit. . ." Ibid., f. 18va.

[44]"Si quidem sit calida, erit ibi sensus inflammationis; et combustionis et caliditas in superficie oris, et lingue, et sitis. Si vero sit frigida. . .signa sunt contraria." Ibid.

[45]Ibid. "Sed si sit humida mollis, signum est humiditas oris et linguae, et privatio sitis. Si vero sicca, signa erunt contraria." Ibid.

[46]". . .et humiditas naturalis, et propie cum in suprema eius parte fuerit, et ardor, vel punctio percepta in collo, et inter duas spatulas, et propie apud transglutione, et vomitum, et eructationem rei acutae qualitatis magis, quam excedentis quantitatis. Sed illam cuius causa est apostema, declarat tumor." Ibid.

[47]"Cura. Indicatio cure meri egritudinum duplex est, generalis, scilicet et specialis; generalis est duplex, una quae indicat locum in quo medicinae exterius sunt applicandae; et est ut in collo, et loco qui est inter duas spatulas, applicentur, ut iuxta, Galen. Alia insinuat modum secundum quem medicinae interius sunt sumendae. Et est, ut medicinae non subito deglutiantur prout in aegritudinibus stomachi oportet fieri: sed in ore retineatur. . ." Ibid.

[48]See: "Summa II Particulae Tertiae, sectionis primae de medicinis aegritudinum," Cap. 1 - Cap. 30. Ibid., ff. 20va-39va.

[49]"Accidit etiam stomacho aegritudo instrumentalis, in poris, et ductibus, et viis eius, quae oppilatio est prohibens transitum eius, quod venire ab aliis membris ad eum ordinavit natura, eiusque quod ab eo impellitur ad alia instituit, et expellit." Supplementum, f. 24va.

[50]"Una, quae est in nervis, qui sunt, inter cerebrum, et os eius continuantes, prohibens transitum spiritus sensibilis ad ipsum." Ibid.

[51]"Secunda esse potest in poro qui est inter splenem et ipsum prohibens transitum melancholiae, quam transmitti ordinavit natura, ad eius excitandum appetitum." Ibid.

[52]"Tertia esse potest in via, que est inter os et ipsum prohibens transitum cibi, ut est oppilatio meri, de qua supra diximus." Ibid.

[53]"Quarta potest esse oppilatio, quae est in venis, quae sunt inter hepar et ipsum, per quas consuevit illi hepar mittere sanguinem ad nutriendum ipsum." Ibid.

[54]"Quinta potest esse in via, quae est inter ipsum, et anum, seu rectum intestinum, prohibens transitum superfluitatum ipsius, quas expellere consuevit ad ipsum, ut est opilatio intestinorum." Ibid.

[55]I have not been able to determine the modern equivalent of the meseraicis vein.

[56]"Sexta est, quae est in venis meseraicis, prohibens transitum chyli generati in eo, quem impellere consuevit ad hepar." Supplementum, f. 24va.

[57]"Quarta signum, est sitis intensa in principio, in processu vero ipsius minor accidit, et defectio omnium operationum eius, et consumptio et arefactio totius corporis, ex arefactione ipsius. . ." Ibid.

[58]"Quintae vero signa sunt accidentia ileos et colicae." Ibid.

[59]"Cura est autem cura eius duplex, generalis scilicet et specialis. Generalis est, apertio eius ex medicinis aperitivis, et generalibus omnibus oppilationibus talibus." Ibid.

[60]"Secundaé cura, est cum incidentibus et abstergentibus ut est hiera, et absynthii, et corticum capparis, et syrupus ex eis." Ibid., f. 24rb.

[61]"Sed tertia cure, est dieta." Ibid.

[62]"Quarta cura, est cum hiera, et absynthii, cuscutae, et eupatorii decoctione proprie." Ibid.

[63]"Sed sextae et ultimatae, cura, est cum clysteribus ex aqua mellis, et hiera, et cum bibitione ipsius." Ibid.

[64]The exception to this observation, however, is Francis' description of the feeling of stuffiness or nausea in the stomach which accompanies overeating and excessive drinking. The nausea is felt, Francis asserted because ". . .the stomach does not suffer hunger but rather a nauseous desire to expel but is unable to do so because of the adherence and viscosity of the excess food." Furthermore, this desire causes not only the feeling of stuffiness and nausea but also pain, gurgling, belching, flatulence, constipation, a swelling of the face and particularly of the eyes, badness of breath, indolence and slowness of motion." The observation sounds painfully familiar and was apparently based on first hand experience. The Latin for this is: "Repletio, seu satietas nauseativa, est egritudo instrumentalis, eveniens stomacho in eius concavitate receptionis cibi, et potus a natura ordinata. Est autem repletio ipsius superflua, plurium ciborum, et pottuum crapulosa, et quandoque humerosa, phlegmatica obtudens sensum stomachi, quare nec famescit, sed potius nauseatur desiderans eam expellere et non valet propter adhaerentiam et viscositatem eius in tunicis et villis eius. Et quandoque est singultus, et dolor stomachi, ructatio acetosa, vel fumosa fortida, inflatio in ventre, et hypocundriis, et constipatio, quandoque lubricitas; et inflatio faciei, et proprie in conchis oculorum, malitia anhelitus, et pigritia, et tarditas motuum, et coloris albedo, vel citrinitas quandoque." Supplementum, f. 24rb.

[65]The following is a list of chapters in the Supplementum concerned with abscesses:

Section I,	Part 2,	Summa IIII,	Chapter 3
	Part 3,	Summa I,	Chapter 5
		Summa III,	Chapter 7
		Summa IV,	Chapter 3
	Part 4,	Summa I,	Chapter 6
		Summa II,	Chapter 5
		Summa III,	Chapter 4
			Chapter 14
		Summa IV,	Chapter 10
Section II,	Part 1,	Summa II,	Chapter 7
	Part 2,	Summa I,	Chapters 1-11
		Summa II,	Chapters 1-4
		Summa III,	Chapters 1-9
		Summa IIII,	Chapter 1

[66]The following is a list of chapters of the Breviarium concerned with the matter of abscesses:

Book II, Chapters 23, 28
Book III, Chapters 11, 12, 21, 22
Book IV, Chapters 8, 9.

[67]"Dividitur autem, et variatur per genera, et species variatione suarum causarum, penes quas eius cura, seu medicatio plurmum variatur, et proinde ad curam necessariam requirenda, prout ad Glauconem docuit Galen, quae sunt quatuor, materialis, formalis, efficiens, et finalis." Supplementum, f. 143va.

[68]A useful discussion of Aristotle's theory of causation can be found in Whitney J. Oates, Aristotle and the Problem of Value (Princeton: Princeton University Press, 1963), pp. 103-116. A point made there (p. 108) is "that the English word 'cause' does not properly connote what Aristotle means. . .in Greek" and that, of the four causes, only the efficient and final "answered to the meaning of 'cause' in English."

John Herman Randall, Jr., Aristotle, (New York: Columbia University Press, 1960), pp. 123-124, explained that "Aristotle's four aitia are the four different factors 'responsible' for a process, the four 'necessary conditions' of any process. . . Since Cicero translated them into Latin as the four causae, they have been known in the Western tradition as the 'four causes.'"

[69]"Alia materialis est ex qua. Et est quatuor humores, aquositas, et ventositas, penes tales causas dividitur in genera, et species essentiales. In genera, nam apostematum aliud calidum, aliud frigidum. In species, nam calidi quoddam est sanguinem, quoddam choleriuum, quoddam comixtum. Et frigidi quoddam phlegmaticum, quoddam melancholicum, quoddam aquosum et quoddam ventosum, et ea, quae generum sunt illorum licet ipsius materia plurimum mista sit." Supplementum, f. 143va.

[70]"Causa efficiens duplex est scilicet intrinseca et extrinseca. Intrinseca vero est duplex secundum duplicem modum fiendi ipsius. Nam aut sit secundum modum influxionis et est, ut plurimum, et tunc causa eius erit triplex, ut ex parte influentis, seu mittentis, ut corporis totius, vel membri, et est phlethoria, vel cacochymia, cum virtutis ipsius fortitudine non absolute." Ibid. Plethoria refers to a general congestion causing the abnormal distention of blood vessels or to an excess of any of the bodily fluids. Cacochymia is a disordered metabolism. These terms are used in English as well as Latin.

[71]"Secunda est ex parte membri recipientis, et est debilitas eius

naturalis, vel temporalis, et vacuitas disponems ad recipiendum, et dolor fortis, et caliditas in attrahendo coadiuvans, etiam si non sit eius situs inferior, et mittentis repletio non existat." Supplementum, ff. 143va-143vb.

[72]"Causa vero debilitatis utriusque membri interior plurimum est malitia complexionis diversae. . .vel sine obstructionis causa plurimum est coarctatoria, et est multitudo humorum, et superfluitatum et ipsarum crassities, et viscositas ex regimine procedens, vel natura membri. . ." Ibid., f. 143vb.

[73]"Causa vero extrinseca, et est causa primitiva communis, quantum ad utrunque siendi modum, est malitia regiminis non solum in cibis, et potibus, sed in aliis omnibus necessariis rebus non naturalibus. . ." Ibid. Dr. Luke Demaitre has very kindly brought to my attention the recent bibliography on the concept of non-naturals. The articles are as follows: L.J. Rather, "The 'Six Things Non-natural': A note on the Origins and Fate of a Doctrine and Phrase," Clio Medica, III (1968), 337-347; Saul Jarcho, "Galen's Six Non-Naturals: A bibliographic Note and Translation," Bulletin of the History of Medicine, XLIV (1970), 372-377; Jerome Bylebyl, "Galen on the Non-Natural Causes of Variation in the Pulse," BHM XLV (1971), 482-485; and Peter Niebyl, "The Non Naturals," BHM XLV (1971) 486-492.

[74]Galen, On the Natural Faculties, trans. Arthur John Brock (Cambridge: Harvard University Press, 1952), II, viii, p. 183.

[75]"Causa formalis est detractio naturalis membri magnitudinis apostemati ab eo, quod est praeter naturam. Et secundum hanc divisionem dividitur apostema, quia aut est tumoris grandis, ut apostema est, aut parvi, ut est pustula, et bothor." Supplementum, f. 143vb.

[76]"Causa vero finalis, quia aut erit salubre, aut mortale quantum ad finem ultimum, aut quantum ad finem medium., qui est aliquo modorum sex, quia aut resoluetur, aut maturabitur, et saniatur aut lapideatur, aut putrefit, et corrumpetur fetenter, aut subito aperietur, et suffocat, aut permutatur. Et melior harum est resolutio secunda maturatio, seu saniatio, mala est apertio subita, et suffocativa, deinde corruptio. lapideatio vero media est, permutatio potest se habere ad bonum, et malum." Ibid.

[77]"Signa deinde ad curam apostematis certam, et completam, oportet investigare signa generum, et specierum, et causarum eius. Dictum enim est supra in principio operis auctoritate Galen. quod cura cuiuslibet morbi confestim sequitur cognitionem facientis causae, adeo ut dicat ad Glauconem. nihil mirabile intantum medicos peccare in sanationibus, inquantum, in cognitione falluntur." Ibid., ff. 143vb-144ra.

[78]"Signorum ergo apostematum quaedam sunt generalissima, quorum quaedam sunt exteriorum, quaedam interiorum. Exteriorum sunt manifesta sensui, ut apostematum exteriorum membrorum, et sunt tumor, et inflatio." Ibid., f. 144ra.

[79]"Interiorum vero quaedam sunt essentialia, et communia omnibus ut sunt gravitas vel tensio, et inflatio, seu tumor. si ad ipsum cum medio perveniat spiritus, ut quia fuerit in stomacho, hepate, vel splene. Quadam accidentia ex communitate propter vicinitatem, vel colligantiam, ut tenuitas in mirach ventris, extenuatio corporis subita, et in oculis concavitas repentina. Quaedam sunt signa generum ipsius. Nam si sit calidum praedictis signis addetur inflatio, et dolor acutus, et fortis, et perdurans. Et hoc ideo, quoniam in eo non solum est repletio, sed malitia complexionis diversae, et continuitatis solutio; quae et si signa sint, sunt etiam concausae, ut supra dictum est. quibus siens apostema, si non obvietur ad factionis complementum breviter producetur." Ibid.

[80]"Et proinde Hippocrates invenimus in aphorism dixisse. Dolores in lateribus, et pectoribus, vel in aliis corporis partibus si multum steterint ad discernendum, mali sunt, et est etiam febris; maxime si sit cordi propinquum, et putrefactum, seu saniem faciat. . . Ibid.

[81]"Et signa specierum, quae ex materia sunt dependentes sunt signa materierum ipsius ex quibus fiunt, quae infra dicentur. Et sunt in summa. Nam siquidem sit calidum, et materia eius sit sanguis, accidentia praedicta erunt obtusa. Si vero cholero, erunt intensa. Si vero adusta, erunt intensiora. Si frigida, dolor erit parvus, nec tumor magnus, et acutus, quia materia est diffusa, et viscosa non bene congregabilis, nec est febris inquantum huiusmodi, nisi per putrefactionem caliditatem acquirat." Ibid.

[82]In the Supplementum, the sanguine abscess is considered in Chapter 2, f. 145va; abscess of the glands in Chapter 3, f. 146va; anthrax in Chapter 4, f. 147ra; bad tumors (De carbone) in Chapter 6, f. 147va; termination in Chapter 10, f. 149ra.

[83]Breviarium, f. 197rb.

[84]"Accidit quandoque quoque epar apatur quod fit quoque calidu humore quoque ex frido." Ibid.

[85]"Calidum humor per hec signa discernitur esse iam calidus adest dolor dextri hypocundrum acutus et pugitiuus se continua: sitis: oculi crocei vel rubei et quoque totum corpus inficitur in colore crceeo vel rubeo et multotiens terminatur hoc apostemata in acuta vel peracute se. in die vii per fluxum sanguinem narium. Urina apparet rubea subrubea seu rubicunda vel subrubicunda." Ibid.

[86]"Frigidus vero humor per hec signa cognoscitur esse in calidu adest se. magis leta: sitis autem nulla aut modica: dolor aggravatinus sub hypocundrio dextro. Urina discolorata et turbulenta: superius livida: oculorum lividitas et corporis figura pallida est." Ibid.

[87]"Si huiusmodi apostemata fuerit in sima epatis gravitas sive dolor sentitur in profundo adest singultus et vomitus ex compressione stomachi:et appone manus non irritatur dolor." Ibid.

[88]Ibid.

[89]"Si vero huiusmodi apostemata fuerit iam gibbo hepatis sequitur difficultas anhelandi: tussis ex compressione spiritualium vix etiam patitur patiens dum manus in loco illo apponatur tumor et apparet in dextro hypocundrio in modum lune novelle vel simicirculi patiente facente supino et extenso." Ibid.

[90]"Primo minuatur de media vena dextri brachu: deinde ab ipso principio detur syrup de seminibus cum aqua ipsorum seminum et inungatur locus ex oleo rose vel viola et malva i aqua cocta cum si lini et senugre et frondibus iusquami et malvavisci apponatur:. . . Et si constipatus; fuerit fiat clystere supra in precedentibus scriptum. Et primo fiat lenitiuum deinde mundificatiuum tamen. Quoque si post dies vii apostemata non rupetur detur de trociscis superius scriptus in capitula de dolor capitis ex sanguine seu colera facto detur et syrup; . . . quod valet post rupturam apostematis." Ibid.

[91]"Generatur itaque lapis in renibus vel in vesica multotiens: et materia generationis ipsius lapidis est humor grossus crudus: qui descendit ad renes cum aquositate que trahit ex sanguine in venis: quod es quia humor grossus crudus quando generatur: aut ex gulositate: aut nimietate cibi et potus: ut in pueris: aut ex debilitate digestive virtutis: sicut accidit in decrepitis frequenter." Ibid., f. 173rb.

[92]"Cum itaque urina venit ad renes: si virtus est fortis expulsiva

in renibus et vie in quibus urina evacuatur sunt ample: tunc urina quod evacuatur est grossa: et homo preservatur a generatione lapidis." Ibid.

[93]"Quod si vie ille sint stricte et virtute expulsiva debilis: tunc necessario retinetur ille humor grossus in renibus: et tardatur ad emmittendum: et quandoque aliquo tempore paulatim emmittitur et remanet illud: sicut sex grossa quod ibi exiccatur et aduritur ex vehementia caloris et sit substantia lapidea." Ibid.

[94]". . .sic patet quoque ex grossa vel mala dieta vel inordinate comedentibus ex potu limose aque et turbide: et ex sanie renum diutius retenta et non mundificata: unde inspissatur et induratur: et fit lapis ex omnibus predictus causis." Ibid.

[95]"Fit aut lapis in vesica et maxime in pueris: quoniam collum vesice eorum est strictum. Et quoque propter eorum gulositatem et frigiditatem grossi et viscosi humores generantur in eis qui descendentes ad vesicam non possunt libere pertransire: et sic faciunt ibi resideiam quotidie autem paulatim augmentantur et sit lapis. In vesica vero mulieris non generatur lapis: quia collum vesice mulieris est curtum et largum." Breviarium, ff. 173rb-173va.

[96]"Si lapis fuerit in renibus hec sunt signa dolor et gravitas renum cum punctura et dolore ambarum ancharum et pedis dormitatio: illius videlicet ad qua partem pagis declinat lapis. Quandoque etiam renes

passiones sibi scalpit: et aliquando testiculi sibi dolent: et urina sepe exit cum ardore: et in fundo urinalis apparent arne rubee vel citrine: qui lapis generatus in renibus aut est fixus et non permutatur de loco ad locum: quod cogniscimus ex assiduitate inquietudinis infirmi in illa parte: et dolori eius non est tranquillitas. Aut non est fixus nec retentus in uno loco et illud cognoscitur ex vehementia doloris." Ibid., f. 173va.

[97]"Si vero lapis fuerit in vesica signa sunt hec: dolor est in collo vesice et in virga etiam in pectine apparet prurigo cum intentione virge et difficulte mictus et egestionis. . .et facili stranguriam patiuntur et urina eorum alba vel limpida apparet habens in fundo arenulas: vel limpida. . ." Ibid.

[98]"Primo ergo notandum est quoque senes et qui transierunt xl annum vix aut nunque ab illa egritudine liberari possunt et ut ait ypo in afforis." Ibid.

[99]"Item quandque sentitur lapis in collo vesice si nittetur digitus in ano sicut faciunt isti cirurgici qui incidunt lapidosum: quod non approbo. Periculosum enim est et mortale. Unde ullus probus medicus hec non consentiet." Ibid.

[100]"Notandum quoque in principio non debemus insistere cum mundificantibus et provocantibus urinam seu cum ipsum lapidem frangentibus. Sed primo unctiones frequentes lenitivas et mollificativas circa loca faciamus.

Primo igitur evaporemus loca renum seu vesice si fuerit ibi lapis cum spongia marina infusa in oleo et aqua calidu simul mixtis. Deinde inugantur loca cum oleo camomillino oleo rutaceo et butyro simul mixtis et si fuerit ex mala complexione frigida admisceat ibi parum de caitoreo. . ." Ibid.

[101]"Inungatur renes vel spacium quod est inter virga et annum si lapis fuerit in vesica." Ibid.

[102]"Utatur balneo aque dulcis vel balneo de prata: quod est inter Neapolim et puteolum in littore maris." Ibid.

[103]"Ego vidi plures hoc experire: et multotiens vidi: quia a lapide renum et vesice per virtutem illius balnei liberati sunt." Ibid.

[104]"Item cum dolor fuerit maximus intolerabilis multum mitigabitur si accipiatur duo vel tria cepe et minutim incidantur et supra tegulam calidam calefiant: deinde cum vino alba aspergantur: et supra renes vel peritoneo emplastrentur." Ibid.

[105]See: Breviarium, f. 173vb.

[106]"Syrupus mirabilis pro cura regis Francorum a pluribus magistris physicis compositus: lapidem renum et vesice frangit:" Ibid.

[107]"Diabetis secundum Galen est propria passio renum raro contingens,

Supplementum, f. 78rb.

[108]"Causa vero ipsius caliditatis renum duplex est, scilicet interior, et exterior, ut in lapide dictum est, et similiter frigiditatis causas per contrarium comprehendendes." Ibid., f. 78rb.

[109]"Signa si quidem sit ex caliditate faciente superfluere attractivam, sensus erit, et inventio caliditatis in lumbis, et urina multa." Ibid.

[110]". . . in principio, sicut lotura carnis recentis secundum Galenus minus tamen tincta, et rubea quam si procedat ex defectione discretive hepatis, et proprie cum amplitudo meatuum emulgentis venae in ea inventa fuerit, et sanguinis abundantia in venis, quae quanto maiora sunt, tanto plus sanguinis cum aquositate transibit, ad renes. Unde urina ex defectione contentive virtutis superfluens plus rubebit." Ibid.

[111]Et forte orit alba et spissa propter humiditatem membrorum ultima extractiones, unde urina redditur sicut lac: et proinde membro et consumptio sequitur, et mors ut plurimum." Ibid.

[112]"Si vero ex frigiditate faciente deficere contentivam causatur, sensus, et inventio frigoris erit in lumbis, et urina erit in principio non multitudinis magnae, sed consuetae, deinde multiplicatur. . . ." Ibid.

[113]"Cura diabetis in generali, et speciali, est quatuor res. Prima est omnis causae ablatio, et exterius provenientis, et interius existentis. Interius, ut siquidem ex calididate renum processerit; fiet subtractio subtilium, et calidorum ciborum, et potuum, et divreticorum calidorum, et talium, provenientium. Exterius, ut labor corporis, et proprie renum; stricturae lumborum balneatio in calida aqua actu, vel potentia decubitus super renes; et somnus profundus, et unctiones calidae, et emplastrorum, et aliorum talium, quae renes habeant calefacere, hepar, humores, et membra. . ." Ibid.

[114]". . .sive fuerit humoralis, cum phlebotomia si fuerit sanguis: cum pharmacia appropriata leni." Ibid.

[115]". . .sed leniant, its quod solvendo non provocent, sed minorent urinam, qualia sunt. Ex oleribus, lactuca, spinachia, attriplices, et similia, et ex fructibus iuiubae, sebesten, pruna chrysomila, perfica, cucumeres, citrulli et melones, curcurbite: et proprie carnes ipsarum, non semina, qui aquositatem, et urinam multiplicant, et fructus, morae maturae et grana acetosa, et muza, et exaquis:" Ibid. ff. 78va-78vb.

[116]"Et ex calefacientibus convenientibus illi est frictio extremitatum, et totius corporis cum rubificantibus, motus, ventosatio, et balneum, et sumptio antidoti quod crassae substantiae sit, ut non cito penetret, sicut. . ." Ibid.

[117]"Indiget unctione cutis corporis, et proprie spinem cum temperatis,

ut oleo chamaemelino anethino, vel vivo albo cum aqua calida." Ibid.

118"et in ea quae ex frigiditate est, vinum multum, et post horam evomat, ut ex quo extinguit memborum inflammationem, retrahitur ad stomachum, et educatur vomitu, ne transeat in urinam. . ." Supplementum, f. 79ra.

119". . . et est conservatio corporis in aere frigido, styptico cum quiete, et somno temperato et cibis frigidis, et crassis plurimis, difficilis inflammationis, conversionis in choleram, et adustionem, generantibus humores crassos, et spissos, quales sunt forbitiones de chist hordei, di candarusio, seu chondro, cum lacte acri, vel lentium, vel carnis bovine; et pedes ipsorum, et pisces recentes magni cum aceto . . . " Ibid., f. 78vb.

120". . . mitigandi sitim minuendi urinae multitudinem et prohibendi etiam dissolutionem membrorum. Abuhali praecipit trochiscos ad diabetem ex caliditate, cum dilatione meatuum tenem, et venae emulgentis. . ." Ibid., f. 79ra.

121"Ceratum ex inventione nostra, quo unguntur renes, et hepar eius, qui diabeticam passionem patitur a caliditate." Ibid.

122"Cancer est apostema melancholicum pauci tumoris, et diffusus cuius cause est melancholia adusta in toto corpore. . ." Ibid., f. 156rb.

123". . .et proinde non est quietus cancer, sicut durities, sed

mobilis; et corrodendo procedens, habens radices infixas undique membro ad modum brancarum cancri infixarum cibo, et medio eius est rotundae formae, cum colore cancri, a qua egrediuntur venae, sicut brancae cancri, quare dictus est cancer." Ibid.

124"... propter naturalem complexionem eorum, regimen et diaetam in acribus, lentibus, et carnibus antiquis, et melancholicis: propter splenis defectionem, non trahentis illam, ac virtutis extractivae ipsorum extra corpus nullatenu expellentis; sed propter sui melancholiam cum sanguine ab illis infusam alicui ex membris, eiusque; venis disseminantur in eo collecta minutis, differens a glandulis mobilibus fixione sua cum membro; et a duritie quoque est differens, primo in causa, quoniam causa duritiei melancholica est naturalis fax sanguinis. Cancri vero causa est melancholia per adustionem facta innaturalis, a qua melancholiam;" Ibid.

125"Cancer enim, ut plurimum accidit membris raris, ut mammilis m mulierum, ut supra Sectione prima est dictum, et in lacertis carnosis valde, ut in naribus, et cruribus, et plupis tibiarum, et extremis; et proprie ad quae superflua melancholia consuevit decurrere, ut est virga in viris et testis in mulieribus, vulva, et anus." Ibid., ff. 156rb-156va.

126"Signa cancri dum est in principio, sive quod est, quia quandoque; apparet sicut saba, aut cicer, aut avellana parva, et durus rotundus, fusci coloris, in quo est caliditas aliqua, et quandoque; cum dolore

forti, quandoque; parvo, et cum perdurat ad magnitudinem procedit, et deinde perducit ad ulcerationem propter acredinem, et acuitatem adustionis materiae et quandoque; non ulceratur, quia est siccus, et quandoque; permutatur ulceratus ad non ulceratum, et quandoque: facit curatio cum ferro, quandoque; facit eius labia crassiora, et duriora et si cauterizetur, resolvetur materia, et consumetur corrodens, putrefaciens." Supplementum, f. 156va.

[127]"Regimen in cura cancri est diversum secundum diversitatem temporum, et dispositionis, et loci eius. Si enim in principio sit, et in manifesto loco, antequam ad confirmationem, et magnitudinem, et ulcerationem divit in qua plurimum sine chirurgia non curatur." Ibid.

[128]"Regimen eius est duplex, universale et particulare. Universale est quaturo res. Diaeta universalis, evacuatio, rectificatio membrorum generantium materiam, et correctio accidentium.

Dieta sit euchuma ad frigidum, et humidum tendens, prohibens regenerari materiam cum aeris alteratione, . . .ut cum quiete animi et corporis, et cum cibo ex lactucis, et herbis frigidis, et humidis, ut atriplicibus, spinachiis, betis, boragine et similibus et fructibus ut cucurbita, citrullis, et piscibus petrinis, et aqua dulcis, et cancrorum fluuvialium, chist hordei, et vitellis ovorum, et potu lactis vaccini, a quo extractum fit butyrum, vel serum et potu aquae hordei, vel vini albi subtilis . . ." Ibid.

[129]"Universalis evacuatio completur cum evacuantibus antecedentem causam sive melancholiam adustam abundantem in venis et etiam naturalem, quae materia est ipsius minorative et eradicative, praecedente digestione ex his . . . et cum sanguisugatione aperiente orificia venarum hemorrhoidarum, vel cum provocantibus menstrua in muliere: vel cum phlebotomia . . ." Ibid.

[130]"Correctio vero accidentium est, ut dolor, si est fortis mitigetur cum frigidis repercussivis, defendentibus membrum, et repellentibus materiam, si non fuerit quod prohibeat, vel cum calidis anodynis eis mistis superius mumeratis, si quod prohibeat illa adest, et si sit caliditas in eo vehemens, extinguatur cum aqua coriandri, a solatri, et praedictis repercussivis et aliis frigidis sumptis." Ibid. An anodyne is a medicine frequently an opiate or narcotic which allays pain.

[131]"Particulare regimen, et particularium operationum excercendarum circa locum, et particulam cancri cum medicinis localibus, et aliis oportunis est quatuor res prima est destructio cancri, si possibilis est: secunda est ubi possibilis non sit eius destructio prohibitio additionis eius: tertia est si ad augmentum perveniat prohibitio ulcerationis et tunc proprie quando cum eo est caliditas et pulsatio quoniam ulcerationem minantur: quarta est ubi iam pervenit ad ulcerationem, et sit confirmata curatio ulcerati." Ibid., ff. 156va-156vb.

[132]"Aliud est incisio et sectio ipsius, ubi resolutio non suffecerit, et proprie cum fuerit in aliquo extremerum, ut est pes, manus, et mammillae, . . ." Ibid., f. 156vb.

[133]"Oportet autem ut incisio fiat magna, vel ex toto abscindatur particula in qua est cancer, et quod est in circuitu eius ex venis circundatibus ipsum, ita ut de his nihil remaneat; et currat post illum sanguis plurimus post evacuationem universalem . . ." Ibid.

[134]. . .et fortusse post incisionem indigebit cauterio cum igne, quoniam resoluit reliquias materiae malae, et confortat membrum et retinet haemorrhasagiam. . ." Ibid.

[135]"Secundum est confortatio membri et repercussio materiae. Fit autem cum medicinis repercussivis iam dictis secundum omnem administrationis modum et melior est quae fit cum. . ." Ibid.

[136]"Lepra est cancer universalis, cuius causa interior cholera rubea cum sanguine multiplicata in venis effusaque ab eis ad universum corpus, et subcutaneas partes; ibique putrefacta manens." Ibid., f. 157va. Arnold on the other hand believed that leprosy is an ". . .infirmitas mala proveniens ex supersione colere nigre in toto corpe. . ." Breviarium, f. 186rb.

[137]"Fit autem quod leprosus cum coeat cum muliere: cum qua statim leprosus coivit. Quandoque ab ipsa generatione fit leprosus: ut quod a sanguine impuro nutriatur aut ex corrupto spermate generatur:" Breviarium, f. 186rb.

[138]"Causa. . .aut quia conceptus fuerit embryo in matrice tempore menstruorum sedata sanguine melancholico." Supplementum, f. 157ra. Arnold was of the same opinion. ". . .autem cum generatur in tempore menstruorum." Breviarium, f. 186rb.

[139]". . .vel acquisita ex tempore et in malita regiminis, ut

materialis in cibis melancholicis et cholericis simul, et proprie in piscibus et lacte. . ." Supplementum, f. 157va.

140"... .et melancolicorum ciborum sumptorum immoderate: et ex carnibus asininis bubalinis: vel vaccinis infectis carnibus porcinis commoratis: et similibus carnibus non puris." Breviarium, f. 186rb.

141"Fit et quod leprosus propter nimium usum alliate: et piperate: et ex immoderato usu vini puri et quia Gallici his immoderate utuntur et burgundiones: propterea multi eorum sunt leprosi." Ibid.

142"... .maxime est aer regionalis corruptus in se propter pestilentiam, vel infectus vapore resoluto ex corpori leprosorum vicinorum in loco coarctato. . ." Supplementum, f. 157va.

143"Item efficitur quod leprosus cum nimium conversatur cum leprosis: et secum in uno loco perseverat leprosi enim inficiunt aerem: et aer infectus cum attrahitur ab illis qui conversantur cum illis intrans eorum corpora inficit ea; propter hoc leprosi in conversatione sanorum hominum debent segregari: ne aerem ibi corrumpatur et sanosim lepram faciat incidere. Et ideo in locis remotis habitare cognatur." Breviarium, f. 186rb.

144"Secunda est splenis associata debilitas non trahentis illam, quare cum sanguine remanet multiplicata in venis, et cum non secernatur ex corpore per haemorihoidas, propter invaletudinem virtutis, nec per menstrua,

nec per poros cutis densatos non derivatur ad venas crurium, et varices, ut plurimum consuevit, sic quod vehementis impetus, et malitia qua natura illam regulare non potest quoad digesta fuerit, influit, et a natura repellitur quandoque ad aliquod membrum ibique cancrum facit, et proprie si fuerit crassa: si vero subtilis faciet herpetem, si vero impellatur, et influat ad cutem fiat albaras et morphea nigra universalis virtute nutritiva, seu actu eius assimilationis corrupta et si influat et impellatur et spargitur in corpore toto, et subcutaneis partibus et carnosis, et tunc si quidem putrefiat perveniat ex ea melancholica febris et si occultetur, nec putrefiat fiet lepra, quod est, quia corrupitur membrorum vitalis complexio ex sparsione talis humoris in corpore et proinde compositio, ut forma, et figura; quae complexionem sequuntur et color. . ." Supplementum, f. 156ra.

[145]These are the modern English medical terms. The Latin reads: "Lepra quattuor sunt species scilicet leonina: alopitia: elephantia: et tiriasis." Breviarium, f. 186ra.

[146]"Nota itaque ut dixi: prime due species lepre incurabiles sunt scilicet leonina et alopitia. Elephantia vero et tiriasis quandoque curantur." Ibid., f. 186ra.

[147]". . .ex facie tota terribilis fit ad modum leonis tenentis rapaciter praedam suam; quare dicta est leonina. . ." Supplementum, f. 157va. "Et dicitur leonina quoniam pluries leonibus hec species accidit et quoniam facie faciem patientis terribilem: sicut est faciés

leonis." Breviarium, f. 186rb.

148"Leonina fit ex colera in qua rotundatur oculi: et eminent cum eminentia venarum: . . . sic quoniam videtur quasi loquuntur per nares: gigine eorum et nasi extremitates corroduntur: cutis eorum exasperagutur et supercilia depilantur . . . Et cum inveteratur hec species cadunt extremitates sic nasus et huiusmodi." Breviarium ,f. 186ra.

149"Alopitia est species secunda lepre quod fit ex sanguine adusto et iam ista specie tota depilantur supercilia et barba. Et propter hic dicitur alopitia ab alopibus iam vulpibus depilantur enim iam modum vulpium oculi eorum inflantur et vehementer rubentur pustule iam facie rubee et quandoque in toto corpore oriuntur: . . . et odor eorum et sudor et anhelitus fetet et difficulter odorant nasus ingrossatur et gene tument et sanguis a gingivis effluit et urina alique gutte sanguinis quandoque emittuntur . . ." Breviarium, f. 186rb.

150"Cuius humoris signa sunt, quoniam rubet cutis et putrida est et tumet nimis et sanguis et sanies effluunt." Supplementum f. 157rb.

151". . . et iste due species scilicet leonina et alopitia quasi omnino incurabiles sunt . . ." and "Nota itaque ut dixi

prime due species lepre incurabiles sunt s. leonina et alopitia. Elephantia vero et tiriasis quandoque curantur licet etiam incurabiles reputentur." Breviarium, f. 186rb.

[152]"Elephantia vero est tertia species lepre que accidit elephantibus pluries et fit ex melancholia naturali et in hac speciem oculi rotundantur et corrugantur palpebre et nares angustantur vox efficitur rauca." Arnold also wrote that: ". . .quod supra corpus eorum habeant maxima gravedinem et pondus." Ibid.

[153]"Et vocavit hanc dispositionem Galenus elephantiam, et est ex speciebus una, sicut albaras et morphea nigra praedictae. Et quandoque corrodit radices pilorum, et facit alopeciam, et quandoque excoriat cutem . . . aut quia quandoque ab eis incipit lepra ipsa, ut Galen dixit." Supplementum, f. 157rb.

[154]"Lepra igitur cum nova fuerit et specialiter elephantia et tiriasis si signa terribilia predicta adhuc non apparent in hunc modum secundum magistrum meum curari poterit. Cum hac enim cura plures leprosos in principio cum apperuerit eis lepra meis curavi temporibus. Primo fiat flebotmia in brachio sinistro vene mediae: postea sequenti die secundum de dextro postea quelibet die sumat ii de isto syrupo . . ." The recipe follows. Then ". . . deinde purgetur cum pillulis de fumoterre vel cum

vera ruffi cum aliis pillulis evacuantibus coleram nigram et humores adustos . . ." Breviarium, f. 186va.

155"In balno aqua simplicis post purgationem intret quilibet dies et fricentur fortiter et facies eorum ex oleo ex se curcurbite extracto et oleo viola ungatur et totum corporis eorum cum oleo mirthino masticino costino vel alique de unguent subscribendis inungatur. Et post exitum balnei in pannis bene involut una hera quescat." Ibid.

156"Item comedant continue carnes viperarum in hunc modum paratas. Accipiantur vipere seu serpentes qui in montanis locis et pertrosis degunt et russe meliores sunt et abscindatur eis caput et cauda et quod est in ventre eijciatur: deinde laventur et in olla nova coquantur cm aneto sale galanga petro modica piperispiperis parum cynamomi et parum olei et pauco pulvere diptami in aqua coquantur donec caro ab ossibus se paretur et des carnes istas ad comedendum et ius ad bibendum." Ibid.

[157]"Caveant sibi omnes leprosi a frixis acetosis salis acruminibus: et a forte vino: et a coitu." Ibid.

[158]"Comedat quandoque lac capnum in quod lapides fluviales sint extincti: et boraginem: bletas, curcurbitas, citrullos: lactucas: cicoreas: spinachias et huiusmodi cum lacte amigdali conditas comedant carnes hedianas: pullinas: castratinas:. . . Vinum clarum et subtile redolens et bene lymphatum bibant." Ibid.

[159]"Est etiam alia species quarta lepre quod tiriasis dicitur in qua cutis mollescit et excoriatur ad similitudinem tirorum: glandule oriuntur molles: et de albatur cutis et cum aspergitur non coheret morphee albe innascuntur: nares opilantur: vox efficitur rauca et hec quarta species lepre fit a flegmate. . . Elephantia vero et tiriasis quandoque curantur." Ibid. f. 186rb.

[160]Biographical information concerning the scientific interests of Albertus Magnus can be found in Lynn Thorndike, History of Magic and Experiemental Science (New York: Columbia University Press, 1934) II, Chapter LIX, 517-592.

[161]"Additio: experimentum si aliquis est leprosus secundum fratrem Albertus fiat minutio de brachio: et projiciatur in sanguine modicum plubiusti pul. si statim petit fundum est vel erit in brevi leprosus: et si non descendat: scilicet supernatet non nunque enim in sano descendit: sed supervatat." Breviarium, f. 186vb.

[162]"Item sanguis leprosi cum fuerit infrigatur si frices cum digito tuo senties ipsum arenosum ac si ibi essent arene: et hoc verum est signum lepre." Ibid.

[163]These two works are to be found in: Karl Sudhoff, "Ein Pestkonsilium des Mag. Johannes della Penna aus Neapel (1348)," AGM V (1912), 341-48; and Karl Sudhoff, "Ein weiterer Tractatus de pesto des Magister Johannes de Penna," AGM, XVI (1925), 162-167.

[164]"Et quia. . . Isti enim morbi ut plurimum fiunt sine estatis: et in principio autumni: quorum signa sunt his. Aliquando in eadem die minatur pluviam per tonitrua et corruscationes: et quandoque per tempus nebulosum et non pluit: apparent in aere velut ignes rubicundissimi: multiplicantur animalia ex putredine generata: sicut sunt formice alate: musce: et huiusmodi apparent: et apparent supra terras modi mirabiles animalium et serpentum que fugiunt a locis suis propter vehementem aeris corruptionem: aves etiam que quandoque de die volare consueverunt de nocte quandoque volant et dimmittunt nidos suos et ova et non flat ventus aliquis: aut fiat auster: et tunc est signum quod pestilentia est ibi propinqua." Breviarium, f. 204va.

[165]"Quod si pestilentialis aer ab inferioribus insurgat ut ab aperitione fosse terree ut accidit meis temporibus prope neapolim ubi cecidit in ruinam quidam mons: et exiverunt de illo monte serpentes de terra quasi mortui fuerunt." Ibid., f. 205ra.

[166]"Si igitur a tali aperitione simili motum consurgat aeris corruptio; vel forte a cadaveribus mortuorum ut hominum vel equorum vel aliorum animalium putridorum in loco aliquo existentium ipsum aerem inficietur: vel si forte a malis herbis corruptus fit aeris sicut sunt ebuli sambuci volubilis succus cicut et huiusmodi herbe similes aut minera sulfurea vel aluminosa et hec per visum discernuntur." Ibid.

[167]"vel forte corruptus fuerit aer a corruptione principali et putredine a subterraneis partibus precedente quod cognoscit per egressum diversorum et monstruosorum serpentum et animalium de suis cavernis exeutium et supra terram hominibus apparentium qui sentiunt corruptionem aeris ab inferioribus pervenire nec possunt in suis locis esse et sic figiunt supra terram." Ibid.

[168]"in principio non videtur multa caliditas et acuitas in huiusmodi egrotantibus: neque multu calidi sentiuntur cum taguntur huiusmodi infirmi cum in occultis corporis partibus et ipsius profunditate maximum lateat nocumentum ex ipsius aeris corruptione generata: sunt enim huiusmodi febris valde lente et deceptorie: et sentitur in eis anhelitus valde fetidus et egestio etiam valde fetida: et omnes superfluitates que ab eorum emittuntur corporibus: sitim maximam et dolorem et angustiam in spatualibus partiutur: et eorum anhelitus angetur: quandoque cum vomitu et egestione aliquid valde fetidum et durum emittunt: deinde aliquando eis supervenit sycopis et subito moriuntur." Ibid., ff. 204va-204vb.

[169]"Primum itaque et tutius consilium quod possit in huiusmodi egritudinibus exhiberi: et etiam sanis est hoc videlicet quoque statim cum apparent signa pestilentie superius dicta fugiant incontinenti ab illo aere tam infirmi quoque sani: et ad alias contratas tendant seu portentur si commode fieri poterit." Ibid., f. 204vb. However, if that was not practical they should let themselves be carried out of the country if that could be conveniently done.

[170]"Aer unius particularis camere alteretur: in qua fit infirmus: et infrigidetur hoc modo. Rx foliorum mirtillorum lib. j secundum sandalorum alborum et rubeorum. . .bulliant omnia hec in aceto et aqua; deinde ex ista decoctione parietes et pavimenta camera irrorentur: herbe frigide:. . .vel ex solo aceto fiant hec. Et. xv vel xx spongie marine lothe in aqua dulci et extorte circuncirca parietes camere aceto forti replete suspendantur vel in predicta decoctione infuse: hec enim fortia sunt in rectificando aerem. . . et coram eo ventiletur aer quotidie cum flabello: quia ex tali ventilatione per motum flabelli facta purificatur aer et prohibetur ipsius aeris putrefactio." Ibid.

[171]"Farinam ordei comedant: amigdalas: cicera: scariolas lactucas: et similia cum pauca agresta: vel aceto: vel cum succo pomorum citrinorum conditas:" Ibid.

[172]"Pomum etiam istud semper odorent quod optimum est pro sanis: et etiam pro medico: quia mirabiliter valet contra putrefactionem aeris." Ibid.

[173]"Aliud pomum optimum et expertum quod si odoretur: et specialiter a sanis hominibus mirabiliter preservat corpus ille cum ab omni aeris putrefactione pestilentiali: et corrupto ab omni fetore leticiam generat et confortat spiritus et totum corpus sterilitatem facit converti." Ibid.

[174]"Suffumigatio optima valens ad omnia predicta ad que valet pomum et specialiter in sanis loquor . . . Confert enim in tempore pestilentie miro modo sanis." Ibid.

[175]"et etiam infirmis huiusmodi enim fumus epilepticis et cardiacis naribus auribus: et ori fetentibus putridis dentibus: et gingivis." Ibid.

[176]"Si autem sint in locis subterraneis non per terra ambulent nisi prius aer per solem depuratus fuerit: ut accidit circa tertiam et ab illa hora in antea infirmi in predictis locis subterraneis collocati sint: et fenestre sint clause: et infrigidetur aer in ipsis. Et omnia supradicta remedia fiant in hoc convenientia . . . Et non ambulent per terram: ut dico nisi prius sol depuraverit aerem. Et si necessitas cogat aliquando eos ire portent semper in manu pomum aliquod de suprascriptis: et semper odorent ipsum tutius tamen est stare in camera in qua fit aer particulariter alteratus secundum quod superius docui." Breviarium, f. 205ra.

[177]Erwin Ackerknecht, History and Geography of the Most Important

Diseases. (New York: Hafner Publishing Company, Inc., 1972), p. 47.

[178]Ibid.

[179]Ibid., p. 11. Philip Zeigler, The Black Death (New York: The John Day Co., 1969), pp. 17-18, explained that the traditional view concerning the derivation of the term "Black Death" is that it resulted from the fact that the flesh of the afflicted blackened from putrification in the final hours before death. He noted, however, that while small black or purple blotches formed on the body in the case of septicaemic plague, there is no evidence that the term Black Death was used in the fourteenth century. Other reasons that have been given, according to Zeigler, for the use of the term are: the supposed appearance of a black comet seen before the arrival of the epidemic; the popular images of the plague as a man on a black horse or as a black giant; the "over-literal" translation into Scandinavian or English of the Latin pestis atra or atra mors as "black" rather than "dreadful" or "terrible" death. In any case the term "Black Death" was apparently not in common use until the eighteenth century.

In regard to the illness itself, the pestilence that struck Europe and other parts of the world in the fourteenth century was of the bubonic type, so named because it was often characterized by the presence of a bubo or enlarged gland in the groin, armpit or neck. Bubonic plague as is known is generally a disease of rodents, usually the rat, and is transmitted by the fleas called Xenopsylla Cleopsii, which infest them. When the flea bites an infected rat, it takes in the plague

bacilli which can remain within the fleas' intestinal tract for as long as three weeks. When the flea bites another rat, or a man, the bacillis causing the infection, called pasteurella pestis enters the blood stream of its victim and multiplies rapidly causing high temperature, the swelling of the glands and death from septicaemia or blood poisoning. This is characteristic of "true" uncomplicated bubonic plague; however, that is not the only form of the disease. Another form is the septicaemic form which is also insect borne. Here, however, the brunt of infection falls on the bloodstream within an hour or two and death occurs before the buboes develop. In this form there are so many bacilli in the blood of the sick individual that a man-borne flea, called pulex irritans, and distinguished from the rat borne flea, can infect itself and carry the disease to a new victim without need of a rat to provide a fresh source of infection. The source for this information is: Frederick Fox Cartwright, Disease and History (New York: Crowell, 1972), pp. 29-31.

The septicaemic form was still not the most troublesome or most contagious form of the bubonic plague, however, since the pneumonic form was, more dangerous in both respects. In this form the bacilli causing the disease are present in the breath and sputum of the infected individual and are very easily cast out as he speaks, coughs and sneezes. Consequently, anyone in his presence can easily inhale the bacilli into his own lungs and develop this form of the plague. All three types of the plague can occur separately or together and because of that the plague can be spread not only from rat to flea to man but also very easily from one man to another.

According to Zeigler, p. 25, the Black Death of 1346-1361 appears, because of the easewith which it spread over Europe, to have been a combination of these various forms. Where the disease originated is difficult to determine but a World Health Organization Publication, written by R. Pollitzer and quoted by Zeigler, concluded that the Black Death originated in an area of Central Asia in Russia near Lake Issyk-Koul in the district of Semiriechinsk in 1338-1339. Certain Nestorian memorial stones, according to Pollitzer, attribute the high death rate in the area at that time to the plague. By the winter of 1346-1347, according to Gabriel de Mussis, a chronicler from Piacenze (in Muratori, (1908) 11, parte v, p. 237) the plague struck a Tartar army which was beseiging the trading post of Caffa on the Crimean coast in which Genoese merchants had sought refuge. The pestilence caused the Tartars to lift the seige but only after they used catapults to throw the bodies of plague victims over the walls of Caffa. Those Genoese who survived the seige and the plague sailed home but they took the disease with them. An anonymous Flemish chronicler (Zeigler's reference is to: De Smet "Breve Chronicon cleri anonymi," Recueil des Chroniques de Flanders, III, 14-15. I have not been able to locate this work.) is reputed to have recorded that three galleys landed in Genoa in January of 1348 and immediately infected the city. From Genoa the plague spread easily throughout Europe at a time when it was perhaps particularly vulnerable to epidemic. Cartwright, p. 36, points out that three successive abnormally wet and cold summers had ruined crops causing malnutrition and sickness which may have reduced the ability of many to resist

infectious disease.

[180]"Eodem millesimo et temporibus maxima pestis mortalitatis fuit in civitate Neapolim, in qua mortui sunt in duobus mensibus LXIIII^{m};" Chronican Estense in Muratori, (1908) XV, parte III, p. 162.

[181]Zeigler, p. 52.

[182]Thorndike. History of Magic, III, 242.

[183]"Consequenter ponit consilium suum. Et primo circa causas huius pestis, dicens, quod causa antecedens huius pestis in singulo corpore est materia colerica, in semita adustionis posita. . . Et in summa dicendo materia huius pestis est sicut materia antracis, confusa cum sanguine simul in venis. Quia vero ipsa colera plurima pectoris regimen viget et feruet propter ferventis. . . talenque in fervarem corruptionis modum facilius sumit ibidem." AGM V (1912), 342. Lines 15-25.

[184]"Corruptionis tamen huius sic communis causa apparet. Convenit alicui extrinseco, ut causae priori scilicet aeri vel sibi mixtys incurrenti corruptionem hanc tali pesti propriam vel ex certis coniunctionibus immutantium cum astrorum diffusam. . ." Ibid., Line 26.

[185]Thorndike III, 244.

[186]Ibid., III, 245.

[187]"Modus invasionis talis pestis. Invadit autem hec pestis maxime ab anhelitibus hominum iam infectorum in conversantis et approximantis illius et aeri contaminacio ab ipsis velocius. . ." AGM XVI (1924-25), 165. Lines 109-111.

[188]"Sani autem praeservari volentes ab hac peste eligant habitationes aeris montium et purioris et solitarias quantum possunt." AGM V (1912), 343, Line 77.

[189]See above, p.

[190]"Aer vero domus et camere disponatur sternando per solida ramos mirtorum ac vinearum cum renovacione frequenti, supraspergendo forte acetum una cum pauco aque rosarum mixtum super dictos ramos et per parietes habitacionis ipsius." AGM XVI (1924-25), 164. Lines 79-80.

[191]"Unde et personarum conventus suspectus est, quare et vitandus velut possibile breviandum. . ." AGM V (1912), 343. Line 81.

[192]"Vitent colloquia venientium a regione manifeste infecta et magis eorum qui cum infirmantibus convenerunt, maxime vero ipsorum iam infirmorum." Ibid. Lines 85-88.

[193]"Cum enim quidam sani egrotant hac peste, paruum habet remedij

tempus et conferenciam rarioram pro ipsa cura talis pestis iam actu invadentis corpus, quodcumque videre est prius de naturalibus causis eius, cum imperiti medici dicant sive ydeoti illam a deo procedere vel a celo." AGM XVI (1924-25), 164. Lines 89-93.

[194]"Tertio dicit quod studere debet vitare omnem laborem corporeum et lassantem vel fatigantem, in quo, quia aer multiplicatur attractus a colera prae aliis fervet, merito in hac pestilentia sit suspectus, omnesque sollicitudines angustiosas et tristes dicit esse vitandas. Delectabiles autem aliquas prosequantur et quaerant ad deviandum mentem a pestis timore. Coitus autem et voluptas ad ipsum paucissime fiant omnino etiam consuetis." Ibid., p. 344. Lones 102-109.

[195]"Quarto servetur dieta in cibo ex potu electis at laudatis comuniter subtilibus ac facilibus digestionis vitando grossos cibos tam de carnibus quam de pasta et piscibus omneque salitum et actum, . . ." AGM XVI (1924-25), 163. Lines 38-42.

[196]"Aceti aut quatenus non stiptizent ut citonia, pira, sorba, post cibum tantum, quia studendum est, quod venter servetur lubricus, sic aut parciet quantitas cibi et largiet potus tam aque quam vini subtilis aquosi et albi." Ibid. Lines 42-45.

[197]"Electuarium ad continuum usum ante cibum et post cibim: Rx. . .(recipe follows)." Ibid. Line 52.

[198]"Trociscus sollidatiuus sprituum omni mane sumere una cum vino subtili pauco Rx. . ." Ibid., p. 164. Lines 62-63.

[199]Ibid., Lines 70-74.

[200]"Consequenter post praedicta ponit modum curativum huius morbi et dicit quod homines, qui iam sentiunt invadentis pestis iudicia aut punturas in pectoribus titilicis vel gravedines vel glandula vel capitis dolores, et talia primo quidem indigent pro curatione totius, deinde particulae patientis totius." AGM V (1912), 345, Lines 186-190. See also the following quotation: "Accidencia invadit que pestis ista cum febre forti ut plurimum a fumosis exalacionibus dicti ebulientis sanguinis causata magis quam a vaporibus putridis, et cum sompno gravi propter fugam et reclusionem spumosi caloris ad cor ex venenositate percepta causatam." AGM XVI (1924-25), 165. Lines 119-123.

[201]"Itaque percepto a principalibus talis corruptionis nocumento sequitur sinthomatica impulsio ad emunctoria propria aut humiditatis cuiusque occurrentis tunc principalis aut corrupti et maligni glandulas supervenientes aut febrem causans aut alia quaevis apostemata intrinseca, plurima quidem pectoralia, extrinseca vero ubi contingit. hinc etiam paucum huius materiae multum pestis suscipit in proprio corpore in brevi accidens paucioresque relinquens in vita, ubi cum iam pestis declinet. Pereat autem in ea ut multum et citius robustiores maiori facta turbatione in naturis validis ipsorum amplioriisque humorositate eorum et difficiliori exclusione humoris maligni." AGM, V (1912), 342.

Lines 43-53.

[202]"Decrepti autem qui incidunt, non evadunt propter paucificatus calidum et posse eorum. Senes autem primi melius transeunt aliis, convenientem enim adhuc fortitudinem habent et coleram non in adustione adustione positam, quando fervent sed iam exustans magis et per consequens minus aptum corruptioni plurimum efficaci." Ibid., Lines 56-62.

[203]"Pestis . . . cum interficiat plurimos prima, secundum vel tercia die sed interficit sua insidiosa et lacita venenositate et velud specifica eius forma. . ." AGM XVI (1924-25), 165. Lines 134-136.

[204]"Secundo specialiter quilibet sibipsi provideat de purgacione mundificativa sanguinis ab acutis et corruptibus humidis precipue colericis, et hoc fiat cum aqua fructuum descripta a Damasceno vel sero caprino in etatibus puerilibus et facile mobilis, cum syrupo. . ." Ibid., p. 163, Lines 6-10.

[205]"Item dicit quod tamarindi sunt maxime humidi in usu pro hec peste aut in medicinis et cibis conveniant admixti. . ." AGM V (1912), 345. Lines 156-157.

[206]"Item dicit quod in flebotomandis fieri debet flebotomia de vena communi brachii sinistri circa quantitatem eandem plus aut minus pluriesque aut paucies secundum differentiam corporum in habundantia

sanguinis, sicque dicit, non timeatur flebotomiae iteratio, ymo tam flebotomiae quam purgationes vicissim iterentur cum tollerantia tamen corporum, ita ut non in una sed in plurificatis vicibus magis exquisite videatur evacuare quam ita subsistere. hoc enim cogit singularis potentia huius pestis." Ibid. Lines 175-183.

[207]"Qui vero praeservati fuerunt, horum plurimum periculose aegrotant et remediorum efficacia multum egent, sed non aliorum a prius dictis in specie aut virtute, semper tamen modicum appropriati remedii plus confert quam adhuc sana, quare plurimi in iam aegro." Ibid., p. 346. Lines 205-209.

[208]"Diaetam autem dicit esse in iam aegrotante subtiliorem satis et frigidiorem quam in eodem prius sano, quantum est ex aegritudinis ratione, quia virtus saepe cogit ingrossare diaetam. Ubi ergo in praeservativo regimine concedebantur carnes, in curative competunt ptisana et ova sed numero pauca, ubique prius dabatur vinum, nunc detur granatorum succus cum aqua, aut cum pauco zuccaro detur ad potum quantum tamen fieri potest, usu vini servatur in aegritudine galis pestis. . ." Ibid., Lines 209-218.

[209]". . .unde et electuaria bona sunt, zuccarum rosi et sirupus rosarum, cum ventres magis reparant in lubricum." Ibid. Lines 222-223.

[210]"Item dicit, optimas esse in hoc casu materia morietas factas ex electis aquae rosarum et zuccaro cum pauco sumas coriandro, duplici

sandalo et modica canella dulci. cum quibus etiam potest misceri de lapidibus praetiosis pro maiori cordis confortatione egentibus, ut de corallis parvis, granatis, ossis cordis cervi et similibus." Ibid., Lines 226-231.

211"... .ut dicit, huius modi aegritudo alterantibus, quae confortant cor et alia et confortantibus, quae alterant et principalia et intrinsecam pestis causam. . ." Ibid., Lines 219-221.

212"Item alienationem illi mixtam, vigiliam superfluam iam procedente aegritudine, alienationem furientem simile freneticae et maniacae, sitis autem et capitis dolorem vehementem quibusdam et quandoque solummodo dicere ad accidentia esse in capite, dicit. . ." Ibid., p. 346. Lines 238-243.

213"... solam et maximam putat educationem malignati humoris ex corpore, ut quotiens praedictorum accidentium aliquid infestat, totiens insurgat medico nova evacuandi audacia evacuatione propria indicata ab accidente tam et et sum virtutis tollerantia semper et dicit, quod medicum non debet terrere ab evacuando, appareus virtutis prostratio . . ." Ibid., p. 347. Lines 246-

214"Ultimo volens adhibere remedium locis patientibus in hac peste, dicit quod horum locorum patientium quaedam sunt intrinseca pectoralia maxime, multum enim contingunt apostemata in pulmone et pectore, quibus et sanguinis sputa veniunt, quorum plurimi moriuntur

festine alia sunt loca patientium extrinseca. . ." Ibid. p. 348. Lines 297-303.

[215]"Dicendum breviter, quod quamprimum sentitur dolor vel glandula procuretur extractio materiae versus extra, quantum commode fieri potest, cum aqua calida fomentation et munctione olei camomillae cum butiro incorporati. Quod si hoc non videatur prodesse, applicetur emplastiam de fermento vel de ficubus siccis, passulis, auxungia, farina, frumenti, et modico armonico." Ibid. Lines 310-316.

[216]"Si vero dura fuerit, mollificetur cum dyaltea, ysopo humida et infusione calida ex decoctione rerum mollificantiu, donec pateat naturae via ad modum terminationis eius, cum prudens medicus subminitrat et favet, quatenus salva apostematis terminatio inducatur." Ibid., Lines 322-325.

[217]"Dicit ulterius, quod si quaeratur, propter quid in hoc consilio non sunt diversificatae medicinae, tam altorantes quam solutiva secundum diversas ipsorum humorum corporum naturas." Ibid., p. 347, Lines 275-277.

[218]Ibid. line 291 Solius colera corruptionem advenit cuilibet, sive colericus sive flegmaticus fuerit. Substantia ergo et radix regiminis debet esse eadem et quantitas et gradus usus diversa, per diversam dictae causae quantitem in naturis diversis et per alias accidentales causas multiplicetur." Ibid., pp. 347-348, Lines 291-295.

[219]See footnote 193 above for text.

CONCLUSION

Although the University of Naples has suffered neglect from some scholars of university history, and the unfortunate destruction of a goodly portion of its once rich archives, there seems little reason to doubt that through its famous founder, Frederick II, it played an important role in the science and culture of the area from an early period. The influence of the University of Naples upon the study and practice of medicine in the area appears particularly conspicuous. Frederick II and several of his successors made earnest efforts to attract scholars of high repute to the Studium. At the same time they often endeavored to keep Italian students from pursuing their education and training elsewhere. Consequently it is quite possible that medical training was offered under the arts curriculum almost from the time of the creation of the University in 1224. There is also evidence from the Angevin period of the continued study of medicine. In the decade of the 1260's the University had teaching physicians on its faculty, and at least from 1278, during the reign of Charles I, it offered the Baccalaureate in Medicine. Moreover, the University physicians, through the thirteenth century excercized considerable influence over the continuing practice of medicine. The regulation of such practice had been going on since the twelfth century when the Norman King Roger II required the examination of medical practitioners by royal officials. In the thirteenth century, however, Frederick instituted the requirement that the examination be given by physicians and surgeons and hence-

forth Hohenstaufen and Angevin kings alike frequently turned to physicians with University affliation to serve as examiners. As a result, University physicians excerised some control not only over those physicians whom they had helped to train in the course of their University studies but also over the many physicians and surgeons who had received training elsewhere but who sought the opportunity to practice in the Kingdom of Naples.

From the evidence provided by the licenses granted as a result of these examinations, it appears clear that an attempt was made to impose a specific standard of achievement on physicians and surgeons and that distinctions were made in the licenses in accordance with prior training as well as professed competency. Thus several categories of licenses were provided; those which recognized the extraordinary skills and abilities of specialists, those which allowed physici and medici to practice medicine and surgeons to practice their art, and those which allowed persons with minimal training to deal with relatively simple medical matters.

Under the above structure there apparently was diversity in the practice of medicine at Naples as the writings of Arnold, Francis of Piedmont and John of Penna demonstrate. They are reflective of a reasonably competent, intelligent and critical approach to medical problems and of the fact that physicians and surgeons did not confine themselves to the doctrines of any particular school of medical thought and were not fearful about taking sides on the medical issues that confronted them. Certainly, the works considered here

were generally practical and useful. They placed a strong emphasis on the need to search out natural causes and they reveal an interesting if not always correct understanding of the way in which the human body worked. Furthermore, the treatises emphasized the importance of isolating symptoms, of understanding the natural causes and of providing remedies specifically designed to treat the particular affliction. In a word, the contribution of these treatises to medical science lay largely in the practical sphere. As such they probably did not command the attention that more speculative pronouncements might have elicited. Hence when Rashdall concluded that Naples played but a small role in the intellectual movements of the Middle Ages, he may have been correct, even in regard to medicine. Yet we should be inclined to take issue with that view, in light of medical activity within the University of Naples and the nature of the content of the medical writings of Arnold, Francis of Piedmont and John of Penna. These works, together with the particular interest shown by so many scholars in the Breviarium and in the Supplementum, which in Sarton's words is "one of the most complete compendia of practical medicine in the Middle Ages," demonstrate that Naples did indeed make a very definite and constructive contribution to the history and practice of medicine.

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