

# Gesturing in the Early Universities

CORNELIUS O'BOYLE (\*)

## SUMMARY

1.—Towards a theory of gestures. 2.—The medieval theory of gestures. 3.—The origins of formal gesticulations. 4.—Classroom gestures.

## ABSTRACT

Research into the oral and literary traditions of scholastic education usually emphasizes the significance of the word in late medieval pedagogy. This paper suggests that coded hand signals provided early university scholars with an important non-verbal means of communication too. Using illustrations of classroom scenes from early university manuscripts, this paper analyzes the artistic conventions for representing gestures that these images embody. By building up a typology of these gesticulations, it demonstrates that the producers of these images and their audience shared a perception of scholastic education that embraced a sophisticated understanding of the activities associated with university education.

BIBLID [0211-9536(2000) 20; 249-281]

Fecha de aceptación: 5 de julio de 1998

*«...First, Panurge yawned extravagantly, then as he yawned held his right hand in front of his mouth and over and over, with his thumb, shaped the Greek letter tau, or T. Then he lifted his eyes to heaven and rolled them like a she-goat in labour, coughing and sighing deeply. Then, pointing to where his codpiece should have been, but wasn't, he grabbed his penis and rattled it melodically around between his thighs. Then he bent his left knee and bowed, holding that posture, his arms folded across his chest.*

---

(\*) Lecturer in the History of Medicine. The Wellcome Institute for the History of Medicine. 183 Euston Road. London NW1 2BE. United Kingdom.

*Goatnose watched him attentively, then raised his left hand and clenched it, except for the thumb and index finger, which he joined nail to nail. "I understand", said Pantagruel. "I know just what he means by this sign. It means marriage..." » (1).*

Thus do Rabelais' famous comic characters investigate the possibility that wisdom can be communicated using «signs and gestures, but no words». Although exaggerated for effect, the episode is humorous precisely because we are aware that gestures do in fact play an important role in our attempts to communicate with one another. These gestures come in all varieties. Some are voluntary, such as a bow or a curtsy or a wink, whereas others can be quite involuntary symptomatic expressions, such as a frown or a laugh or a smile. Some appear to be natural and common to all people, such as the habit of pointing to indicate something. Others are conventional and specific to particular societies, such as the diverse signs of insult that form identifiable repertoires of gestures in each culture. Some are intended to accompany the spoken word, such as a handshake, while others are completely understandable without any other supporting means of communication, such as a salute or a genuflection. Though they may take many particular forms, however, gestures are always expressive bodily movements that exemplify, or magnify, or modify a particular thought or feeling (2).

The part that gestures play in human communication has been extensively explored with respect to their anthropological and psychological significance (3). Less work has been done, however, on the role of

- 
- (1) RABELAIS, François. *Gargantua and Pantagruel*, [translated by Burton Raffel], London, W. W. Norton & Company, 1990, [book 3, chapter 20], pp. 294-295.
  - (2) The range and importance of gestures is discussed in THOMAS, Keith. Introduction. In: Jan Bremmer; Herman Roodenburg (eds.), *A Cultural History of Gesture from Antiquity to the Present*, Cambridge, Polity Press, 1993, pp. 1-14.
  - (3) For a brief survey of the relevant literature see the bibliography given in BREMMER; ROODENBURG, note 2, pp. 253-260, esp. pp. 259-260. The study of gestures as part of human behaviour has been popularized in works such as MORRIS, Desmond. *The Naked Ape: A Zoologist's Study of the Human Animal*, London, Jonathan Cape, 1967, and his *Manwatching: A Field Guide to Human Behaviour*, London, Jonathan Cape, 1977.

gestures in history, either in terms of what they might tell us about social structures and cultural traditions in the past or what they might reveal about how people communicated with one another (4). Certainly, some work has been done on decoding sign languages that were used by particular social groups in certain circumstances. In the courtly life of the eighteenth century, for example, ladies gestured with their fans to communicate with their swains in situations where spoken language was impossible or forbidden. For instance, a lady might gesture to her lover with her fan to indicate to him that «the coast is clear—come to me» or maybe «go away—my husband is near at hand». But so far, nobody has examined the role that gestures played in the transmission of knowledge, particularly in the context of classroom teaching (5). This is the topic that this paper seeks to open up, at least in a preliminary way, as an important yet hitherto unexplored avenue of research in early university education.

A notable feature of research into the early universities is that it usually pays close attention to the oral and literary traditions that underpinned scholastic education. By focusing exclusively upon these logocentric traditions, however, the significance of the word (whether written or spoken) in late medieval pedagogy has often been over-emphasized. In this essay I wish to correct this perspective by investigating the use of gestures in early university education as a non-verbal means of communication. In claiming that gestures are an important object of enquiry for historians of the early universities, I assume that the transmission of knowledge in the classroom was one of the primary aims of this education, and that to understand this activity we must be able to interpret the performative gestures that were associated with it. To substantiate this claim we shall begin by outlining a theoretical framework for understanding gestures, and then, we shall survey the European tradition of gesture theory down to the fifteenth century. Having identified the general significance of gestures in late medieval society, the essay

---

(4) A brief survey of works on the history of gestures is given in the bibliography in BREMMER; ROODENBURG, note 2, pp. 253-260, at pp. 254-259.

(5) But see SCHMITT, Jean-Claude. *La raison des gestes dans l'Occident médiévale*, Paris, Gallimard, 1990, pp. 200-205.

then seeks to demonstrate that a sophisticated system of coded hand signals was employed by scholars in the early universities as an important means of communicating the technical information that constituted the material of early university education.

### 1. *TOWARDS A THEORY OF GESTURES*

In the broadest terms, a gesture may be defined as any movement of the body or posture that expresses an emotion or conveys a message to the observer. Gestures are usually performed to somebody (either to God in private prayer or to other people) in order to re-enforce or refine the signal implied by an activity such as speaking, listening, understanding, agreeing or dissenting (6). Taken together, they constitute a language which, though distinct, is closely related in many ways to written and spoken language. It is noticeable, for instance, that gesture language bears the same rudimentary structure as any other written or verbal language in that a gesture, like any other linguistic expression, is either conventional, or demonstrative, or iconographic. A gesture may be conventional in that, like an idiomatic expression, its meaning may be culturally specific. Like idiomatic expressions, these gestures are often untranslatable so that it is almost impossible to put them into other words (or gestures) without losing something of their original meaning. A gesture may be demonstrative in that its function is primarily indexical; in other words, the gesture is intended to point out something. The most obvious example of this is when we actually point to an object with our index finger and simultaneously say, «That is an X», or «This Y», or «It was Z». A gesture may also be iconographic in the sense that it seeks to represent the thing being discussed. An example of this is our manner of gesticulating when we try to describe a spiral staircase or a globe. Many of the earliest written languages, such hieroglyphics or

---

(6) We are limiting our analysis here to gestures. This is not to deny that even when the body is in complete repose, it can give off messages as clear as any signal associated with bodily movement. Indeed, there is no attribute to the human body, whether its size, shape, height or colour, which does not convey some meaning to the observer.

Chinese characters, are similarly pictographic in the sense that the inscribed figure was originally a visual representation of a thing or a syllable or a sound, but over time, the figure has become stylised until the character is now completely iconic. Similarly, most of the conventional gestures we use today probably had their origins in pictographic gestures (7). Indeed, the similarities are so striking that some people now believe that all written languages have their roots in the language of gestures.

Gesture language and speech are also similar in the way they are learned. Just as native speakers learn their mother tongue conventionally, that is, they learn by uttering the appropriate responses in particular situations (and not by studying primers or memorizing vocabulary), so gestures are also learned conditionally, that is, they are learned as conditioned responses in certain circumstances. Moreover, the stages by which we learn these languages are the same. In speech, we learn the more complex structures of our native language by building upon the simple structures we learn first. The simplest of these is the naming of things that we learn by having them shown to us. Interestingly, this introduction to speech is usually done by means of a particular gesture known as ostension in which an object is pointed out to us and simultaneously named. We learn gestures in much the same way. Beginning with simple gestures such as ostension, through imitation and use we gradually build up a complex and sophisticated repertoire of bodily movements as a means of conveying our thoughts and feelings. The fact that we learn our gestures in this conventional fashion may explain why there are so few written sources on the subject, which in turn may explain why historians have, by and large, ignored the history of gestures (8).

---

(7) Hence, the reason often given for greeting strangers by shaking right hands is that by doing so one reveals that nothing is being concealed in the hand used for wielding weapons. But see BÄUML, Betty J.; BÄUML, Franz H. *Dictionary of Worldwide Gestures*, 2nd edition, London, Scarecrow Press, 1997, pp. 285-289, for a more detailed examination of the matter.

(8) There may, however, be more documentary evidence than we had hitherto imagined. For instance, a sketch of *Eight Studies of a Hand* originating in mid-fifteenth-century Florence was once taken to be little more than an artist's practice of drawing what is usually considered to be one of the more difficult parts of human anatomy to represent naturalistically. Now, however, we know that they are an

Gesture language and speech are also closely related in the way they are used. As we have already noted, gestures can be used to re-enforce the message of the spoken word. In this capacity, gestures play a supporting rhetorical function in verbal communication. But in addition to this supplementary role, gestures and words can also be related in a more intimate way such that, together, they form a sort of mixed language. This is especially the case where gestures are needed to clear up the ambiguities of verbal language. Probably the simplest example of this is a situation in which an ostensive gesture is required to disambiguate demonstrative pronouns. For example, in some cases the utterance «He did it!» must be accompanied by a gesture that points out the individual in question so that there is no confusion as to who the «he» is to which the pronoun refers.

So far, we have discussed the role of gestures in communication; but gestures may also have non-communicative functions as well. For instance, modern psychological research suggests that we gesture as we talk even though our gestures can't be seen (for example, when we speak to somebody on the telephone) because bodily movements help the brain store and recall memories and thus aid the process of thinking (9). This suggests that gestures may help to fix ideas and notions in the mind in much the same way as graphs, pictures, charts and models are used to represent (literally: re-present) complex data to the mind in a vivid and memorable fashion.

Gestures also play an important function in managing the relationships between individuals and groups in society. In a general sense, they characterize the sort of behaviour of an individual that a society finds

---

artist's depiction of eight distinctive hand gestures, each with its own particular rhetorical use and meaning. The sketches are reproduced in BAXANDALL, Michael. *Painting and Experience in Fifteenth Century Italy: A Primer in the Social History of Pictorial Style*, Oxford, Clarendon Press, 1972, plate 28. The meanings of these gesticulations are explained below.

- (9) Experimental research shows that people who are blind from birth (and who therefore could not have learned their gestures by seeing and copying them, and would be unlikely to give visual cues when they communicate) still gesture when they speak, even though they deny they do so. The implication is that the gesture serves some function other than communication.

meaningful and socially acceptable. Moreover, gestures are an important means of social differentiation in that individuals and groups in society make use of distinctive bodily comportment to distinguish themselves. As public expressions of certain values and beliefs, these gestures are often the most immediate outward signs of the hierarchies and groupings that constitute social relations. Today, the gestures of bowing, curtsying, saluting, and even ring kissing, still express hierarchical relationships within certain social groups. Similarly, in the Middle Ages, monks, knights, merchants and scholars constituted distinct gestural communities insofar as each group had its own clearly defined ranks and orders which were denoted by specific gestures (10). These gestural characteristics were often represented with such care in medieval manuscript illuminations that it is the bodily posture as much as anything else (such as clothing or other accoutrements) that reveals whether an individual is praying, fighting, discussing or engaging in commerce (11). Furthermore, it is the gesturing between the characters who inhabit these illuminations that makes clear who is the superior in terms of the hierarchical relationships between them (12). These illustrations suggest that in the Middle Ages,

- 
- (10) SCHMITT, Jean-Claude. The Rationale of Gestures in the West: Third to Thirteenth Centuries. In: Bremmer; Roodenburg, note 2, pp. 59-70, at p. 61.
- (11) The typical gestures of various social groups were depicted in the cycle of images designed to accompany Nicole Oresme's translation of Aristotle's *Politics*. Examples of these illustrations (from a manuscript in private French ownership and from Brussels, Bibliothèque Royale Albert 1er, MS 11201-02) are reproduced in SHERMAN, Claire Richter. *Imaging Aristotle: Verbal and Visual Representation in Fourteenth-Century France*, Berkeley, CA, University of California Press, 1995, pp. 222-223 and 254-255. Similar illustrations for this text were also produced by the fourteenth-century Parisian illuminator Pierre Remiet. These now survive in Paris, Bibliothèque nationale, MS fr. 9106, fols 243v and 244r, and are reproduced in CAMILLE, Michael. *Master of Death: The Lifeless Art of Pierre Remiet, Illuminator*, New Haven, CT, Yale University Press, 1996, pp. 110-111, figs. 64 and 65.
- (12) For instance, in medieval illustrations of the mass the celebrant is usually distinguished from the attendant deacons and acolytes by his posture. See, for example, the Boucicaut Master's early fifteenth-century depiction of the act of consecration in London, British Library, Add., MS 16997, fol. 145r [reproduced in PÄCHT, Otto. *Book Illumination in the Middle Ages: An Introduction*, preface by Jonathan J. G. Alexander, translated by Harvey Miller, Oxford, Oxford University Press, 1986, p. 198, fig. 207].

as much as for today, gestures played an important social function in serving a deeply felt individual need for self-identification and belonging.

Gestures also form an intrinsic part of the ritual life of society in which authority and belief is expressed as effectively in the combination of words and movement as in written records. Indeed, the mixed language of utterances and gestures was probably the most effective expression of power in the Middle Ages when few people could read or write (13). Such expressions of power can be made solely by means of a gesture, such as a religious blessing or the laying-on of hands as an invocation of the Holy Spirit. They can also be made by means of formulaic utterances accompanied by the appropriate gesture. Thus, the priest utters the words of institution as he bows and genuflects before the altar during the consecration at mass. Expressions of power can also be embodied in symbolic objects associated with certain bodily movements. Thus, the act of consecration is made manifest at the elevation of the host by the priest, and a man is declared a knight when the monarch dubs him with a sword. Formal gestures of this sort help to publicize political and religious power, while at the same time conveying legitimacy upon the actor. In these ways, gestures fulfil a crucial ideological function in society.

## 2. *THE MEDIEVAL THEORY OF GESTURES*

Though gestures were as important in the Middle Ages as they are today, their meaning was explained in different ways. The medieval theory of gestures was based upon an understanding of the relationship between the body and soul that went back to antiquity. Underpinning this theory was the belief that the human body was composed of an invisible inside and a visible outside linked in a dynamic relationship in which gestures were the outward expression of the secret movements of the soul within. External bodily behaviour thus laid bare the inner life of the soul. The relationship between body and soul also had an ethical

---

(13) SCHMITT, note 10, pp. 59-60.

*DYNAMIS. Acta Hisp. Med. Sci. Hist. Illus.* 2000, 20, 249-281.



dimension to it that manifested itself in certain sorts of gestures. Signs of bodily control were seen as indications of a desirable internal harmony and a superiority of the mind over body. On the one hand, the body, as the prisoner of the soul, might be given to extreme gestures that transgressed ethical limits and thus threatened the inner life of the soul. On the other hand, gestures of penance and piety were expressions of the fact that the body could be used positively to improve the soul (14). In the Christian culture of the Middle Ages, this theory provided the justification for a dramatic elaboration of the use of gestures in all forms of religious practices, from the individual activity of praying to the great rituals of state functions.

The hand signals used in the early universities which we are interested in here, however, were based upon a rather different, though related, tradition of gesturing that also goes back to antiquity. The origins of this sign language are more readily apparent when we remember that these gestures are more properly characterized as gesticulations. A gesticulation, as opposed to a gesture, is a more or less elaborate movement of arms, hands and fingers that simultaneously accompanies speech. When used as a formal code of signs which are intended to amplify, modify, affirm or subvert their related utterance, gesticulations form an integral part of the act of verbal communication.

### 3. *THE ORIGINS OF FORMAL GESTICULATIONS*

The origins of these formal codes of gesticulation appear to lie in the classical art of rhetoric. According to ancient Roman rhetorical theory, training was given not only in the invention, composition and style of speech, but also in its delivery, which included the appropriate gestures (15). For example, Cicero talks of the language of the body and its eloquence, by which he means the entire delivery of speech, both the voice (as the emanation of the body) and the bodily movement

---

(14) SCHMITT, note 10, pp. 60-61 and 64-67.

(15) GRAF, Fritz. *Gestures and Conventions: The Gestures of Roman Actors and Orators*. In: Bremmer; Roodenburg, note 2, pp. 36-58, at p. 37.

that accompanies it (16). Gesture, for him, included posture, or the static way of presenting oneself, and gesticulation, the dynamic way (17).

More detail on the classical theory of gesture is given in the *Institutio oratoria* of Quintilian, the first public teacher of rhetoric in Rome during the first century AD. In the eleventh book of this work (chapter 3, paragraphs 65-197), Quintilian explains how to memorize one's speech and how to deliver it (18). He praises the use of gesticulations that naturally proceed from us, such as the indexical gesture of pointing to the objects of words or gestures that diagram the logical and emotional structure of what is said (19). But he is careful to distinguish between the gesticulations of the orator, which are learned, and those spontaneous gestures of everyday life, which he considers coarse and vulgar. Moreover, he is especially keen to distinguish between rhetorical and theatrical gestures, for it appears to have been a cardinal sin for classical orators to appear as actors mimicking what was being spoken about. Quintilian does concede, however, that it might sometimes be useful for young boys to have lessons in enunciation and gesticulation from an actor and training in bodily movements from a gym instructor (20).

In classical oration, gesturing—like rhetoric itself—had two goals. The first was to persuade and move the audience by a direct appeal to the emotions rather than the reason. In this context, gestures were intended to underline and amplify the message of language by stressing its emotional and non-rational elements. By using gestures, the orator sought to demonstrate his own emotions, which in turn were designed to excite similar emotions in the audience (21). The second goal was for the orator to recommend himself to his audience by creating a favourable impression through outward signs. In this regard, specific gestures were adopted so that the orator would appear as the ideal young Roman aristocrat. Together with his clothes and his general

---

(16) Cicero, *De oratore*, 3.222 and *Orator*, 55, mentioned in GRAF, note 15, p. 37.

(17) Cicero, *De oratore*, 1.125, mentioned in GRAF, note 15, p. 37.

(18) GRAF, note 15, pp. 37-48.

(19) GRAF, note 15, pp. 38-39.

(20) GRAF, note 15, pp. 39-40.

(21) GRAF, note 15, pp. 40-41.

demeanour, the orator's movements were supposed to bespeak a strong, powerful and manly eloquence. Gesticulations of the hand helped to convey the appropriate emotion, while the posture of the body helped to give the right image of social bearing as an upright man. All wild or exaggerated gestures were forbidden. Instead, gesticulations were to be limited in amplitude, the hand never rising above the eyes nor falling below the chest, and never moving further than the shoulders. Such moderation in gestures was, in Roman opinion, a characteristic of freeborn men, expressing moderation and self-control (22).

Some gestures in classical rhetoric were iconographic in that they were used to picture the natural feelings involved. For example, pressing the fist to the breast as sign of remorse or anger clearly linked the clenched fist of aggression to the heart as the seat of emotion. Most gestures, however, especially those of the hand, were purely conventional. Some of these related to individual words or sentences; others emphasized the general emotional force of the speech; and others were used to delineate the structural elements of the speech. The main divisions of speech were expressed in the following manner. By placing the forefinger and thumb together and moving the arm slightly and slowly, the orator announced his introduction (*exordium*). By moving the same hand gesture more firmly, he indicated that he was beginning his statement of the facts (*narratio*). And by moving the same gesture even more aggressively, he could signal that he was commencing his arguments for and against the case (*argumentatio*). Permutations existed, so that curling the third and fourth fingers under the thumb, or tucking the third, fourth and fifth fingers under the thumb with the index finger out-stretched provided more forceful signs. Indeed, by using this last hand signal to point downwards, an orator could indicate his insistence on the matter. A crescendo of gestures could thus be employed to underline the intensity of speech (23).

Although the sign language developed by university scholars drew upon some of these hand gesticulations, it did not make use of the

---

(22) GRAF, note 15, pp. 44-47.

(23) GRAF, note 15, pp. 41-43.

more mannered bodily postures of classical rhetoric, probably because it was not intended to serve the same goal of arousing the emotions of an audience. A more immediate source for university men was the system of gestures developed in Christianity.

In Western Europe, from at least the time of St Augustine onwards, gestures were regarded as conventional signs that made communication possible between all things, especially God and humankind. In Church rituals, especially, they served to express those deeper mysteries of faith that could not be expressed fully in words. From the ninth century onwards, increasingly detailed codifications of gestures were included in liturgical *ordines*. The monastic reforms of the twelfth century also encouraged new uses of gesture. Religious communities developed new penitential gestures as part of their prayer and liturgy; the Cistercians developed new sign languages for use during their quiet hours; and Benedictine customaries outlined the proper gesticulatory behaviour of novices and oblates. For example, one Benedictine *ordo* gives the following list of gestures: «Affirmation: lift your arm gently... so the back of your hand faces the beholder. Demonstration: a thing one has seen may be noted by opening the palm of the hand in its direction. Grief: press the breast with the palm of the hand. Shame: cover the eyes with the fingers» (24).

In his *Institutio novitiorum*, Hugh of St Victor outlined an entire theory of gesture. For him, gestures were expressions of the movement of the soul that comprised a symbolic image of the body in the eyes of God. He provided a classification of gestures in terms of contraries, showing how virtuous gestures occupied the middle ground between gestures expressing opposite vices (25). It was at this time also that kneeling became the most characteristic gesture of Christian prayer. For example, the theologian Peter the Chanter lists seven modes of prayer (26), each one provided with its own illustration; and the anonymous

---

(24) As quoted in BAXANDALL, note 8, p. 61.

(25) SCHMITT, note 5, pp. 174-200.

(26) TREXLER, Richard C. *The Christian at Prayer. An Illustrated Prayer Manual Attributed to Peter the Chanter (d. 1197)*, Binghamton, NY, [Medieval & Renaissance Texts & Studies, 44], 1987, esp. «Part 2: The Pictures», pp. 133-163.

*Nine Modes of Prayer of Saint Dominic* provides a series of descriptions and images, telling people how to behave and appear during prayer (27).

From the thirteenth century onwards, preachers' manuals emphasize the importance of gestures as the stylized expression of feelings. For example, the popular late fifteenth-century manual entitled *The Mirror of the World* advises that «when speaking of a solemn matter, stand upright, move the body very little and point with the forefinger; when speaking of a cruel matter, clench the fist and shake the arm; when speaking of heavenly or Godly things, look up and point to the sky; when speaking of gentle, mild or humble things, lay your hands upon your breast; when speaking of holy matters of devotion, hold up your hands» (28). The clergy, of course, were not the only people in the later Middle Ages to use gestures. Lay guides to proper behaviour also give advice on bodily comportment. For example, the fifteenth-century maiden's handbook *Decor puellarum* warns young girls that «whether you are standing or walking, your right hand must always rest on your left, in front of you, on the level of your girdle» (29).

Clearly, medieval society was sensitive to the importance of gestures in communication and self-presentation. But however rich the documentary evidence for these sorts of gestures may be, it does not tell us anything specific about the system of signs used in the early universities. Indeed, the conventional way in which classroom gestures were probably learned by scholars would seem to preclude the existence of documentary evidence for their use. In the absence of relevant literary sources, then, we need to pay more attention to indirect evidence for classroom gestures. For these purposes, the representations of classroom scenes in illuminations from university manuscripts can be quite revealing.

---

(27) SCHMITT, Jean-Claude. Between Text and Image: The Prayer Gestures of Saint Dominic. *History and Anthropology*, 1984, 1, 127-62; TUGWELL, Simon. The Nine Ways of Prayer of St Dominic: A Textual Study and Critical Edition. *Mediaeval Studies*, 1985, 45, 1-124; and HOOD, William. Saint Dominic's Manners of Praying: Gestures in Fra Angelico's Cell Frescos at S. Marco. *The Art Bulletin*, 1986, 68, 195-206.

(28) As quoted in BAXANDALL, note 8, p. 65.

(29) As quoted in BAXANDALL, note 8, pp. 69-70.

There are, of course, dangers in making direct inferences about early university teaching practice from artistic representations of teaching scenes (30). We must always bear in mind that these images were not the product of scholars themselves, but of artists who probably had very little personal experience of a classroom, who worked instead within the traditional iconographic conventions of late medieval representation. Images produced within these conventions were rarely intended as naturalistic depictions. Rather, they were chosen to serve a range of functions. At one level, they serve to beautify and articulate the page surface, but at another, they may represent in metaphorical or idealized ways the meaning of the text. They may also be used to impress vivid images on the mind of the reader (31), or they may even provide humorous commentaries on the text (32). Illustrations can thus serve to re-enforce, or maybe even subvert, the message of a text in a variety of non-literary ways.

If medieval images really are so complex, then a thorough investigation of illuminations containing classroom scenes would be needed before any definite inferences could be made from them regarding the nature of teaching in the early universities. Such a project would involve, in the first place, isolating the pictorial sources of these illuminations and then explaining how they were designed and manufactured (33). It

---

(30) The problem of reconstructing medieval gestures is discussed in SCHMITT, note 10, pp. 62-64.

(31) See PARK, Katharine. Impressed Images: Reproducing Wonder. *In*: Caroline A. Jones; Peter Galison (eds.), *Picturing Science, Producing Art*, New York, Routledge, 1998, pp. 254-271.

(32) Michael Camille points out that even drolleries and buffooneries can have a serious meaning to them as well: CAMILLE, Michael. *Image on the Edge: The Margins of Medieval Art*, London, Reaktion Press, 1992. Classroom drolleries illustrating schools of apes appear in Cambridge, Fitzwilliam Museum, MS 298, fol. 76v; London, British Library, Stowe, MS 17, fol. 109r; and Paris, Bibliothèque nationale, MS fr. 95, fol. 355r [reproduced in RANDALL, Lilian M. C. *Images in the Margins of Gothic Manuscripts*, Berkeley, CA, University of California Press, 1966, nos. 634-636].

(33) For the production of medieval illuminations see ALEXANDER, Jonathan J. G. *Medieval Illuminators and their Methods of Work*, New Haven, CT, Yale University Press, 1992, esp. chapters 2 and 3. For the techniques of illumination see DE

would also require an examination of the didactic function that these illuminations served for their audience (34). We would want to know how much background knowledge is presupposed by these illustrations and how much information they convey (35). This would lead to an investigation of how images relate to the text they accompany. We would want to know whether the text affects the placement, size and content of illustrations, and whether the rhetorical strategies of the text have any visual analogues in the images (36). We would also want to understand how the calligraphic and decorative aspects of the illustrations and the text itself combine to organize the reader's understanding of the work and affect the reader's cognitive processes (37). This would lead to an investigation of how the placement of illustrations at the beginning of each major division of the text helps the reader to navigate the book and serves as an index to its content (38). We might also want to investigate the possibility that these images provide visual cues and handy mnemonic devices that serve as memory aids and guides to structuring our knowledge of the material.

- 
- HAMEL, Christopher. *Medieval Craftsmen: Scribes and Illuminators*, London: British Museum Press, 1992, pp. 45-65. For the audiences of illuminated books see DE HAMEL, Christopher. *A History of Illuminated Manuscripts*, Oxford, Phaidon, 1986.
- (34) For the tradition of manuscript illumination see PÄCHT, note 12, esp. chapter 4 where the didactic function of illuminations is discussed.
- (35) See, for example, the illuminations reproduced in MacKINNEY, Loren. *Medical Illustrations in Medieval Manuscripts*, London, Wellcome Historical Medical Library, 1965. These illustrations represent various illnesses, medical procedures and medicinal remedies.
- (36) See PÄCHT, note 12, introduction and chapters 1-3.
- (37) For example, illustrations of the author can help to fix in the reader's mind certain pertinent features about the individual. For instance, it was as a result of a mistranslation from Arabic into Latin that Avicenna was called a prince or king (*Princeps Avicenna*) and was thus frequently represented with a crown and sceptre and sometimes even a turban. HASSE, Dag Nikolaus. King Avicenna: The Iconographic Consequences of a Mistranslation. *Journal of the Warburg and Courtauld Institutes*, 1997, 60, 230-43.
- (38) For an example of the use of pictograms in English Exchequer documents see KERBY-FULTON, Kathryn; JUSTICE, Steven. Reformist Intellectual Culture in the English and Irish Civil Service: *The Modus tenendi parliamentum* and its Literary Relations. *Traditio*, 1998, 53, 149-202, at pp. 186-90 and plates 1-3.

Such an investigation of teaching scenes would certainly be worthwhile, but is well beyond the scope of this essay. Even so, some provisional inferences can still be drawn from classroom illustrations, at least with respect to the importance of gesticulations in early university teaching, so long as we remember that we are analyzing the artistic conventions they embody. This is true, of course, because all medieval illuminations should be understood, in the first instance, as works of art.

Medieval art is distinctively anthropomorphic in character in that God, the devil, angels, and other supernatural beings are frequently rendered in human form. It therefore contains numerous images of the human body displaying all sorts of gestures, which have provided art historians with an invaluable source for studying the symbolic meaning of deportment (39). Their research has shown that the effective unit of narration in medieval art was the human figure, not only its physiognomy but also the way that it moved and expressed itself. Certainly, the well-known physical characteristics of some individuals were depicted by artists as a means of distinguishing them. Thus, Christ and Mary are usually given fairly standard representations that reveal their identity, and saints usually have some characteristic physical mark of identification (40). But drawing upon the traditional view that there was a close relation between the movement of the body and the movement of the soul, artists believed that mental and spiritual states could also be depicted through physical expression (41). For example, a common gesture of greeting in late medieval painting is where the right hand is extended in an inviting manner, the palm of the hand is slightly raised and the fingers are allowed to fan downwards with the elbow slightly

---

(39) See, for example, BAXANDALL, note 8, pp. 56-81. See also GOMBRICH, Ernst H. Ritualized Gesture and Expression in Art. *Philosophical Transactions of the Royal Society*, Series B, 1966, 251, 393-401; BARASCH, Moshe. *Gestures of Despair in Medieval and Early Renaissance Art*, New York, New York University Press, 1976; and BARASCH, Moshe. *Giotto and the Language of Gestures*, Cambridge, Cambridge University Press, 1987.

(40) For Christ and Mary, see BAXANDALL, note 8, pp. 56-59. Examples of saints' physical characteristics include representations of St Paul's baldness and the stigmata of St Francis.

(41) BAXANDALL, note 8, pp. 60-61.



crooked. Artists also used gestures to diversify a group of people, giving each individual a unique character. Each figure plays its part in the story by interacting with the other figures in the group, thus suggesting relationships and actions. Slight differences in posture are used to establish credible relationships in the grouping and to suggest complex psychological interplay. In this way, static figures could be used to represent dynamic events (42).

#### 4. *CLASSROOM GESTURES*

Using these sorts of insights, art historians have been able to construct a thesaurus of iconographic representations that constitute the language of images in medieval art (43). Using this as a model, my intention here is to begin to construct a typology of gesticulations used by illuminators of classroom scenes. In doing so, I am not suggesting that these gesticulations comprise a universal or natural language. Rather, gestures are conventional; they are the products of social and cultural differences such that their meaning can be determined only from their individual contexts. In constructing a lexicon of gesticulations, then, my intention is to reveal the conventions that these images embody.

The first thing one notices about medieval images of classroom scenes is the huge yet subtle variety they exhibit in terms of their contents (44). To be sure, the overall composition is invariably controlled by certain traditional elements in these sorts of illustrations. The scene

---

(42) BAXANDALL, note 8, pp. 66-81.

(43) See, for example, GARNIER, François. *Le langage de l'image au moyen âge: signification et symbolique*, 2 vols, Paris, Le léopard d'or, 1982-89; and GARNIER, François. *Thesaurus iconographique, système descriptif des représentations*, Paris, Le léopard d'or, 1984.

(44) Compare, for example, the simple traditional teaching scene at the beginning of Galen's *Tegni* in Paris, Bibliothèque nationale, MS lat., 17157, fol. 137v (in which the master and one of his seven students are holding wax tablets) [fig. 1] with Laurentius de Volterra's detailed depiction of Henricus de Allemania lecturing to his students in Bologna (now Berlin, Staatliche Museen, Kupferstichkabinett, min. 1233) [reproduced in DE HAMEL, note 33, p. 130, fig. 123].

is nearly always inside a room, with a master instructing a small group of students before him [Fig. 1]. Beyond this, however, images dating from the thirteen, fourteenth and fifteenth centuries are diversified in many ways. From one image to another, the number of individuals changes, their clothes and other accoutrements are different, the furniture and other fitments of the room vary, the position of the characters is altered, and—most important for our purposes—the individuals are shown making all sorts of gestures. This diversity is in stark contrast to the fixity of other sorts of illuminations that appear in these manuscripts. For example, images of physicians inspecting urine flasks are much



Fig. 1.—Paris, Bibliothèque nationale de France, MS lat., 17157, fol. 137v.

more generic in character. Whether the physician is indoors or outside, at the bedside or in a consulting room, in the presence of a patient, a messenger, a colleague or an assistant, he is always shown in the same pose. Dressed as a learned gentleman, he holds a jordan up to the light in one hand, and points at it in a rather vague fashion with the other [Fig. 2] (45). Representations of scholars in the classroom, by contrast, seem much more deliberate in the way they are diversified. This is especially the case with respect to gesticulations, as artists show masters and students making all sorts of arm and hand gestures. This diversity, of course, is not an indication that these scenes are naturalistic representations. Rather, it suggests that the artists who produced these illuminations and the people who viewed them shared a common perception of the university classroom that embraced a wide variety of activities that were commonly associated with the life of a scholar. An analysis of these different gesticulations may help to identify what these activities were.

Among the features that distinguish images of academic gesticulations from other medieval gestures is the fact that artists depicted scholars as standing still, and no attempt is made to indicate locomotion. Moreover, artists rendered these gesticulations such that they appear to accompany the spoken word. It is also notable that these gesticulations are made almost exclusively with the arms (not with the head or legs), with movements that are confined to within their shoulders and waist. In other words, it seems that these scholars follow the classical rule that orators must not use exaggerated gestures. The image thus conveyed is that university scholars are invariably sober, articulate and self-controlled individuals with a certain gravity and purpose about them.

---

(45) By about 1300, the image of the urine-flask had a purely iconic significance for its audience; it was a stock image that bore little relationship to Galenic medicine as it was practised by university-trained physicians at this time. McVAUGH, Michael R. Bedside Manners in the Middle Ages. *Bulletin of the History of Medicine*, 1997, 71, 201-223. Illustrations of this sort may be found in Paris, Bibliothèque nationale, MS lat., 7030A, fol. 7va, and Cambridge, St John's College, MS 99 (D. 24), fols 23ra, 46ra and 59va. See also the medical miniatures of uroscopy reproduced in MacKINNEY, note 35, pp. 213-214, and the drollery of an ape dressed as a physician examining a patient's pulse and urine on p. 216. This is a play on the traditional diagnostic tools of the medieval physician.

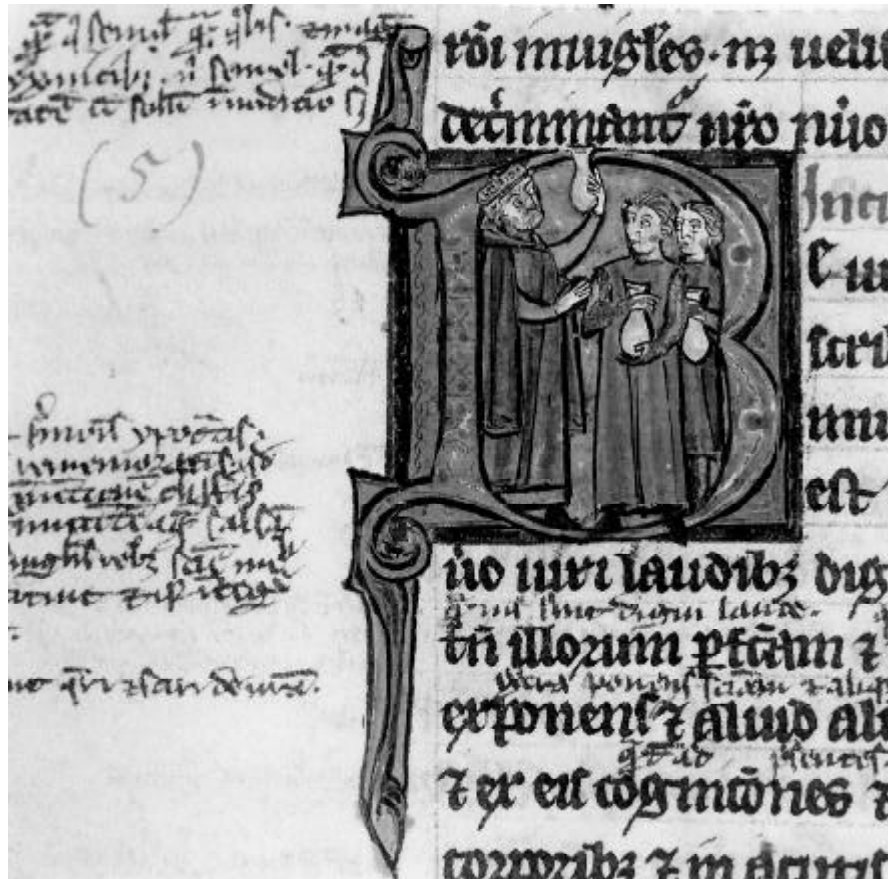


Fig. 2.—London, British Library, Harley, MS 3140, fol. 32v. By permission of the British Library.

Another characteristic of these classroom scenes is that they are composed to reflect the relative status of scholars in terms of their situation, position and gesture, as well as their clothing and size. Invariably, the master is situated on high, to the left of the student, while the student is situated low on the right-hand side of the frame. In terms of position, the master is usually seated on a throne (*cathedra*), facing the viewer, with his head lowered towards his pupils. By contrast, the pupils are usually in profile, seated on the ground or on benches, with their

heads raised to their master (46). With respect to gesture, the master is often shown actively gesticulating towards his disciples, while the students are usually represented as passively paying attention to him. Sometimes, the pupils are depicted with their hands open in an equally passive act of accepting their master's words. Even on those few occasions where pupils are shown actively imitating their master, the message conveyed by the students is one of comprehension and even obeisance [Fig. 3].

Artists also took great care to distinguish masters from students in terms of what they wore in the classroom. Depending on who the author of the text was, the artist might depict the teaching master in the habit of a Franciscan or Dominican friar (47), or he might dress him in the distinctive doctoral bonnet and long cape of a secular master. Concerning the students, artists might depict a scene from one of the higher faculties in which the students, who were often already masters of arts, are also shown wearing doctoral bonnets and long capes. Other images, however, illustrate scenes from the arts faculty, or maybe even grammar school, where much younger students are depicted wearing nothing but simple tunics and who may not even be tonsured. Size is another very obvious distinguishing feature, with the master or more important figures in the composition being shown much larger than the attendant students [Fig. 4].

An interesting variant on these classroom scenes is when two or more masters are represented. In these situations the characters are usually positioned facing each other, making similar gestures to each other, apparently discussing or arguing over some issue [Fig. 5]. Here,

---

(46) A good example of this is the illustration in London, British Library, Royal, MS 17 E XX, fol. 10v.

(47) For instance, the illumination that opens the Franciscan Richard of Mediavilla's commentary on the *Sentences* in Paris, Bibliothèque nationale, MS lat., 14563, fol. 1r shows the author, dressed in a Franciscan habit, teaching two students who are also dressed in Franciscan habits [reproduced in DE HAMEL, note 33, p. 123, fig. 117]. Similarly, at the beginning of Oxford, Bodleian, Laud Misc., MS 409, fol. 3v, Hugh of St Victor is shown teaching three students: all four characters are attired as canons regular [reproduced in DE HAMEL, note 33, p. 106, fig. 103].



Fig. 3.—A master demonstrates the gesticulations of assertion and affirmation while at least two of his students imitate him. (London, British Library, Harley, MS 3140, fol. 137r. By permission of the British Library).



*Fig. 4.—In this fifteenth-century illustration, which opens Gui de Chauliac's *Chirurgia magna*, the seated master (Bernard of Gordon) summons three medical authorities (Avicenna, Hippocrates and Galen), who stand before him. Note that these four characters are drawn to a large scale, whereas the students seated to the left are drawn to a much smaller scale (Paris, Bibliothèque nationale de France, MS lat., 6966, fol. 4r).*

the emphasis is on equality, the authority of each individual being underlined by the similarity of their dress, posture and gesture.

In medieval classroom illustrations, artists used gestures of the hand as the most expressive means of conveying what precisely was taking place in the scene. Hand gestures in this context are used to convey acts of accepting, refusing, affirming, allowing, agreeing and dissenting. These gestures are mostly a matter of the right hand, the left being auxiliary. This may reflect that fact that in ancient rhetoric the left hand was used primarily to control the toga, though it is more likely to indicate the traditional belief that the left hand was the evil hand and thus an inappropriate one for making faithful or truthful gestures.



*Fig. 5.—This full-page illustration shows Hippocrates and Galen in debate. The characters are seated and gesticulate to one another while uttering incipits of their works. (Paris, Bibliothèque nationale de France, MS lat., 6823, fols. 1v-2r).*



A study of these hand gestures reveals that artists consistently drew upon a stock of gesticulations to represent the various activities that they (and presumably their audience) associated with scholars in the classroom. For example, a closed hand with one or two fingers extended and the others folded is generally used to express the notion of affirmation. More particularly, pointing with the index finger is used as a sign indicating that the person is proposing an idea. Artists refined this gesture in various ways—notably by the orientation of the hand—according to the status of the person making the gesture and the sort of message being conveyed. For example, it was traditional for artists to represent superior people, such as God, popes or bishops pointing with two fingers rather than one (48). In these scenes pointing often had a simple ostensive function, where the index finger is used to indicate a thing or a person. But it could also be used to suggest that a person is giving directions either in the sense of showing the way to go or in the sense of explaining how to do something (49). In classroom scenes, it is invariably the metaphorical function of pointing that is emphasized. In these situations, pointing is particularly associated with the activity of communicating ideas. Pointing horizontally is used to express affirmation of an idea, or the expression of a personal thought [Fig. 6] (50), while

- 
- (48) For instance, Anglo-Saxon illustrations of the empty tomb show the angel indicating to the three Marys that Christ is risen by pointing upwards with two fingers (see, for example, Rouen, Bibliothèque municipale, MS Y. 6, fol. 72v and MS Y. 7, fol. 21v, and London, British Library, Add., MS 49,598, fol. 51v) [reproduced in PÄCHT, note 12, p. 115, plate XIX, and pp. 182-183, figs 188 and 189]. Also, in a twelfth-century giant Bible from Admont, Salzburg (now Wein, Österreichische Nationalbibliothek, Cod. Ser. n. 2701, fol. 69r), the Lord uses two fingers to instruct Moses to give the Ten Commandments to the Isaelites [reproduced in PÄCHT, note 12, p. 133, fig. 137. See also p. 136, fig. 142].
- (49) See, for example, the medical miniatures reproduced in CARMICHAEL, Ann G.; RATZAN, Richard M. (eds.). *Medicine: A Treasury of Art and Literature*, New York, MacMillan, 1991, p. 67, colorplate 20, which show a physician pointing out how to carry out various medical procedures.
- (50) In addition to fig. 6, see also the beginning of Nicholas de Lyra's *Postilla litteralis super Biblia* in Paris, Bibliothèque nationale, MS lat. 14247, fol. 2r, where the Parisian illuminator Remiet has depicted a classroom scene in which the author points at his students while expostulating upon the Bible [reproduced in CAMILLE,



*Fig. 6.—This classroom scene shows a master listening to one of his four students read, while pointing at him with his right hand (London, British Library, Royal, MS 20 B XX, fol. 10v. By permission of the British Library).*

pointing up is usually reserved for masters making a more authoritative point [Fig. 7].

Even more common than gesticulations involving pointing are gestures in which the individual displays an open hand. These hand signs were used by illuminators to convey a wide range of meanings that are distinguished by the various positions of the hand and arm. For example, the forearm could be rotated using the hand as a natural extension of

---

note 11, p. 32, fig. 12]. God is frequently depicted as speaking to his people by pointing at them. Similarly, preachers convey God's Word to his people by pointing in like manner. For instance, in Paris, Bibliothèque nationale, MS lat., 1024, fol. 126ra, Remiet depicts St Benedict pointing at the congregation while preaching on the first Sunday of Advent. CAMILLE, note 11, p. 164, fig. 119; and in Paris, Bibliothèque nationale, MS fr. 312, fol. 1r, he illustrates Vincent of Beauvais pointing at his audience while addressing the royal court. CAMILLE, note 11, p. 161, fig. 117. There is also an early fourteenth-century image of St Denis pointing at the congregation while preaching in Paris (now Paris, Bibliothèque nationale, MS fr. 2091, fol. 111r) [reproduced in PÄCHT, note 12, p. 194, fig. 202].

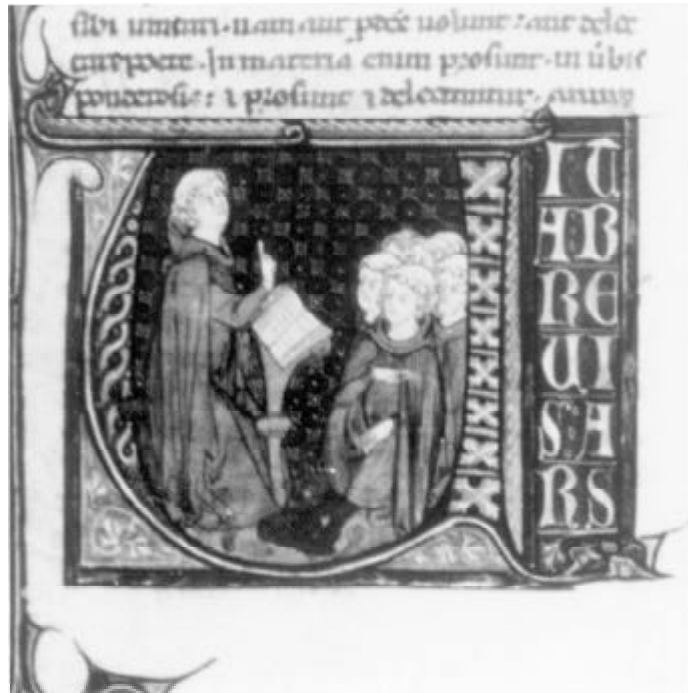


*Fig. 7.—This classroom scene, which begins the Isagoge of Johannitius, shows a master authoritatively pointing upwards. (Paris, Bibliothèque nationale de France, MS lat., 16177, fol. 1ra).*

the arm, with the hand either prone (turned inwards) or supine (turned outwards). This gesture could be further refined by the movement of the wrist (the hand tilted inwards or outwards), the orientation of the hand (either raised, horizontal or hanging), and movement and orientation of the arm.

The versatility of this open-handed gesture is well illustrated in one of its most common forms in classroom scenes, where the open hand is slightly raised with the palm tilted outwards. This was the artistic device for indicating acceptance. Broadly speaking, this gesticulation equates to the utterance «yes» in a variety of different academic contexts. Amongst equals it was used to indicate comprehension and acceptance of somebody else's affirmation. Sometimes, two interlocutors are depicted making

the open-handed gesture simultaneously. This was the artistic device for expressing agreement among the participants in the discussion. But in scenes where a master makes the gesture towards one of his students it indicates that the master is bestowing good favour upon the pupil. Where the gesture is being made by a student while his master is (literally) making a point, it expresses the inferior's acceptance of the superior's argument. By contrast, an open-handed gesture with the palm turned inwards (prone) or tilted downwards was used by artists to express opposition, or negation, or refusal [Figs 8 and 9].



*Fig. 8.—This illumination, which appears at the beginning of the Hippocratic Aphorisms, was produced in the Parisian atelier of the Cholet Group in the 1260s. While the master is depicted making an authoritative assertion by pointing upwards, the foremost student in the class, with a rather determined scowl on his face, is refusing to accept the point by turning his right hand in and his left hand down. (Wein, Österreichische Nationalbibliothek, Cod. 2315, fol. 1ra).*

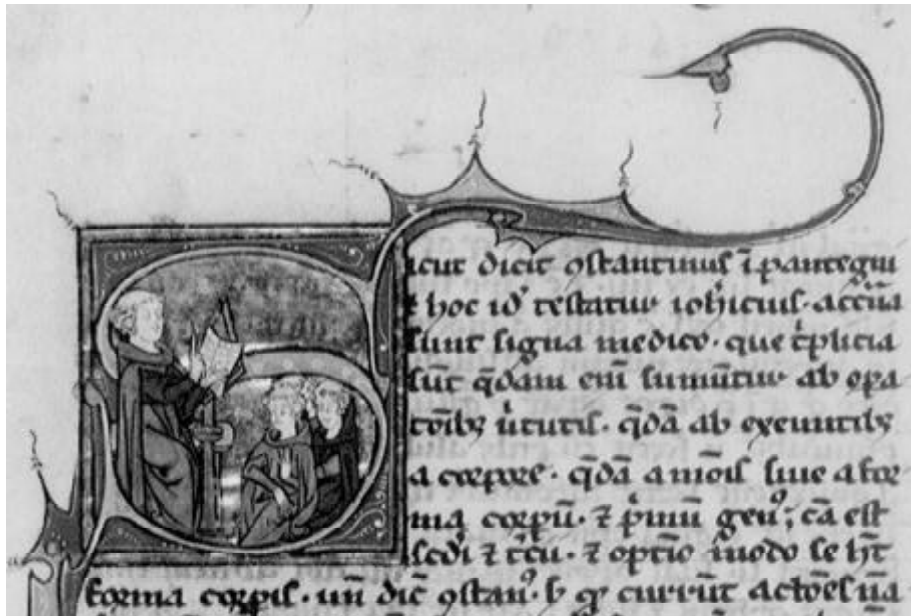


Fig. 9.—In this illumination, which appears at the beginning of Gilbertus Anglicus' commentary on the Verses on Urines by Giles of Corbeil, the master is shown making an authoritative assertion by pointing upwards. This time, however, the foremost student in the class is indicating his objection by tilting his right hand down, but at the same time he is indicating his acceptance by holding his left hand upwards. (Paris, Bibliothèque nationale de France, MS lat., 15457, fol. 191ra).

Artists also used gesticulations of the hand to represent scenes from disputations. This was achieved by depicting two or more characters each with both hands gesturing in relation to one another [Fig. 10]. By combining gesticulations of the right and left hand, artists could represent how far the disputants had proceeded in laying out the arguments or enumerating the proofs of their disputation. This was done by showing a scholar using the index finger of one hand (usually the right) to point to one of his fingers of the other hand, the remaining fingers of which are extended or folded depending on how far the demonstration had advanced (51).

(51) For example, in an illuminated initial at the beginning of Galen's *Tegni* in Wein, Österreichische Nationalbibliothek, Cod. 2315, fol. 145rb, a master makes an



*Fig. 10.*—This drollery appears in the bottom margin of the opening page of Giles of Corbeil's commentary on his own Verses on Pulses. Here the artist represents a goat and an ass facing each other, standing on their hind legs and dressed in the long capes and gowns of a master. From the way they are gesticulating to each other with their arms (or front legs) this appears to be the artist's conceit of a magisterial disputation. (Paris, Bibliothèque nationale de France, MS lat., 16188, fol. 3r).

Artists represented more complex scenes from disputations by joining together different gestures of each hand. Thus, by joining together the open-handed gesture expressing acceptance of an idea on one hand with the more or less horizontal pointing gesture expressing the enunciation of an opinion on the other hand, an artist could depict each character in the disputation as assessing the theses of his adversary in order to retain the acceptable elements while at the same time developing his

---

assertion by pointing upwards with his left hand while one of the students in the class stands before him apparently enumerating arguments. The student holds his right hand open, displaying all his fingers, and uses the index finger of his left hand to point to the thumb of his right hand.

own opinions. Such images were, in effect, representations of the sorts of verbal statement that characterized disputations, such as «On the one hand, I concede this point; but on the other hand, I affirm that...». [Fig. 11] Here it would seem that the English formulation «On the one hand,... On the other hand,...» is a literal expression of the accompanying gesture.

These remarks about medieval images of gesticulating scholars are, of course, only preliminary. They are based upon the inspection of a limited number of university manuscripts—mostly medical—from the thirteenth, fourteenth and fifteenth centuries. From such a selective range of sources, no firm conclusions can be made about the nature of early university education in general. Nor can anything particular be said about medical teaching as opposed to the sort of teaching that took place in the other university faculties. Nor has anything been said about how classroom gesticulations might have changed over time. Rather, we have used these images to investigate how artists and their public perceived early university education. Certainly, it is the case that some classroom illustrations are merely generic. As with many other sorts of illumination, classroom scenes draw upon a traditional stock of images, and illuminators were well able to supply a generic classroom scene when called upon to do so [Fig. 12] (52). But the diversity of most of these images suggests that artists and their audiences had a refined and detailed perception of university education.

We should remember that, though not scholars themselves, many illuminators inhabited university environments, and the audience for these illustrations was certainly well educated and probably university-educated too. Images of classroom scenes, then, were bound to have greater resonances for these people, at least more so than many other

---

(52) Sometimes, artists were given instructions by the bookseller, vendor or agent as to what illustrations were to be provided. Other times, the artist took the title of the work, its incipit or its first few lines as his cue for the appropriate illumination. Thus, illuminated works dealing with uroscopy often begin with an image of a physician inspecting a jordan. Similarly, works beginning with exhortations to study are often the occasion for illustrations of various scholarly scenes: see fig. 12.



*Fig. 11.—In this opening illustration of the fifth book of Avicenna's Canon the master authoritative points upwards to the first words of the text ("In this fifth book I will explain the uses of medicinal antidotes to you, and show you how to make them..."), which he seems to be reading from the copy of the text before him. His student appears to be disputing with him, using his right hand to concede a point, while at the same time using his left hand to make a counter-assertion. The third figure at the bottom is preparing the antidotes with his mortar and pestle. (Paris, Bibliothèque nationale de France, MS lat., 14023, fol. 769v).*



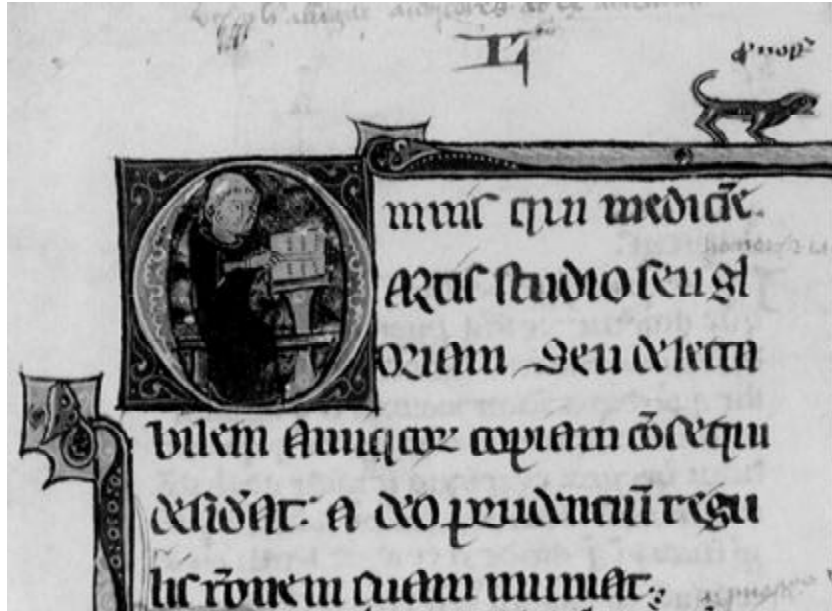


Fig. 12.—The opening words of the Hippocratic Prognostics («*Omnis qui medicine artis studio...*») has encouraged the illuminator to insert a picture of a scholar seated before his lectern diligently reading a book to himself. He points to the words on the page as he utters them aloud (Paris, Bibliothèque nationale de France, MS lat., 15457, fol. 88r).

stock-in-trade images in the illuminator's repertoire (53). Scenes of the classroom were diversified by artists according to their own understanding of what went on in the classroom in order to satisfy the discriminating understanding of their university-educated audience. As we have seen, one of their chief methods of doing this was to manipulate the gesticulations of figures to emphasize the variety of modes of communication that existed in the classrooms of the early university.

(53) Of course, the fact that the audience for these scenes was probably university educated gives us no warrant for assuming that these images are any more realistic than other medieval images. It is interesting to note in this context that readers of *The Times Higher Educational Supplement* are still quite used to seeing cartoons of dons depicted as running around in mortar boards and gowns.