

# INNOCENT III AND THE EVOLUTION OF ANATOMY\*

by

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THE FIRST recorded instance of an autopsy in Western Europe is generally believed to be the one found in the chronicle of Fra Salimbene,<sup>1</sup> the peripatetic Franciscan, who described the malady that swept through the cities of Northern Italy during the sad, bleak winter of 1286 in the following passage:<sup>2</sup>

For in Cremona, Parma, Reggio, and in many other cities and dioceses of Italy, there were many deaths among men and hens in a short period of time. And a certain physician had some of these opened up, and he found an abscess in the heart of each hen. There was at the point of the heart of each of the hens, a small vesicle. He also had a dead man opened, and he found the same.<sup>3</sup>

The purpose of the dissection performed by the unnamed Cremonese physician as described by Salimbene was to determine morphologically the origin of epidemic death.<sup>4</sup> Although an inkling of at least one prior procedure similarly motivated has been discovered,<sup>5</sup> subsequent attempts to solve medical problems, and to seek effective

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<sup>1</sup> C. D. O'Malley, 'Pre-Vesalian Anatomy', in *Andreas Vesalius of Brussels*, Berkeley and Los Angeles, University of California Press, 1964, p. 12. For another view of Salimbene's chronicle and of its significance in the history of medicine, see E. Greco, 'Fra Salimbene da Parma—the first post mortem examination of the morbid anatomy, performed in 1286', *Panminerva medica*, 1962, 4: 235-237.

<sup>2</sup> G. G. Coulton, in his *From Saint Francis to Dante*, 2nd ed., New York, Russell & Russell, 1968, pp. 233-235, catalogued and commented on the events of that melancholy year and its effects on Salimbene.

<sup>3</sup> "Nam in Cremona et in Placencia et in Parma et in Regio et in multis aliis Italie civitatibus et dyocesisibus fuit mortalitas maxima tam hominum quam gallinarum. Et in civitate Cremone uni soli mulieri brevi temporis intervallo mortue sunt XLVIII galline. Et quidam medicus phisicus fecit aliquas aperiri et invenit apostema super cor gallinarum. Erat enim in puncta cordis cuiuslibet galline vesicula quedam. Fecit similiter aperiri mortuum hominem quendam et super cor hominis idem invenit," 'Cronica Fratris Salimbene de Adam Ordinis Minorum', ed. Oswald Holder-Egger, *Monumenta Germaniae Historica. Scriptores*, XXXII, Hanover and Leipzig, Impensis Bibliopolii Hahniani, 1905-1913, p. 614.

<sup>4</sup> Walter Artelt, 'Die ältesten Nachrichten über die Sektion menschlicher Leichen im mittelalterlichen Abendland', *Abh. Ges. Med. Naturw.*, Heft 24, (Berlin, 1940), pp. 6-8.

<sup>5</sup> The account of an earlier investigation into pathological anatomy, that of Sigurd Jorsalfar (1090-1130), was found and first cited by Fredrik Grøn in 'Lot Sigurd Jorsalfar en av sine menn obdusere i Bysans?', *Norsk Magazin for Laegevidenskaben*, 1934, 95: 1405-1418. According to the twelfth-century English historian, William of Malmesbury, Sigurd Jorsalfar, the Norwegian king, was returning from Jerusalem via Byzantium. While in that city, many of his entourage died, and as he believed the strength of the wine they had been drinking might have contributed to their deaths,

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treatments of various epidemic diseases through autopsies, are not difficult to find. The dissections undertaken at Perugia in April 1348 to investigate deaths resulting from the outbreak of bubonic plague in that city afford illustrative examples of this fact.<sup>6</sup> The object of those procedures and of the one recorded in Salimbene's chronicle was purely medical, or more precisely, pathologico-anatomical, but even before the Perugian dissections, and earlier than the autopsy reported by Salimbene, post-mortem examinations of a judicial-medical nature had begun to be instituted.

The decretals of Innocent III contain several cases in which such examinations provided the evidential basis for a papal verdict. One of these concerned the chaplain of the monastery of the Holy Trinity at Maloleone, who, having surprised a criminal in the act of stealing religious articles from the abbey chapel, struck the would-be felon with a heavy farm implement. The thief fled, despite his wounds, but was finally overtaken by parishioners who dispatched him with swords and clubs. The chaplain, fearing that the blow he had struck might have caused the death of the culprit even if the additional injuries had not been inflicted, related his story to the abbot, who subsequently submitted the case to the Pope.<sup>7</sup> Innocent declared that according to Canon Law if four or five persons were involved in a fracas during which one man was mortally wounded, the assailant who struck the lethal blow was guilty of homicide. Therefore, in this case, the Pope demanded further expert testimony, and requested that the advice of skilled physicians be sought to determine if the wound inflicted by the chaplain were sufficient to have caused the criminal's death.<sup>8</sup>

Medical evidence was also instrumental in the determination of the case of Siguenza's Bishop Roderic. That prelate, disturbed by the rowdy behaviour of a number of his parishioners during Mass, ordered his canons to restore order about the altar. As their efforts proved to be insufficient to control the throng, he seized a cane and began to drive back the crowd by prodding some persons, and lightly striking others. The canons joined into this turbulent activity, and during the resulting *mêlée*, a young man was struck on the head. For a month thereafter, the injured youth appeared to be perfectly healthy. Eating and drinking normally, he visited taverns and baths, and even engaged in hard field labour. Then, having been advised to submit to an operation upon his injured head, the victim allowed an old, unskilled

he had a pig's liver placed in a sample of the wine. Finding damage in the pig's liver, he ordered the opening of one of his dead followers, and the same changes were found in the liver of the cadaver. For the Latin text of this account taken from Savile's sixteenth-century edition of William's historical writings, see *ibid.*, p. 1406. The Latin text is also cited by G. Wolf-Heidegger and Anna Maria Cetto, *Die anatomische Sektion in bildlicher Darstellung*, Basle, S. Karger, 1967, p. 8, where references to the passage in the Hardy, Migne, and Stubbs editions of William's collected works are given as well. Modern commentary on Jorsalfar's procedure is in E. B. Krumbhaar, 'History of the autopsy and its relation to the development of modern medicine', *Hospitals*, 1938, 12: 69, and Lester S. King and Marjorie C. Meehan, 'A history of the autopsy', *Amer. J. Path.*, 1973, 73: 519.

\* Vincenzo Busacchi, 'Necroscopie trecentesche a scopo anatomo-patologico in Perugia', *Riv. Stor. Med.*, 1965, 9: 160-164, and Anna Montgomery Campbell, *The Black Death and men of learning*, New York, Columbia University Press, 1931, p. 111.

<sup>7</sup> Innocent III, *Regestorum sive epistolarum*, liber duodecimus, pontificatus anno XII, christi, 1209, lix, in *Patrologiae cursus completus*, Series latina, ed. J. P. Migne, CCXVI (Paris, Garnier Freres, 1891), cols. 64-66 (hereafter cited as *P.L.*).

<sup>8</sup> "Et quidem si hoc ita se habet, quod forsan ex eo posset ostendi si certa apparuisset percussio ad eodem inflicta tam modica et tam levis in ea corporis parte in qua quis leviter percuti non solet ad mortem ut peritorum iudicio medicorum talis percussio assereretur non fuisse lethalis . . .", *ibid.*, col. 65.

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physician to cut into both his skull and the flesh of his head. Four days after this operation the young man died, and though four physicians testified that the surgical procedure was ineptly performed, thus causing the youth's death, common talk charged the bishop with having fatally injured the young man with a blow from his cane.<sup>9</sup> As the bishop was forced to refrain by this public outcry from exercising his holy office, an appeal was sent to Innocent, who ordered a careful investigation of all available evidence. The most important testimony received by the pontiff was the sworn statement of two surgeons and one physician avowing that the youth's death resulted from the negligent surgery, rather than from the initial injury. Basing his decision on this medical evidence, the Pope declared Bishop Roderic guiltless, and directed that the verdict of the surgeons and of the physician be publicly proclaimed.<sup>10</sup>

By 1209, when these decretals were written, papal canonists had begun not only to accept, but to seek medical testimony in order to arrive at the determination of the cause of death. Furthermore, during the thirteenth century, and in contrast to earlier Roman legal practices,<sup>11</sup> and to those of the Chinese,<sup>12</sup> papal coroners' inquests admitted as evidence the attestations of physicians and surgeons concerning their post-mortem findings. That these procedures were introduced into civil law as well, can be demonstrated in the case assigned to two surgeons, Maestro Vinciguerra and Maestro Amadore, which Toselli found in the criminal archives of the city of Bologna.

In 1295 in the villa of San Benedetto a certain Benivenne was wounded and died. The names of the two above mentioned surgeons were drawn from a sack by lot, and by order of the mayor they went to that place and exhumed the corpse, and having examined it carefully, found two mortal wounds, one in the dorsal spine, and the other behind the shoulder, and other non-mortal wounds. Don Napoleone, priest and prior of the church of Zolla, was examined and when questioned what he knew about the death of Benivenne replied that he had seen him dead in the Sabbath and saw that he had a wound by a lance or knife and also had seen Mazerato above the throat and on the chest. [*Et vidit ipsum Mazeratum super gulam et super pectore personae.*]<sup>13</sup>

Given these historical and legal precedents, it is scarcely surprising to discover that the fundamental motive underlying the first recorded public dissection since the

<sup>9</sup> "Post tricemum vero diem ad suggestionem quorundam, te quidem inscio et ignaro, quidam medicus imperitus et senex carnem capitis ejus et testam secuit indiscrete licet nullum percussione signum in capite apparet. Quem in sectione illa quatuor supervenientes medici errasse dixerunt, asserentes hujusmodi sectionem inducere causam mortis", Innocent III, op. cit., cxxxviii, in P.L., CCXVI, col. 161.

<sup>10</sup> "Duo vero chirurgici et unus physicus jurari dixerunt quod non ex percussione sed indiscreta incisione obierat juvenis memoratus", ibid., col. 162.

<sup>11</sup> On this point, see Gerhard Wolff, 'Leichen-Besichtigung und Untersuchung bis zur Carolina als Vorstufe gerichtlicher Sektion', *Janus*, 1938, 42: 252, and A. Pazzini, 'Ancora sulla possibilità o meno di autopsie umane in Roma antica', *Riv. Stor. Med.*, 1971, 15: 131-150.

<sup>12</sup> Olaf K. Skinsnes, 'Postmortem examination and inquest in Old China', *Arch. Path.*, 1962, 74: 304-312.

<sup>13</sup> "Nel 1295 nella Villa di s. Benedette venne ferito e morto certo Bencivenne. Furono estratti dal sacchetto i due sopranotati medici che per ordine del Podestà andarono in quella terra, e fecero dissotterrare il cadavere, ed esaminatolo diligentemente trovarono due ferite mortali, una nella spina dorsale, l'altra dopo le spalle, ed altre ferite non mortali. Venne esaminato Don Napoleone Prete, e Priore della Chiesa di Zolla che interrogato su di ciò ch'egli sapeva su la morte del Bencivenne rispose: che lo vide morto il giorno di sabbato e vide ch'egli aveva una ferita di lancia, o coltello, e lo vide Mazerato sopra la gola e sul petto. Et vidit ipsum Mazeratum super gulam et super pectore personae." Ottavio Mazzoni Toselli, *Racconti storici estratti dall' Archivio criminale di Bologna*, III, Bologna, 1870, p. 42, as cited in Artelt, op. cit., note 4 above, p. 16.

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Alexandrine era was forensic. Nor is it unexpected to find that the locus of that dissection was Bologna, the university city famous for its legal faculty since the middle of the twelfth century, where Innocent III, prior to his election, and most eminent medieval decretists, both before and after his pontificate, had received their legal training.<sup>14</sup>

The first recorded case of a medico-judicial dissection, that of the unfortunate Azzolino, which was conducted at Bologna in February 1302,<sup>15</sup> may be viewed therefore as representing not a break with tradition, but the outgrowth of a burgeoning development whose roots were firmly imbedded in both Canon and Civil law. By encouraging a shift of vision, Innocent III and other decretists sponsored a process with far-reaching consequences for the evolution of anatomy and of the other biological sciences. Though the growing legalism of the Church may have been deplored and satirized by twelfth-century humanists,<sup>16</sup> one of its consequences, the decretal spirit of inquiry, supplied the impetus necessary to initiate the study of human anatomy nurtured thereafter in the university, a distinctive product of Western Europe.

If, as Ernest Wickersheimer argued, the actual renaissance of anatomy began in the first quarter of the fourteenth century,<sup>17</sup> then the supervisory midwife attending that birth was neither medicine, nor surgery, but law. Recently, a scholar has suggested that law not only provided the most basic constitutive element of the scholastic method, but has become its heir.<sup>18</sup> Similarly, the debt that medicine owes to law for stimulating the study of human anatomy has been returned a hundred-fold in the contributions made by medical researchers to the development of scientific post-mortem examinations. In most of the Western world, the establishment of cause of death has become essentially the province of the modern physician. That it was not always the case is demonstrable,<sup>19</sup> as is the role played by Innocent III in effecting this end.

### SUMMARY

Medical historians have long agreed that the fundamental motive for the initiation of academic dissections in Western Europe was forensic. The first known recorded

<sup>14</sup> Although the origins of the *Studium* at Bologna antedate the twelfth century, its fame as a centre for the study of Roman law is generally linked to the discovery during the second half of the eleventh century of parts of the *Corpus juris civilis*, and of the compilation by Gratian of his *Concordia discordantium canonum*. This monumental work, ordinarily called the *Decretum* appeared between 1140 and 1145. The development of the study of Roman law and its effect on Canon law at Bologna was sketched by A. Nogara in his 'La scuola bolognese dei Decretisti', *Studi e memorie per la storia dell' Università di Bologna*, 1944, 17: pp. 1-147. A short but accurate account of the studies in Bologna of Lotario, count of Segni, later Innocent III, see Helene Tillmann's chapter, 'Lothar von Segni', in her *Papst Innocenz III*, Bonn, L. Röhrscheid, 1954, pp. 1-15.

<sup>15</sup> For the text describing that event, see Artelt, *op. cit.*, note 4 above, p. 17.

<sup>16</sup> Colin Morris, *The discovery of the individual*, London, Harper & Row, 1972, pp. 124-125.

<sup>17</sup> Ernest Wickersheimer, 'L'anatomie au Moyen Age', *Progrès médical*, 1928, 26: 1087-1095.

<sup>18</sup> George Makdisi, 'The scholastic method in medieval education: an inquiry into its origins in law and theology', *Speculum*, 1974, 49: 640-661.

<sup>19</sup> See for example Thomas R. Forbes' 'London coroner's inquests for 1590', *J. Hist. Med.*, 1973, 28: 376-386, a study of thirty-five inquests held in London from May to November 1590 in none of which is the advice of a physician or surgeon called for, and where death resulting from illness was attributed to "the visitation of God".

public dissection since the Alexandrine era was a post-mortem examination conducted to determine cause of death for legal purposes. This paper seeks to find precedents for that procedure in the decretals of Innocent III. A spirit of inquiry is discernible in those legal documents which helped to supply the impetus necessary to inaugurate the acceptance of scientific post-mortem examinations from which academic dissections, and ultimately the modern study of human anatomy evolved.

## JAMES LIND AND THE PREVENTION OF SCURVY

*by*

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A FALSE PREMISE is irrelevant, if the cure arrived at works. Lind used the scientific method to find a cure for scurvy and nothing can detract from that.<sup>1</sup>

Before Lind there was a great variety of alleged cures—some genuine, some possible but not probable and a number (probably the majority) either ineffective or dangerous. Hughes<sup>2</sup> implies that Lind was lucky in that one (and only one) of his six tested remedies contained vitamin C. But it is evident from Lind's other writings and actions that he was, like Pasteur, an observer who also analysed. Unlike some scientists in later controversies he put his observations into practice without superfluous theory. Thus his conclusions about typhus led him to segregate, cleanse and reclothe new crew.<sup>3</sup> His observations on malaria led him to suggest that soldiers be billeted in hulks moored offshore;<sup>3</sup> a measure which, if taken, could have saved thousands of lives in later wars.

Why should we presume that Lind selected his remedies empirically from those favoured by ships' surgeons? Why should he have cluttered his book with the reasons for choosing these six? If he had tested six of Wesley's remedies,<sup>4</sup> he would have had one success at the very least, and almost certainly more, because of the eleven remedies, only five do not contain antiscorbutics.

It would seem logical to conclude that Lind devised his experiments to compare two possible cures for scurvy with four supposed cures for which he had previously seen no effectiveness. Such experiments would give him a controlled clinical trial in which if two or possibly four men recovered, they would be contrasted with at least eight who had not recovered and were still scorbutic. As all twelve were on the same basic diet, any improvement would be due to the curative properties of the individual remedy alone. The weakness of all previous remedies was that they were anecdotal and, not being controlled, the cures might have been coincidental.<sup>5,6</sup>

Lind was thus able to show clearly their curative properties—but not to distinguish between those of oranges and lemons—and the beneficial properties of cider. A

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