William R. Jones

THE CLINIC IN THREE MEDIEVAL SOCIETIES

The different ways in which the three medieval societies of Byzantium, Latin Christendom, and Islam institutionalized the charitable impulse present in their respective faiths reflected the fundamentally different religious values which motivated these civilizations as well as their different levels of material and intellectual development.[1] All three societies exalted the relief of human suffering, especially the care of the sick, as a religiously sanctioned gesture; and all three invented or adopted institutional means for attaining this pious objective. The various medieval counterparts of the modern "hospital"—the Byzantine *nosocomeion* or *xenodocheion*, the European *hospitale*, and the Islamic *maristan*—differed significantly, however, with respect to their organization and operation, the clientele which they served, and the ultimate intent of their charitable efforts. Accordingly, a comparison of these social welfare institutions reveals the contrasting ways in which the two Christendoms and Islam defined and applied the ideals of "piety" and "charity" during the middle ages.

[1] William R. Jones, "Pious Endowments in Medieval Christianity and Islam," *Diogenes*, No. 109, 1981, pp. 23-36.

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Ancient Greece and Rome offered no clear model for the free public hospital, since the temples of Asklepius, where worshippers awaited some sort of supernatural cure, and the private or military *valetudinaria*, which were infirmaries for slaves or barracks set aside for sick or wounded soldiers, were mainly nursing facilities serving specialized clienteles.[2] The prototype of the modern hospital, which appeared first in the Christian East and thence spread to Roman Europe, arose from the pious inclinations of early Christians who regarded the relief of the sick and needy and the provision of "hospitality" to pilgrims and travelers as especially blessed forms of "good works."[3] Until the end of the persecution of Christianity in Constantine's reign, such charitable enterprises, which represented attempts to imitate Christ's example of mercy and to honor God in the persons of the indigent and the infirm, were confined to private acts of charity sponsored by individual Christians and to almsgiving of the Christian diaconate. From the fourth century AD forward, however, Eastern Christians established and supported a number of foundations for the assistance of the poor and sick. These early charitable institutions were relatively unspecialized in clientele and services and usually constituted little more than hospices for the helpless and homeless members of local Christian communities. Among the earliest foundations

[2] E.D. Phillips, *Aspects of Greek Medicine*, New York, 1973, pp. 197-201; John Scarborough, *Roman Medicine*, Ithaca, New York, 1969, pp. 66-79; A.R. Hands, *Charities and Social Aid in Greece and Rome*, Ithaca, New York, 1968, p. 132.

[3] George E. Gask and John Todd, "The Origin of Hospitals," *Science, Medicine and History: Essays in the Evolution of Scientific Thought and Medical Practice written in honour of Charles Singer*, ed. E. Ashworth Underwood, London-New York-Toronto, 1953, I, pp. 121-30; Demetrios J. Constantelos, *Byzantine Philanthropy and Social Welfare*, New Brunswick, New Jersey, 1968, pp. 152-84; A. Philipsborn, "Der Fortschritt in der Entwicklung des Byzantinischen Krankenhauswesens," *Byzantinische Zeitschrift*, LIV, 1961, pp. 338-65; Karl Sudhoff, "Aus der Geschichte des Krankenhauswesens im früheren Mittelalter im Morgenland und Abendland," *Sudhoffs Archiv für Geschichte der Medizin*, XXI, 1929, pp. 164-203; Jean Imbert, *Les hôpitaux en droit canonique*, L'Église et L'État au Moyen Age, t. VIII, ed. H.-X. Arquillière, Paris, 1947, pp. 1-15; George Rosen, "The Hospital: Historical Sociology of a Community Institution," *From Medical Police to Social Medicine*, New York, 1974, pp. 274-77.

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known to have provided some medical care to patients was the famous Basileias, so-called, founded *ca.* 372 AD by St. Basil at Caesarea in Cappadocia. Even Basil's "hospital," which Gregory Nazianzenos described as "a new city, a storehouse of piety ... where disease is regarded in a religious light," provided rooms for travelers and the poor as well as medical care for the sick.[4] Shortly after he became Patriarch in 398 AD, John Chrysostom reorganized the finances of the church of Constantinople in order to acquire funds for the foundation of a hospital (*nosocomeion*) for the care of the sick; and the growing popularity of institutions of this kind throughout the eastern part of the Empire was implied by the attempt of the pagan emperor, Julian, to counteract the appeal of Christianity among the masses by imitating its charitable practices, including the sponsorship of such institutions. By the end of the fourth century AD, the Roman matron, Fabiola, according to her admirer, St. Jerome, had contributed to the popularization of such pious works among Christians of the West by founding a hospital (*nosocomium*) at Rome and a rest home or poor house (*xenodochium*) at Ostia. It was, however, in the Greek East, where the Christian congregations were larger and more prosperous, that the founding of these institutions became fashionable. By Justinian's time, in the sixth century AD, hospitals or *nosocomeia*, as they were properly called, had been established in the principal cities of the Eastern Empire, where they eventually became differentiated in services, clientele, and nomenclature from homes for the aged (*gerocomeia*), orphanages (*orphanotropheia*), and multipurpose hostels or nursing homes (*xenodocheia* or *xenones*). On the other hand, specialization of function was never complete. Individual foundations, even those which provided a minimal amount of health care, served also as rest homes or alms houses, with the result that the terms, *xenodocheion*, *xenon*, and *nosocomeion*, were often used interchangeably. The common characteristic of such institutions was their religious origin and affiliation. Although administered independently by officials appointed by the bishop or patron and enjoying a corporate identity as symbolized by the possession of a common seal, Byzan-

[4] Constantelos, *op. cit.*, p. 154.

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tine hospitals were invariably associated with a church or monastery and were subject, as were all ecclesiastical institutions, to the supervisory authority of the bishop and the protection of canon law.

It is possible to identify the existence of a considerable number of such foundations throughout the Byzantine Empire, but the sources provide limited information concerning their actual organization and operation and the extent to which they were capable of offering medical treatment to patients. Among the best documented and most elaborately organized of the Byzantine hospitals of the late middle ages was that founded *ca.* 1136 AD, by the Emperor John II Comnenos and his wife as part of their great monastery of the Pantocrator in Constantinople.[5] According to its foundation charter or *typicon*, the hospital (*xenon*) attached to the monastery of the Pantocrator provided fifty beds for patients, which were apportioned among five wards, specialized according to the type of medical service offered: surgery, gynecology or obstetrics, epilepsy and mental disorders, infectious ophthalmic and intestinal diseases, and general illness. A single bed in each ward was reserved for emergency cases. A resident staff of physicians, interns, nurses, orderlies, and medical technicians were responsible for managing and operating the infirmary, together with a dispensary or outpatient service and a pharmacy. Its most distinctive feature was, however, a lectureship in medical science. Associated with the monastery was a home for the aged, inmates of which were allowed temporary admission to the hospital, as well as a chapel for the use of patients and staff. Indeed, so extraordinarily comprehensive were the services offered by the hospital of the Pantocrator that one modern historian has characterized it as a "medical center."

The association of medical education with the actual care of the sick, as represented by the endowed professorship of the Pantocrator, was apparently not typical of Byzantine hospitals. With the exception of the Pantocrator and the famous "teaching hospital" established by Nestorian Christians in sixth-century Iran,

[5] Pan S. Codellas, "The Pantocrator, The Imperial Byzantine Medical Center of XIIth Century A.D. in Constantinople," *Bulletin of the History of Medicine*, XII, 1942, pp. 392-410; P. Gautier, "Le Typicon du Christ Sauveur Pantocrator," *Revue des Études Byzantines*, XXXII, 1974, pp. 1-145.

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we hear little of medical education in the hospitals of the Byzantine Empire. The creation of a single lectureship in medicine at the Pantocrator seems almost an afterthought of its founders; and the injunction of the *typicon* that the office be performed conscientiously implies that it may have been prone to lapse. Generally speaking, Byzantine medical education, which was based on the ancient Hippocratic and Galenic traditions, was concentrated in church and monastic schools, the university of the Patriarch at Constantinople, and, until the Arab conquest of Egypt, the famous medical academy at Alexandria.[6] Although novice physicians often served apprenticeships under their senior colleagues, the more successful of whom operated proprietary medical schools, formal medical education does not appear to have been a routine function or responsibility of Byzantine hospitals. The outstanding feature of Byzantine hospitals was not their educational, nor possibly even their humanitarian, role, but, rather, their religious orientation and purpose. They originated in the pious gestures of devout Christians who thereby sought atonement for their sins and God's approval of this charitable act; they operated in conjunction with churches and monastic foundations and under the auspices of ecclesiastical authority; and the principal service which they rendered to their benefactors and the beneficiaries of their charity was spiritual consolation. In such ways they manifested, as did prayers to Christ and the saints and the eucharistic service itself, the devotional impulse within Orthodox Christianity which sought satisfaction through the performance of good works.[7]

The earliest known "clinic," which combined medical education with the care of the sick in a single institutional format, seems to have been that established by Nestorian Christians in the city of Jundishapur in southwestern Iran during the reign

[6] Owsei Temkin, "Byzantine Medicine: Tradition and Empiricism," *The Double Face of Janus and Other Essays in the History of Medicine*, Baltimore-London, 1977, pp. 202-22; *idem, Galenism: Rise and Decline of a Medical Philosophy*, Ithaca-London, 1973.

[7] Note the statement of the Greek theologian, Symeon of Thessalonica, quoted by Constantelos, *op. cit.*, p. 25: "Through memorial services and prayers and the Holy Eucharist and by means of philanthropia to the poor, forgiveness of sins is granted to those who, while they sinned on earth, yet died in repentance."

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of the sixth-century Sassanian king, Chosroes. Syrian and Persian graduates of the medical school at Jundishapur served as transmitters to the Arabs of the rich corpus of Greek, Persian, and Indian medicine and pharmacology; and they propagated throughout the Muslim world the model of the "teaching hospital" from which they had acquired their education.[8] Their prominence in early Islamic society and the Persian derivation of the word, *maristan* or *bimaristan* ("house of the sick"), which was universally employed by Arabic-speaking peoples to denote the "hospital," indicates the importance of the school at Jundishapur in promoting the establishment of similar institutions elsewhere in the Muslim Middle East and North Africa. The Caliph al-Mansur apparently initiated this Persian connection by appointing *ca.* 148-49 AH (766 AD) the Nestorian doctor, Jurjis b. Bakhtishu, as court physician; and it was strengthened over the succeeding two generations by the distinguished careers of Jurjis's son and grandson and the noted royal physician, Yuhanna b. Masawayh. The earliest hospital known to have been of original Muslim foundation was that established at Baghdad by the Caliph al-Rashid (170-93 AH/786-809 AD), who staffed it with graduates of the school of Jundishapur. During the "Golden Age" of the Islamic *maristan*, in the third century AH, pious benefactors founded such institutions throughout the Muslim world: the city of Baghdad possessed eight public hospitals and there is evidence for the existence of at least thirty-four scattered from Iraq to Spain. Among the most famous of the Muslim hospitals were the Adudi, founded *ca.* 367-70 AH (987-79 AD) at Baghdad by the Buwayhid ruler, Adud al-Dawlah, which had a staff of twenty-four physicians and medical technicians and housed a library and a pharmacy; the Nuri, perhaps the most illustrious of all medieval Islamic hospitals,

[8] Sami Hamarneh, "Medical Education ad Practice in Medieval Islam," *The History of Medical Education*, ed. C.D. O'Malley, UCLA Forum in Medical Education, No. 12, Los Angeles, 1970, pp. 39-71; *idem*, "Development of Hospitals in Islam," *Journal of the History of Medicine and Allied Sciences*, XVII, 1962, pp. 366-84; Ahmed Issa Bey, *Histoire des bimaristans (hôpitaux) à l'epoque islamique*, Cairo, 1928; "Maristan," *Shorter Encyclopaedia of Islam*, ed. H.A.R. Gibb and J.H. Kramers, Ithaca, New York, 1965, pp. 326-27; Hakim Mohammed Said, "Early Hospitals in Turkey," *Medical Times*, Society for the Promotion of Eastern Medicine, XVI, 1981, pp. 8-14.

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which was founded *ca.* 550-51 AH (1156 AD) at Damascus by the Turkish emir, Nur al-Din Zinki, and which, during the four centuries of its existence, produced a galaxy of talented graduates who spread its fame across the Islamic world; and the Cairo *maristan* called the Mansuri after its patron, al-Mansur Qalawun, who founded it, together with a mosque and *madrasah*, in 683-84 AH (1285 AD), and which acquired such a reputation for treatment of diseases of the eye that it has been memorialized by the erection of a modern ophthalmic institute on its medieval foundations. Such major hospitals as the Adudi, the Nuri, and the Mansuri were highly organized and specialized: they possessed surgical wards, pharmacies, ambulance service, libraries, and lecture halls; and they were capable of providing treatment for a wide range of injuries and diseases. Resident staffs of doctors, interns, and medical technicians, under the supervision of an appointed medical director, operated these public clinics; and the medical schools associated with them developed procedures for examining graduates and certifying their professional competency by the issuance of diplomas and licenses.

Islamic medicine, which was based on the classic works of Hippocrates and Galen and the commentaries and compendia of such post-classical scholars as Oribasius, Alexander of Tralles, Aetius of Amida, and John the Grammarian, was viewed as an explicitly secular discipline, although its application to the relief of human suffering was regarded as the fulfillment of the ethical teachings of the Qur'an.[9] Similarly, the *maristan*, though often founded in conjunction with a mosque or an oratory for the recitation of prayers, was considered to be a purely humanitarian institution, directed toward the saving of lives rather than the salvation of souls. The spirit of social benevolence which it exemplified also motivated its founders and patrons. As was the case with the vast majority of Islamic charities, the *maristan* usually originated in a pious endowment (*waqf*), which was a permanent trust deriving income from farmlands, urban

[9] Manfred Ullmann, *Die Medizin im Islam*, Leiden, 1970; Edward G. Browne, *Arabian Medicine*, Cambridge, 1921; Donald Campbell, *Arabian Medicine and Its Influence on the Middle Ages*, London, 1926.

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shops or residences, and other revenue-producing property, and which was traditionally employed by devout Muslims to subsidize a variety of philanthropic activities.[10] Thus, both the act of founding a *maristan* and the humanitarian ideal which it symbolized represented efforts to actualize "that strongly marked impulse to charitable deeds" which was so characteristic of Islam.[11]

The model of the multi-purpose charitable institution dedicated to the relief of every kind of human misery, which Eastern Christians called the *xenodocheion* or *xenon*, was introduced into the Roman West during late antiquity, where until the ninth century AD it continued to be known under the Latin version of its original Greek name.[12] The same unspecialized institution for the care and domiciling of the indigent and the infirm, which had been invented and popularized by Eastern Christians, was duplicated in Mediterranean Europe, especially in cities with sizable oriental Christian minorities. Following the collapse of Roman rule in Europe, however, such institutions, never so numerous as in the Greek East, tended to disappear; and the responsibility for dispensing Christian charity was imposed by conciliar legislation on the bishops, churches, and monasteries of barbarian Europe.[13] A few of the larger monastic houses, particularly those of Irish foundation, such as St. Gall, were capable of providing medical care to lay visitors as well as the monks; and they appear to have had such refinements as resident physicians, wards for patients, and pharmacies.[14] But such elaborate health care facilities were uncommon; and during the early middle ages hospitals of the classic type were nonexistent in Europe.

[10] "Waqf," *Shorter Encyclopaedia of Islam*, pp. 624-28; George Makdisi, *The Rise of Colleges: Institutions of Learning in Islam and the West*, Edinburgh, 1981, pp. 35-74.

[11] "Waqf," *Shorter Encyclopedia of Islam*, p. 626a.

[12] See the works of Gask and Todd, Sudhoff, and Imbert cited in n. 3 above, also W. Schönfeld, "Die Xenodochien in Italien und Frankreich im frühen Mittelalter," *Zeitschrift der Savigny-Stiftung für Rechtsgeschichte*, XLIII, Kanonistische Abteilung, t. 12, 1922, pp. 1-54.

[13] Walter Ullmann, "Public Welfare and Social Legislation in the Early Medieval Councils," *Councils and Assemblies*, ed. G.J. Cuming and Derek Baker, Studies in Church History, VII, Cambridge, 1971, pp. 10-11.

[14] Rosen, *op. cit.*, p. 278.

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The multiplication of Christian charities of all kinds in the period after 1000 AD was the result of the material growth of European society. The rise of population and increased urbanization and commercial activity, with the resulting acceleration of human contact and the spread of infectious disease, both created the need for expanded health care and made available the resources for acquiring it.[15] From the eleventh and twelfth centuries forward an increasing number of charitable foundations, which were specialized in function only to the extent of offering temporary or permanent domicile to deserving persons of every condition—the poor, the sick, and the helpless—were established throughout Christian Europe, where they became known by the distinctive name of *hospitale* (*hôtel-dieu*).[16] The foundation of such charitable enterprises was promoted by the new lay piety unleashed by the evangelical awakening of the late eleventh and twelfth centuries, whereby the Christian laity expanded their role in the life of the church; and the number of such foundations continued to increase dramatically in the thirteenth and fourteenth centuries. For example, during the first half of the twelfth century in Norman England there occurred a fourfold increase of the number of hospitals known to have existed previously; and by the end of the fourteenth century the total had grown to over seven hundred. Similarly, the founding of hospitals was a popular expression of lay piety in central and northern Italy, where the hospital at Altopascio constituted a model for those established elsewhere, and where the fourteenth-century Florentine chronicler, Giovanni Villani, cited the impressive number of such foundations in his native city as a source of civic pride.[17]

Whether founded separately or in conjunction with a church,

[15] William H. McNeill, *Plagues and Peoples*, Garden City, New York, 1976, pp. 69ff.

[16] For general discussions of the medieval European hospital, see Rosen, *op. cit.*, Imbert, *op. cit.*; Stanley Rubin, *Medieval English Medicine*, Newton Abbot-New York, 1974, pp. 172-88; Rotha Mary Clay, *The Mediaeval Hospitals of England*, London, 1909; Edward J. Kealey, *Medieval Medicus: A Social History of Anglo-Norman Medicine*, Baltimore-London, 1981, pp. 82-106; S. Reicke, *Das deutsche Spital und sein Recht im Mittelalter*, Stuttgart, 1932.

[17] Kealey, *op. cit.*, pp. 83-84; Marvin B. Becker, *Medieval Italy: Constraints and Creativity*, Bloomington, Indiana, 1981, pp. 38, 101-02, 109.

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a monastery, or as a cell of one of the great hospital orders—the Order of the Holy Ghost or the Order of the Knights of St. John of Jerusalem—these foundations constituted religious corporations, with a distinctively spiritual character, which operated under the auspices of the church.[18] They were founded by both clergy and laity and by private persons and by civic and religious groups; and they were financed by perpetual trusts deriving income from endowments of lands and rents.[19] As was true of all ecclesiastical corporations, the European hospitals possessed certain privileges and immunities guaranteed by diocesan or papal authority and enforceable under the terms of their foundation charters, which spelled out the purpose for their foundation, appointed their custodians, and regulated their activities. They ranged in size from large and famous institutions such as St. Peter's and St. Leonard's hospital at York or the original hospital of the Holy Ghost at Montpellier to tiny foundations providing care to a dozen or so residents. To the end of the middle ages and even beyond, they were accessible to a wide range of deserving persons—the poor, the sick, widows, orphans, and unwed girls—although occasionally, in conformity with the will of the patron, they restricted admission to a particular type of clientele, as was the case with the *leprosaria*.[20]

The most distinctive feature of the European *hospitale* was its religious orientation, which aspired to the *care* of the soul rather than simply the *cure* of the body: "*le but de l'hôpital pour malades n'est pas d'abord de les soigner, mais de les sanctifier.*"[21] It originated in the pious act of its founding by a patron, who thereby sought merit in the view of God; and it

[18] Timothy S. Miller, "The Knights of St. John and the Hospitals of the Latin West," *Speculum*, LIII, 1978, pp. 709-33.

[19] E. Delaruelle, E. R. Labande, and Paul Ourliac, "L'Église au temps du Grand Schisme et de la Crise Conciliare (1378-1449)," *Histoire de l'Église depuis les origines jusqu'à nos jours*, t. XIV, ed. A. Fliche and V. Martin, Paris, 1964, II pp. 675-77; Becker, *op. cit.*, pp. 101, 109.

[20] Rubin, *op. cit.*, pp. 150-71; note the foundation charters collected and edited by Léon Le Grand, *Statuts d'Hotels-Dieu et de Léproseries: Recueil de Textes du XIIe au XIVe Siècle*, Paris, 1901.

[21] Delaruelle, *op. cit.*, p. 676; also Clay, *op. cit.*, pp. xvii-xviii, who likewise emphasized the "medical" character of the medieval hospital, explaining that it "was for care rather than cure: for the relief of the body, when possible, but preeminently for the refreshment of the soul." For an opposing view, see Kealey, *op.cit.*, p. 83.

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united patrons, patients, and their clerical or lay attendants in common devotional exercises aimed at their mutual salvation. Its organizational format was that of a typical religious confraternity, subject to a version of the Augustinian rule which imposed upon members certain standards of dress and conduct and the obligation to perform prayer, confession, penance, and communion.[22] Attendance at the eucharistic service was central to the daily life of the medieval hospital. The popularization of the requiem mass and intercessory prayer as means for commemorating the piety of patrons and for acquiring the salvation of their souls and those of the beneficiaries of their charity had the effect of exalting the eucharistic ceremony as the most perfect approximation of that selfless love (*caritas*) exemplified by Christ's sacrifice on the Cross. In addition, the familiar medieval trope, which equated a suffering humanity with the living Jesus, approved such acts as the earthly expression of divine charity.[23] The idea of the hospital as a spiritual community, dedicated to the redemption of its benefactors and the objects of their charity and the satisfaction of God through the repetition of prayers and masses, was physically expressed in its architectural design, which gave a central place to the chapel with its altar and crucifix. Whether annexed to the hospital wards, as was typical in the earlier middle ages, or constituting the focus of the structure, as in the cruciform style popular from the fifteenth century, the chapel provided symbolic representation of the preeminence of the liturgy in the operation of the European hospital.[24]

Well into the modern period of European history, the hos-

[22] Although he fails to appreciate their implications, see Kealey, *op. cit.*, pp. 107-16.

[23] This point was made by Pope Clement V in his bull of 1309: "*Qui pauperes recipit et reficit, hospitatur et pascit Dominum Jesum Christum*," quoted by John Hine Mundy, "Hospitals and Leprosaries in Twelfth and Early Thirteenth Century Toulouse," *Essays in Medieval Life and Thought Presented in Honor of Austin Patterson Evans*, ed. John H. Mundy *et al.*, New York, 1955, p. 203.

[24] See the floorplans of the hospitals of St. Mary's, Chichester (thirteenth century), Notre Dame des Fontenilles, Tonnerre (thirteenth century), and the Hospital Real de Dementes, Granada (early sixteenth century) in John D. Thompson and Grace Goldin, *The Hospital: A Social and Architectural History*, New Haven-London, 1975, pp. 23, 25, 37, 44.

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pital retained its character as a refuge from all kinds of adversity and as a place where all who served it or were served by it might assist in their own salvation. The secularization of the administration of institutions by European municipal authorities of the fourteenth and fifteenth centuries did not diminish their religious role; and even after the abolishment by Protestant reformers of the sixteenth century of the machinery of medieval sacramentalism, the hospital preserved aspects of its religious origin.[25] Not until the eighteenth century, in both Protestant and Catholic Europe, did it acquire a wholly secular philanthropic character.

In medieval Europe the practice of medicine by private physicians and in ecclesiastically dominated hospitals and monastic infirmaries was not joined in any permanent and institutional way with its academic study in church schools, the universities, and the medical academies at Padua, Salerno, and Montpellier.[26] With few exceptions, medieval hospitals did not maintain resident medical staffs; physicians were usually called in as consultants in individual cases. Although there is evidence that university teachers of medicine were practicing their profession and providing clinical instruction to students in some of the larger hospitals of the fourteenth and fifteenth centuries, it has been argued that the association of physicians with hospitals on a regular basis occurred only in the sixteenth century, when the adoption of the inunction cure for syphilis recommended such an arrangement.[27] On the other hand, medieval physicians were not unaware of the value of practical experience to medical education and the importance of clinical observation to the successful diagnosis and treatment of disease. The careers and writings of Taddeo Alderotti and his pupils in thirteenth-cen-

[25] Cissie C. Fairchilds, *Poverty and Charity in Aix-en-Provence, 1640-1789*, Baltimore-London, 1976, pp. 18-37; Brian Pullen, *Rich and Poor in Renaissance Venice*, Cambridge, Massachusetts, 1971, pp. 197-215; Robert M. Kingdon, "Social Welfare in Calvin's Geneva," *American Historical Review*, LXXVI, 1971, pp. 50-69. Also note the quotation from Spenser's *Faerie Queene* in Rosen, *op. cit.*, p. 281.

[26] Nancy G. Siraisi, *Arts and Sciences at Padua*, Toronto, 1973, pp. 153-54; for general accounts of medieval and Renaissance medical education, see the essays by C.H. Talbot and O'Malley in O'Malley, *op. cit.*, pp. 73-102.

[27] Rosen, *op. cit.*, p. 287.

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tury Bologna indicate appreciation of the practical aspect of medicine;[28] and European physicians would have been encouraged in this belief by their reading of the ancient Greek authorities, the works of the Muslim translators and interpreters, and, except in northern Europe, by the example of the surgeons.[29] Throughout the later middle ages individual physicians served apprenticeships under experienced colleagues; and during the fourteenth and fifteenth centuries there are signs of an increasing emphasis on the role of medical practice and clinical observation in the education of professional physicians.[30] Nevertheless, the first sustained attempt to institutionalize medical education in the European hospital was the result of the teaching and example of the Italian medical professor, Giambattista da Monte, who taught at the University of Padua from 1539 to 1551, and who insisted that his students be exposed to clinical instruction at the hospital of San Francesco in Padua.[31] Subsequently, an enthusiasm for "bedside teaching" and the model of the modern medical clinic was imported into northern Europe by several talented Dutch graduates of Padua, who transformed the new University of Leiden into a major center of clinical medicine.[32] By the beginning of the eighteenth century, the patrons and administrators of European hospitals had come to a full realization of the value of clinical experience to the training of physicians; and medical clinics had been established at the principal European universities.

In his history of the rise of the modern clinic, Michel Foucault attributed "revolutionary" significance to the perceptual

[28] N.G. Siraisi, *Taddeo Alderotti and His Pupils*, Princeton, New Jersey, 1981, pp. 269-304.

[29] Luke E. Demaitre, *Doctor Bernard de Gordon: Professor and Practitioner*, Pontifical Institute of Mediaeval Studies, Studies and Texts, LI, Toronto, 1980, pp. 29-30; Carlo M. Cipolla, *Public Health and the Medical Profession in the Renaissance*, Cambridge, 1976, pp. 4, 102.

[30] See O'Malley's article on Renaissance medical education in O'Malley, *op. cit.*, p. 95, and in the same volume, Erna Lesky, "The Development of Bedside Teaching at the Vienna Medical School from Scholastic Times to Special Clinics," p. 218. But cf. John M. Riddle, "Theory and Practice in Medieval Medicine," *Viator: Medieval and Renaissance Studies*, V, 1974, pp. 157-84.

[31] O'Malley, *op. cit.*, pp. 95, 106.

[32] G.A. Lindeboom, "Medical Education in the Netherlands, 1575-1750," O'Malley, *op. cit.*, pp. 201-16.

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and semantic changes in diagnostic technique—what he called the "perfected gaze"—in promoting the emergence of the new clinical pathology so vital to the progress of medical science; and he associated these changes with the institutionalization of medical instruction in the European hospital.[33] Because of the opportunity for clinical experience afforded by the Islamic *maristan* and the encouragement it gave Muslim physicians to learn pathology literally at the patient's "bedside," the question might be posed: to what extent did the *maristan* contribute to the precocious development of Islamic medicine, particularly its advanced diagnostic techniques, during the period when medical education and the actual care and treatment of the sick were institutionally separated in Europe?

Those Muslim physicians who wrote about their discipline emphasized the importance of its practical application and the value of clinical observation to the diagnosis and treatment of disease. For example, the distinguished Persian physician, Abu Bakr Muhammed Ibn Zakariyya al-Razi (died *ca.* 312-13 AH/925 AD), who was resident physician at the *maristan* in his native city of Rayy and physician-in-chief of the great Muqtadiri hospital at Baghdad, extolled the virtues of clinical experience in the training of doctors;[34] and he implied the importance of careful diagnosis to the successful practice of his craft by including a number of "case histories" in his monumental medical encyclopaedia, the *Kitab al-Hawi*, which was a compendium of the works of Greek, Persian, and Arab authors concerning all the diseases known to the eastern Mediterranean world.[35] In

[33] *Naissance de la clinique: une archéologie du regard médical*, 2d ed., Paris, 1972, translated by A.M. Sheridan Smith, New York, 1973, under the English title, *The Birth of the Clinic*. Note the observation of Alexander von Humboldt, "The Arabs have an apt and striking saying, that the best description is one in which the ear is transformed into an eye ... in which the words perceived by the ear become transformed into an image perceived by the eye," quoted by Albert Dietrich, "Islamic Sciences and the Medieval West," *Islam and the Medieval West: Aspects of Intercultural Relations*, ed. Khalil I. Semaan, Albany, New York, 1980, p. 63.

[34] Hamarneh in O'Malley, *op. cit.*, pp. 50-51; W.R. Jones, "Waqf, Maristan and the Clinical Observation of Disease," Proceeding of the First International Conference on Islamic Medicine, *Bulletin of Islamic Medicine*, I, 1981, pp. 230-33.

[35] M. Meyerhof, "Thirty-three Clinical Observations by Rhazes (circa 900 A.D.)," *Isis*, XXIII, 1935, pp. 321-72.

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one famous work he demonstrated the value of the accurate description of symptoms by distinguishing two familiar diseases, smallpox and measles, which were often confused because of the similarity of their symptoms;[36] and so highly regarded were his clinical observations that as late as the sixteenth century some thirty of them circulated in Europe in Latin translation.[37] The virtuosity of al-Razi as a clinical diagnostician implies the importance of the *maristan* in perfecting diagnostic skills. On the other hand, the enthusiasm of Muslim physicians for "bedside teaching" never diminished their confidence in the purely theoretical aspects of medicine. Islamic medical authors were partly responsible for endowing medieval medical science, both Eastern and Western, with the "scholastic" quality which characterized it during most of the premodern period, by combining with the ancient Galenic doctrines of humors, elements, and virtues a great body of astrological and metaphysical lore and organizing this in dialectical form. Further, like their European counterparts, they invariably accommodated their perceptions of the cause and symptoms of disease to the formal explanations of Galenic medical theory. Thus, although it is likely that, on the highest professional level, the structure of the *maristan* encouraged the refinement of the diagnostic skills of Muslim physicians, the precise extent and effects of this enforced clinical experience remain problematical.

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Although the invention of Eastern Christians of late antiquity, the hospital attained its highest organizational development in the medieval Islamic world. The purely secular humanitarian institution represented by the *maristan*, which often combined

[36] Translated into English by William A. Greenhill as *A Treatise on the Small-Pox and Measles, by Abú Becr Mohammed Ibn Zacaríyá Ar-Rází*, Sydenham Society, London, 1847.

[37] Owsei Temkin, "A Medieval Translation of Rhazes' Clinical Observations," *Bulletin of the History of Medicine*, XII, 1942, pp. 102-17. The popularity of his medical textbook in medieval Europe is indicated by its citation under the title, "liber Almansorem," in a late medieval English monastic library catalog; W.R. Jones, "Franciscan Education and Monastic Libraries: Some Documents," *Traditio*, XXX, 1974, p. 440, n. 21.

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medical education with the care and treatment of the sick, contrasted dramatically in organization and purpose with the ecclesiastically dominated and religiously oriented "hospitals" of the Orthodox East and Latin Christian Europe, which, accessible to the poor and the homeless as well as the sick, exemplified in their operation the sacramental thrust of medieval Christianity.

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