

operative and post-operative management of cases, on the construction and use of surgical instruments, on bandaging and on many other aspects of surgery in general and surgery of the head and neck area in particular. It is hoped however that the present paper will stimulate interest and further examination of the empiric maturity of Hindu surgery more than fifteen centuries ago.

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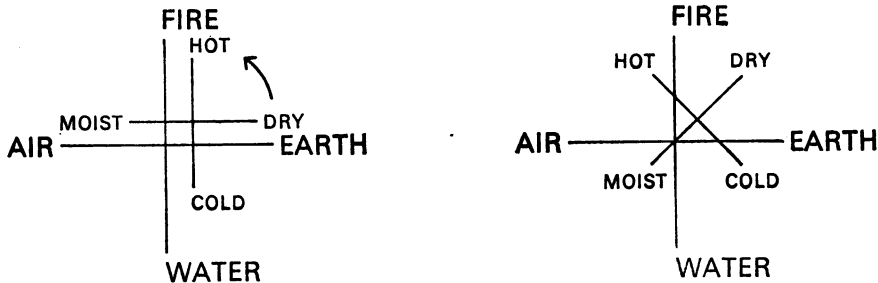
TWO QUESTIONS ON HUMORAL THEORY

THE QUESTIONS are (1) What is the meaning of the interchange of 'qualities' (*dynameis*) between water and air that took place at or shortly before the time of Aristotle? (2) Are there nine or thirteen crases, according to Galen?

(1) Philistion held that the element 'air' has the quality 'cold', the element 'water' the quality 'moist'; 'fire' has 'hot', and 'earth' 'dry'.¹ Somewhat later Aristotle, who allowed two qualities to each element, assigned 'cold' and 'moist' to water, and 'moist' and 'warm' to air, fire receiving 'hot' and 'dry', and earth 'dry' and 'cold'. But Aristotle says that water is primarily 'cold', air primarily 'moist', fire primarily 'hot' and earth primarily 'dry'.² Erich Schoener has pointed out recently that Aristotle was not always consistent in this regard, at times calling air 'dry' or 'cold' and earth 'hot' or 'moist'. Schoener notes also that the Stoa, and perhaps Theophrastus and Strato continued to characterize air as 'cold', while Empedocles himself may have held it to be 'warm'.³ There seems to have been little comment on these curious ambiguities.

What reasons led Aristotle to make his assignment of double qualities to each element in the manner that was to become standard? We cannot know, of course, but the following considerations seem pertinent. Suppose one were to begin with Philistion's scheme and proceed to assign secondary qualities to each of the elements. If fire be assigned 'dry' in addition to 'hot', earth 'cold' in addition to 'dry', and water 'cold' in addition to 'moist' (the Aristotelian scheme, so far), nothing remains for air! For both 'cold' and 'moist', and 'cold' and 'dry' would have been pre-empted, and 'cold' and 'hot' are out of the question—an element cannot be predominantly both 'cold' and 'hot'. If fire were to receive 'hot' and 'dry', air 'cold' and 'moist', earth 'dry' and 'cold', water would have to be assigned 'moist' and 'hot' by default (the Aristotelian scheme, with air and water interchanged). None of the other combinations seem to work out. If, for example, fire were assigned the unlikely combination 'hot' and 'moist', water could then be given 'moist' and 'cold', and earth either 'dry' and 'hot' or 'dry' and 'cold'; if the unlikely 'dry' and 'hot', then air could receive 'cold' and 'dry'; if earth were assigned 'dry' and 'cold', air would again lose out in this game of musical chairs.

In the Aristotelian scheme the problem of assigning a secondary quality presents no difficulty, as the following diagram indicates:



The Aristotelian assignment of primary qualities has the further advantage (over Philistion's) of matching opposing qualities with opposing elements.

(2) Are there nine or thirteen Galenic crases? Erich Schoener makes the unusual claim that there are thirteen. He states that—

... Galen's doctrine of the temperaments rests less on the four humours than on the four elementary qualities: it recognizes 13 'dyscrasias' arising from the various combinations between cold, hot, moist and dry; the absolutely favorable mixture (eucrasis) in which all four qualities are equally distributed does not exist in practice ... of the remaining twelve dyscrasias only the four corresponding in their associated qualities to the four cardinal humours have practical value ...⁴

In support of his claim that there are thirteen 'dyscrasias' Schoener cites Kuehn's edition of Galen, IV, 804 and VI, 130, 377, 401. I can find nothing relevant in IV, 804 or VI, 130. In VI, 377 Galen says that there are three kinds of 'hot' crisis: one in which the remaining contraries, 'moist' and 'dry', are balanced, a second in which 'dry' also is present in excess, and a third in which 'hot' and 'moist' predominate. In VI, 401 Galen makes the corresponding remarks in respect to the 'cold' crisis.

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One must presume that Schoener derived two more crases in the same way: 'dry' with 'hot' and 'cold' balanced, and 'moist' with 'hot' and 'cold' balanced. In his opinion the yield was then eight combined crases, plus four simple crases and the eucrasic state in which 'hot' and 'cold', and 'warm' and 'moist' were equally balanced. But it should be obvious that in the simple crasis 'hot' (where 'hot' predominates over 'cold') 'moist' and 'dry' must be in balance, and so on for the remaining simple crases. Thus there can be only four combined and four simple crases in addition to the eucrasic state.

The matter is clearly explained by Galen in Chapter VIII of Book 1 *On Crases* (Kuehn I, pp. 554–59). He says that the four combined dyscrasias, 'hot' and 'moist', 'hot' and 'dry', 'cold' and 'moist', and 'cold' and 'dry' are well known to physicians and philosophers but they have neglected the 'first and best' of the crases—eucrasis, where 'hot' and 'cold', and 'moist' and 'dry' are in balance—as well as the remaining four, which are constituted, he says, by 'half' of the combined dyscrasias. In justifying the existence of the last four Galen states that when 'hot' predominates over 'cold' it is not necessary that either 'dry' or 'moist' predominate as well; they may be in balance. And so on for the remaining qualities. This being the case, Galen concludes, we have no reason to doubt that there are *nine* crases (*ennea tas pasas einai ton kraseōn diaphoras, eukraton men mian, ouk eucraton de tas oktō, tettaras men haplus, hygron, kai xēran, kai thermēn, kai psychran, allus de tettaras synthetous, hygran hama kai thermēn, kai xēran hama kai thermēn, kai psychran hama kai hygran, kai psychran hama kai xēran*).

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ACKNOWLEDGEMENT

I wish to acknowledge my indebtedness to Professor F. Kudlein of Kiel for preliminary comments on this paper.

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NOTE ON THE FOUNDATION OF QUEEN CHARLOTTE'S HOSPITAL

UP TO THE year 1924 it had never been doubted that Queen Charlotte's Hospital, known at previous stages of its existence as 'The General Lying-in Hospital', and 'The Queen's Hospital', was the third oldest maternity hospital in Great Britain. It was accepted that it had been established in 1752, after the Brownlow St. Hospital (1749),¹ and the City of London Lying-in Hospital (1750). Indeed, the hospital's own Minute Books, which date from 1809, state clearly and repeatedly that 1752 was the year of its foundation.² There was, however, little evidence as to the hospital's original site.

¹ Renamed in 1756 'The British Lying-in Hospital', and amalgamated in 1914 with the Woolwich Home for Mothers and Babies, to form the British Hospital for Mothers and Babies, Woolwich.

² See also *The History of Queen Charlotte's Lying-in Hospital from its Foundation in 1752 to the Present Time*, by Thos. Ryan (Secretary to the Hospital), 1885.