A MEDIEVAL GERMAN PULSE TRACT

by

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In the medical section of Wellcome MS. 49 (formerly 5000, c. 1420) there is a page of advice on how to take the pulse.² This short treatise in Middle High German precedes the so-called Fünfbilderserie anatomical illustrations of arteries, veins, bones, nerves, and muscles.³ The pulse text on f. 35v is accompanied by a blood-vessel figure (Fig. 1) that properly belongs to a fragment of Fünfbilderserie text on f. 36.

Fig. 1 can be identified as an artery man by the nigrum granum in the heart and the rete or anaphusa across the forehead. Figs. 2 and 3, on the immediately following folios (36 and 36v), are also blood-vessel men, but they lack the distinguishing characteristics of the artery man, namely, nigrum granum and rete. The nigrum granum is the source of the arteries, which take their pulse from the spiritus in the heart. The text on f. 36 identifies Fig. 1 as an artery man rather than a vein man: ‘Haec est historia arteriarum quae procedunt ex corde et haec venae sunt quae pulsant etenim principium processionis eorum a nigro grano quod est intus in corde in quo spiritus habitat.’¹⁴ The same paragraph contains a reference to the rete: ‘Et iterum [venae] ascendunt ad cerebrum et texunt se super illud ut rete quod rete custodit et gubernat cerebrum et vocatur anaphuysa.’⁶

Fig. 1 then is clearly an artery man, that is, a figure illustrating blood vessels that pulsate. The words vena and arteria are misleading since they are used interchangeably throughout the Fünfbilderserie text. Only the addition of ‘quae pulsant’ or occasionally ‘non pulsant’ tells whether the ‘venae’ in question are to be taken as modern arteries or veins. Because of this confusion I erroneously labelled the various blood-vessel figures of Wellcome MS. 49 in my earlier article. The following corrections should be noted when referring to that article: Tafel I, Abb. 1 (Fig. 2 of the present article), is not a ‘vein man’ but a blood-letting figure. To be sure, the blood vessels shown are veins, not arteries, since the illustration concerns phlebotomy. But this is a separate figure and does not belong to the traditional five-picture series. The Fünfbilderserie vein man appears in Abb. 2 of Tafel I, erroneously labelled as ‘Figure with arteries and internal organs’ (Fig. 3 of the present article). This figure can be identified by the concentric circles in the breast, which doubtless represent the diaphragm. The diaphragm is twice mentioned in the paragraph on veins,⁶ whereas the nigrum granum and the rete are not.

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⁵ Ibid., line 11ff.

⁶ Ibid., p. 17, lines 12 and 21 of f. 36v.
Fig. 1. Wellcome Historical Medical Library MS. 49, f. 35v. *Fünfbilderarie* Artery Man.

Fig. 2. Wellcome Historical Medical Library MS. 49, f. 36. Blood-letting Figure (not related to *Fünfbilderarie*).
Fig. 3. Wellcome Historical Medical Library MS. 49, f. 36v.
Fünfbilderserie Vein Man.
To sum up the blood-vessel figures in Wellcome MS. 49: Fig. 1 (f. 35v) has a heart with *nigrum granum* and a *rete* across the head; it is therefore a *Fünfbilderserie* artery man. Fig. 2 (f. 36) is a blood-letting figure, not related to the *Fünfbilderserie*. Fig. 3 (f. 36v) with concentric circles in the chest (probably the diaphragm) is a *Fünfbilderserie* vein man. These illustrations resisted identification because of the texts they accompany. Fig. 1 (artery man) appears with a German pulse text; Fig. 2 (blood-letting figure) appears with the *Fünfbilderserie* artery text; Fig. 3 (vein man) appears (correctly) with its *Fünfbilderserie* vein text. The artery text normally follows the vein text; here it has been removed from its usual position and placed on the preceding folio.

The ‘Meister Egidius’ mentioned in the Wellcome pulse tract (lines (21) and (31), below) is probably Egidius Corboliensis or Gilles de Corbeil, a twelfth-century physician who studied at Salerno and eventually became chief physician to King Philip Augustus (1180–1223). Among his *Carmina medica* is a Liber de pulsibus, the doctrines of which are Galenic and pre-Galenic.

The Middle High German text follows (f. 35v), together with an English translation:


(14) Du salt wissen daz die man grozir adir hant denne frawen, und die iungen (15) grozir denn die alten, und in dem summer sneller denn ym winter. Du sach [for salt?] och (16) mercken das die von natur heisz sint und fuchte, die habent eynen grossen puls, (17) ein snellen und ein langen. Die kalter nature sint und durr, die habent eynen (18) kleinen puls und och lang. Ist der mensch heisser natur und trucken, so (19) ist der pulekleine und snell. Ist abir der mensch kalt und fucht, so ist der puls (20) trege, kurz, und grosz. Hitz macht der puls snell; fluchte, grosz; dur, klein; kalt, (21) trege.

Du salt mercken daz du die vinger uff die adir legist als Meister Egi- (22) dius spricht und von dem puls nyt abe thun das si drierstent hab geslagen. Wenn si (23) ist etwan krang von ersten und wirt donoch starg und daz ist ein gut zee- (24) chen wan die nature stercket sich. Und der sacht tag mynret sich. Ist aber die adir (25) des ersten starg und mynret sich von slage

For other *Fünfbilderserie* vein and artery figures see Karl Sudhoff, *Studien zur Geschichte der Medizin*, vols. 1 and 4, Leipzig, Johann Ambrosius Barth, 1907 and 1908. See also his ‘Abermals eine neue Handschrift der anatomischen Fünfbilderserie’, *Sudhoff's Arch. Gesch. Med.*, 1910, 3, 353–68. In Tafeln VIII and IX of this article Sudhoff has confused the artery and vein men. See also Ernst Seidel and Karl Sudhoff, ‘Drei weitere anatomische Fünfbilderserien aus Abendland und Morgenland’, *ibid.*, pp. 165–87. For a blood-letting figure, and one that is almost a line-for-line replica of the Wellcome, see Karl Sudhoff, ‘Eine Pariser “Ketham”-Handschrift aus der Zeit König Karls VI (1380–1422)’, *ibid.*, 1909, 2, 84–100.


* Ibid.*, p. 441. See also Rudolf Creutz, ‘Der Frühsalernitaner Alfanus und sein lang her berühmter “Liber de pulsibus”’, *Sudhoff's Arch. Gesch. Med.*, 1936, 29, 57–83. The historical background of Alfanus's tract, which precedes that of Egidius by almost 100 years, is discussed on pp. 58–60; Egidius is discussed on pp. 75–6. Alfanus's pulse tract contains sections defining the pulse, describing various kinds of pulse and classifying them. The last section is diagnostic: ‘De praesagio vitae vel mortis per pulsam.’ The Wellcome pulse text is confined mainly to this last section.
zu slage, daz ist ein bosz zeichen, wenn (26) die sucht nympubir sich zuhand und die natur und das lebin krencket sich. Item (27) du salt mercken das man des menschen kraft und eine nature an dem pulse vindet. (28) Wan ist das hertz starg, so ist die adir och starg, und ist das hertz krang, die adir (29) ist och krang.


Ist apl die adir groz, und slecht dratt (34) und sech in eynem sichttage, daz bedutet ein bosz unreyn hitze und ein krangheit (35) aller glider und groz ungemach umb die brust und umb das hertzte. Eynne cleine (36) adir an einen gesunden menschen bedutet eine kalte natur und einen kranncken menschen (37) und eine abnemunge an dem libe und ein triwig krang hertze.

Ist abir die adir (38) klein in einem sichttage, daz ist ein bosz zteichen und allermeist ab der sieche eyn (39) bosz unrein hitz an ym hat und die adir ie von tage zu tage mynner wirt. Das (40) bedutet daz des menschen lebin hen gad und der sichttag den menschen verterbit.

(41) Slecht die adir snell und darrt an einem gesunden menschen, daz bedutet eine (42) hitze und dur der natur und einen gochzornigen menschen, des zorn doch schire (43) hen ist, also daz die adir klein sie. Ist si abir in einem sichttage und der mensche (44) vil hitzetze [sic] hat, das bedutet ane zwilfe eine sucht und groze krangheit der brust (45) und des herzen von uberiger hitzze. Eynne trege adir an einem gesunden menschen (46) bedutet eine kalte durr natur und daz der mensch wenig fuchtiuchkeit an ym hat (47) in allem einen libe. Ist si abir weich und groz, das bedutet eine kalte fuchtiuch natur (48) des menschen.

Etzwelke duncket einen die adir groz, und zo er doruff greiffet zo: (49) swindet si und sint ynnen leer, daz bedut das fuchtiuchkeit des menschen vor- (50) swunden ist und daz lebin an alle synen libe aber ynmellet, als die, die an der lungen siechin (51) sint und die von uberiger hitzze vordurret sint. Etzwelke duncket dich die adir (52) groz und dornoch klein, etwelen dratt und trege. Daz bedutet das die nature (53) maecherhand an vechtung hat und manchhreie sichttag, als man siecht in eynem (54) wasser den mancherhande winde hen und her trubnet.

Nu merck waz ich dir (55) sag von den adren; zo wirt die meisterschaft bewart und magist gotes halde und (56) der werlde lop erwerben. Als man uf die adir greiffet mit vier fingern, schlecht si (57) undir allen vieren, daz ist gut. Slecht si abir nicht undir den zweien fingern (58) kegen des siechin hand und slecht kegin dem ellebogin des siechin, und daz be- (59) dut ein end und den tod des menschen sichtlich wen die natur und kraft (60) mag den slag der adir von dem hertzten nicht verre bringen.

Nu mercke (61) och mee. Ist die adir wenzig und von tage zu tage, von slage zu slage, zu nymp (62) und grozit, daz bedutet ein zu nemend leben. Nymmet si abir lü, und der sieche (63) von tage ze tage krenckir wirt und hitzze hat, der mensch ist totlich an allen (64) zwifel. Bessirt sich abir der mensch also daz er wol slaffen mag und daz er (65) krefftiger wirt und sich die hitze mynnet und die adir sanfte und gemechlich (66) slecht, daz ist ein gut zeichen wan is bedutet daz der strit des sichttagen (67) der natur ist zergangen und daz lebin gesiget hat.

Du salt mercken wenn (68) die adir klein wirt also du er kum entphindet und das si gedratt solc (col. 2, line 1) und zittert, zo wisse das der sichttag dann nahe ist. Du salt och wissen (2) das von uberiger hitzze die adir dicke vorwesident, noch einer sucht, das (3) man er nyt entstatt werdiz is den tod orid daz lebin bedutet, das wil (4) ich dir sagen. Ist das der harn des mensch luter ist und der zu keller oben (5) in dem harn nyt swartz is und aber rot odir swartz gewesin is und dor- (6) noch och luter wirt und daz die wulken in dem harn wiss sint und sich zu- (7) samen sencket, so wisse sicherlich das der mensche genezis wil. Zu- (8) cher wise enphindetstu der adir nicht an dem menschen der hitz und krangheit (9) und der harn ungestalt ist — swartz odir bleichfar odir grune — der mensche, der (10) stirbet. Ist daz die naturn des menschen feist und daz an dem antlitz eyn (11) rot geunschlet ist und doch nyt zo feisti als ym das antlitz geswullen si und (12) och nyt se mager och och umb den mund nicht zebliche ist und ym der puls (13) wider zessnall noch zelangsam slecht und der harn wider ze wiss noch ze rot (14) ist noch ze dunne, das bedutet ein gesunden menschen.

(1) If you want to feel the pulse, you should do so with your right hand (2) on the left arm of the sick person, for his heart is on the left side. And (3) with your left hand take the left arm of
the sick person very carefully (4) so that the pulse is not disturbed. Then feel (5) the pulse with the five fingers of your right hand. If the man (6) is fat, you must press hard against the artery; but if he (7) is lean, grasp the artery gently. If he is of medium weight, that is, neither (8) too fat nor too lean, grasp it in moderation. Then notice whether the (9) artery or the pulse beats rapidly or slowly, weakly or strongly, and whether over a short or long distance. A long artery is one that is grasped with five fingers; a short artery (11) is grasped with two fingers. A rapid artery is one that moves up and down (12) quickly, but a slow artery beats slowly. One can hardly feel a feeble artery. (13) A strong artery is easy to find since it beats hard against the finger.

(14) You should know that men have stronger arteries than women, and that young people (15) have stronger arteries than old people. And in summer (they beat) quicker than in winter. You should also (16) notice that those who are of a hot and moist nature have a strong pulse (17) both rapid and long. Those who are of a cold and dry nature have a (18) weak and slow pulse. If the man is hot and dry, (19) his pulse will be weak and rapid. If the man is cold and moist, the pulse (20) is slow, short, and strong. Heat makes the pulse rapid; moisture makes it strong; dryness makes it weak; cold (21) makes it slow.

You should place the fingers on the artery as Master Egidius (22) says, and do nothing until the pulse has beaten three times. If it (23) is weak at first and becomes strong, that is a good sign (24) since nature is being strengthened and the sickness is diminishing. If, however, the artery (25) is strong at the beginning and diminishes from beat to beat, that is a bad sign, for (26) the disease will take over right away, and both nature and life will weaken. Item: (27) note that one finds out men’s power and nature in the pulse. (28) When the heart is strong, the artery is also strong, and if the heart is weak, the artery (29) is also weak.

Now I have told how one takes hold of the artery, so as to detect (30) the sickness of men. Now I will tell what every artery means. (31) Master Egidius says: When the artery is strong and vigorous in a healthy man, that means (32) a healthy man in heart and spleen and also a joyous man and (33) one whose members are by nature healthy. But if the artery is strong and beats rapidly (34) in sickness, that means a bad impure fever and a sickness (35) of all members and serious discomfort around the breast and heart. A feeble (36) artery in a healthy man means a cold nature, a sickly man, (37) a loss of weight in the body, and a truly weak heart. But if the artery (38) is weak in sickness, that is a bad sign, especially if the sick man has contracted a (39) bad impure fever and the artery gets weaker every day. That (40) means that the man’s life is ebbing and the disease is destroying him.

(41) If the artery beats rapidly in a healthy man, that means a (42) hot and dry nature and an irascible man whose anger is however soon gone (43) so that the artery will clear it up. If it is during illness, however, and the man runs (44) a high temperature, that means without doubt a disease and a serious ailment of the breast and (45) heart from too much fever. A slow artery in a healthy man (46) means a man of cold dry nature with little moisture (47) in his body. But if it is soft and strong, that means a cold moist nature.

(48) Sometimes the artery seems strong; one should take a grip on it. (49) If it shrinks away and feels empty, that means the moisture of the man has (50) disappeared, taking away the life from the body, such as those who are diseased in the lungs (51) and those who are dehydrated from superabundant heat. Sometimes it seems that the artery is (52) strong and then weak; sometimes rapid and slow. That means that the man’s nature (53) is highly susceptible to disturbances and to various maladies, as one observes in a (54) lake that variable winds drive here and there.

Now mark what I say to you (55) about the arteries, and thus will your mastery be preserved and you may gain the grace of God and the praise (56) of the world. When one holds the artery with four fingers, and it beats (57) under all four, that is good, but if it does not beat under two fingers (58) held against the sick man’s hand but beats against the elbow of the sick man, that (59) surely means an end and the death of the man since his nature and strength (60) cannot bring the beat of the artery far from the heart.

10 ‘Lang’ and ‘langsam’ are used to mean both slow (as opposed to ‘snell’) and long (as opposed to ‘kurtz’, i.e. an artery that is grasped by five fingers rather than two).

11 Line 22: ‘three times’ doesn’t make sense and should undoubtedly be changed to ‘three minutes’, but I have so far not found any justification in dictionaries for translating ‘driestunt’ this way.
Now mark (61) also further: if the artery is small and from day to day and from beat to beat gets bigger (62) and increases in size, that means an improving constitution. However, if it shrinks and the sick man weakens (63) from day to day and has fever, the man is fatally ill beyond a (64) doubt. But if the man improves so that he sleeps well and (65) gets stronger, and the fever lessens and the artery beats softly and slowly, (66) that is a good sign. It means that the battle of the disease against (67) nature is over and life has won.

You should note that when (68) the artery gets so weak that you can scarcely feel it and it beats very rapidly (col. 2, line 1) and quivers, sickness is nigh. You should also know (2) that under excessive heat or sickness the artery wastes away so that one cannot (3) determine whether it means life or death; I will (4) tell you how. If the man’s urine is clear (5) and not black up in the neck (of the flask) but rather having been red or black later (6) becomes clear, and the clouds in the urine are white and they sink (7) together, then you may be sure that the man will get well. In the (8) same way if you cannot feel the artery of a man who is hot and sick (9) and his urine is dirty—black, pale, or green—this man will (10) die. If a man’s nature is fat and (11) his face is flushed and yet not so fat as to be swollen, (12) and neither too thin nor too pale around the mouth, and when the pulse beats (13) neither too fast nor too slow and the urine is neither too white nor too red (14) nor too thin, that indicates a well man.

THE INVENTORY OF JOHN HEXHAM,
A FIFTEENTH-CENTURY APOTHECARY

by

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The inventory transcribed below is believed to be the earliest one relating to an English apothecary and is of importance for the light it throws on English pharmacy at the beginning of the fifteenth century.

Origin and Nature of Document

The existence of the inventory was suspected when an abbreviated transcription was noted in the British Museum. This formed part of a collection of medical abstracts and transcriptions made by Joseph Hunter (1783–1861), when he was a member of the staff of the Public Record Office. On his death these manuscripts were purchased by the British Museum. Following this clue, and with the kind assistance of Mr. R. E. Latham on the present staff of the Public Record Office, the original inventory was located in the Escheator’s Files.

It consists of a single sheet about 28 by 25 cm., containing twenty-nine unbroken lines of abbreviated Latin and English. As reproduced below it has been extended, punctuated, the abbreviations li., quatr', and unc’ rendered as lb., qr. and oz., Roman numerals have been converted into Arabic ones and, except for the first item, the word or abbreviation meaning ‘price’ (pretii) has been omitted. To facilitate discussion each item of the inventory has been given a number.

The inventory was compiled for an inquisition held at London before William Crowmer, mayor and escheator, on 30 April 1415, and relates to the goods and chattels of John Exham or Hexham (the document has both spellings), late apothecary of London, who had been hanged for coining false money.

It lists the names of the twelve-man jury who swore to the contents of the inventory and several of these are mentioned in the London Letter Books. John Boner was a