

# TIBETAN MEDICINE COMPARED WITH ANCIENT AND MEDIAEVAL WESTERN MEDICINE

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It is well known that Tibetan medicine has inherited many features from Indian Ayurvedic medicine (three humours, seven constituents, curing by contraries) and some from Chinese medicine (hollow and solid organs, pulse diagnosis). What is less known is how many parallels there are with ancient and mediaeval western medicine. The following points deserve attention :

- a) humoral pathology
- b) ether
- c) pneuma
- d) diseases during seasons
- e) seats of humours
- f) hot and cold diseases
- g) urinoscopy
- h) bloodletting
- i) theory of generation
- j) name of Galenos
- k) anatomy illustrations

## a) Humoral pathology

The three humours in Tibetan medicine are wind (*rlung*), bile (*mkhris*) and phlegm (*bad.kan*). The term 'humour' renders Tibetan *nes.pa*, Sanskrit *dosha*. The Sanskrit word *dosha* means 'fault'. But the three, wind, bile and phlegm, are necessary in the body. They are causes of diseases only when they are unbalanced, that is, when there is too much or too little of any of them com-

pared with the other two. The English word 'humour', therefore, probably expresses its meaning better. It is derived from the Latin *humor*, Greek *khymos* (English derivative *chyme*), which means 'fluid, moisture' as we know it in the English word *humidity*. This meaning is exactly right in the case of the western four humours as taught in ancient and mediaeval times : blood, black bile, yellow bile and phlegm. It does not fit so well the Indian and Tibetan systems with their wind, bile and phlegm, because wind is not a fluid. But if we take 'humour' not in the literal sense of 'fluid' but rather in a metaphorical one for a substance permeating many parts of the body, a case can be made out for it. Indeed, in English the word 'humour' has also undergone a change in its meaning when, after meaning a body fluid it came to mean a temperament caused by the preponderance of that fluid and finally came to mean that sense of the comic which we call humour in modern English.

The term 'wind' for Tibetan *rlung*, Sanskrit *vāta* and *prāna*, may be preferable to 'air' because 'air' is also an element in which case the Sanskrit term for *rlung* is *vāyu*. The Sanskrit word for 'element' is *dhātu*, Tibetan *hbyungwa*. If 'air' is used readers may begin to confuse the five Tibetan elements earth, water, air, fire, ether, with the three humours.

In the west we find the same three humours in Plato's *Timaeus* where wind is called *pneuma*, bile *khole* and phlegm *phlegma*. 1)

Plato lived from 428 to 348 B. C. The collections of the greatest Ayurvedic writers Caraka and Susruta are attested during the first centuries of the Christian era but probably go back to much older sources. The Vedas themselves contain allusions to some medical ideas. How is it that Plato has the same three humours as the Āyurveda and then Tibetan medicine, while the rest of Greek philosophy and medicine postulates four humours in which the fourth is blood while the Indians and Plato postulate wind? One explanation given is that Plato was a member of the Pythagorean school of thought. 2)

Now, Pythagoras who lived in the 6th century B. C. was assumed by some to have visited India at some time, where he could have learned about Āyurvedic medicine. 3)

Eduard Zeller in his *History Greek of philosophy* mentions that Pythagoras was reported to have travelled far and wide and even to have visited the Brahmins but though it is quite possible the testimonies are too uncertain. 4)

There is another possibility which might explain why the theory of three humours was handed down to Plato and not to the other great Greek thinkers like Hippocrates (about 460-377 B.C.) and much later Galen (129-200 A.D.) who assumed four humours, namely blood, yellow bile, black bile and phlegm. And it is the four humour theory which was handed down to the European Middle Ages.

The explanation could lie in the fact that Plato travelled to Cyrene, the Greek colony in Libya, and to the Greek colony of Sicily and to Egypt and could have picked up ideas in all those places which differed from the views held on the Greek mainland and its surrounding islands. We know that under King Darius (reigned 521-485 B.C.) the Persian army had conquered part of India and part of Libya so that it is not impossible that Indian medical ideas were current in North Africa and on the opposite shore of Sicily. We read in Herodotus 5) who wrote his *Histories* between 450 and 430 B. C. : 'All these people of Libya from Egypt to Lake Tritonis are nomads who live on meat and milk. Cow's flesh they will not taste, for the same reason as the Egyptians, nor will they keep pigs. Even the women of Cyrene think it wrong to eat cows, because of Egyptian Isis, whose fasts and feasts they observe religiously... Many Libyan nomads... take their children when they reach the age of four and burn the veins of their scalps, sometimes of their temples too, with a flame of greasy wool, so they may never thereafter be troubled by phlegm running down from their heads.'

We see that both, Egypt and India avoided the eating of cows for religious reasons, and that the Libyans practised moxibustion and believed that phlegm coming down from the head was the cause of disease. Though the latter was a general Greek belief, other medical ideas like that of moxibustion, may have persisted in North Africa and not percolated to Greece proper.

Plato learned other medical ideas from the Sicilian doctor Philistion of Lokris whom he met during his first Sicilian journey in 388 B.C. but in the fragments of Philistion come down to us, a three humour theory is not mentioned. 6), 7)

The Greek development towards the western mediaeval assumption of four humours including blood was a gradual one. First, a watery fluid corresponding to phlegm coming down from the brain was made responsible by Timotheos of Metapont for most diseases. Then Herodikos postulated two humours : bile and phlegm. 8) Then Philolaos postulated the blood as a third cause of diseases. Though Plato followed Philolaos in his cosmological speculations in the *Timaeus*, he definitely deviated from him in the assumption of wind as the third humour and not blood. Finally Polybos, the son-in-law of Hippocrates, the Father of Western Medicine, divided bile into black and yellow, so that the four humours, that is, blood, phlegm, black bile and yellow bile, were to correspond to the four elements fire, water, air and earth. 9)

In Indian 10) and Tibetan medicine the three humours are each subdivided into five kinds. This elaboration does not exist in western medicine.

#### b) Ether

In Plato's cosmology, like in the Indian and Tibetan one, there are five elements, the fifth being ether, Sanskrit *ākāśa*, Tibetan *nam. mkha*. Aristotle (384-322 B.C.), his pupil, in his *Meteorologica* has aither, 'ether' as the fifth element.

#### c) Pneuma

The Greek word *pneuma* used by Aristotle for the fine substance endowed with generative power and hailing from the stars is the same word Plato and Philolaos use for the humour 'wind', and other writers use for the wind in the weather sense. It is also used in Greek for 'breath' and for 'breath of life' and finally in the New Testament for the Holy Spirit. In Tibetan the word *rlung* is used for 'wind' as a humour. But in Tibetan embryology many different *rhungs* are mentioned, quite apart from the five subdivisions as in the case of the other two humours.

One might attempt the following correlations :

<u>Sanskrit</u>	<u>Tibetan</u>	<u>Greek</u>	<u>English</u>
Parabrahman	Tshangs.pa.pha.rol.na ?	Theos	Godhead
Brahman	Tshangs.pa	Pneuma	Spirit

Ātman	bDag.nid	Theos,	Ego Self
Purusha	sKyes.bu	Psykhē	World Soul
Vāyu	rLung	Aer,	Pneuma Air
Vāta	rLung	Pneuma	Wind
Prāna	dbUgs	Pneuma	Breath

The reason why blood can appear instead of pneuma as one of the humours seems to be explained by the dictum of the Stoic philosophers that the blood is the physical substrate of the pneuma. 11)

The importance of the blood had been observed very early just as that of the breath. For when the breath stopped a patient died, and when he lost too much blood the same happened. Therefore blood came naturally to be connected with disease. 12)

#### Diseases during seasons

The view that certain humours predominate during certain seasons can be found in Ayurveda, Tibetan medicine and Hippocrates. The usual approximate date for Hippocrates of Cos is 460-377 B.C. Though there is no doubt that he existed, the treatises ascribed to him were written by a number of authors, some of them centuries later. 13) The Tibetan chief medical work, the *rGyud.bzhi* or *Four Treatises* says : 'Diseases of air ( wind ) accumulate during the spring, break out during the summer and subside during the autumn. Bile diseases accumulate in the summer, break out in the autumn and subside in the winter. Phlegm diseases accumulate in the winter, break out in the spring and subside in the summer.' 14)

In the Hippocratic Corpus we find : 'Phlegm increases in a man in winter.. In spring too phlegm still remains strong in the body, while the blood increases. In summer blood is still strong, and bile rises in the body and extends until autumn. In autumn, blood becomes small in quantity, as autumn is opposed to its nature. while bile prevails in the body during the summer season and during autumn. But in summer phlegm is at its weakest. For the season is opposed to its nature. But in autumn blood becomes least in man. It is black bile which in autumn is greatest and strongest. When winter comes on, bile being chilled becomes small in quantity, and phlegm increases'.

### Seats of humours

In Tibetan medicine the chief seat of phlegm is the brain. According to the *rGyud. bzhi*. 15) 'the brain produces mucus and is both a basic and an auxiliary cause of ignorance, mental darkness and gloom. Therefore sleepiness and gloominess are mostly felt in the head, 'and again, principally', the seat of air (wind) is below the abdomen, the seat of bile in the region between the heart and the abdomen, and the seat of phlegm in the area above the chest.

The head is regarded as the chief seat of phlegm also by Aristotle 16) who contrasts the cold of the brain with the heat of the heart, and 'when the nutriment steams upwards through the blood vessels, its refuse portion is chilled by the influence of this region, and forms defluxions of phlegm and serum. It is the brain again which is the cause of sleep'. 17)

### Hot and cold diseases

In the Indo-Tibetan humoral system diseases are divided in to hot and cold ones, and diseases are cured by a contrary remedy, that is, hot diseases by cold remedies and vice versa. For instance, Vāgbhata says in his *Ashtanghrdayasamhita* : 18) According to the prevalence of the qualities 'hot' and 'cold', the power in it (in a substance) is taught to be twofold, namely, 'heating or cooling' While there is an occasional mention of this kind in Sanskrit medical works, the division of diseases and remedies into hot and cold has become a cornerstone of Tibetan medicine, beginning with the *rGyud bzhi*. Vagbhata's *Ashtanghrdayasamhita* was written in Sanskrit in the 7th century and translated into Tibetan in the 11th. According to Tibetan tradition, the *rGyud bzhi* is an 8th century translation of a Sanskrit work going back to the 4th century A.D. According to F. Meyer, 19) it is more likely to be an indigenous Tibetan work because of the passages on diagnosis by means of the pulse and on moxibustion which he regards as Chinese features. Indeed, we know that King Strong.btsan.sgam.po married in the 7th century a Chinese princess who, with her books, brought medical works to Tibet so that Chinese medical lore may have been woven into an indigenous *rGyud. bzhi*, in all other respect indebted to knowledge drawn from Sanskrit works or Ayurvedic teachers. Be that as it may, in one respect the *rGyud. bzhi*. differs from ancient Sanskrit

and Chinese medical works, and that is the great emphasis put on the difference between hot and cold diseases. Later on, perhaps during the Middle Ages or in modern times, this differentiation must have reached India and South East Asia because it plays an important role in present-day Ayurvedic and in the Burmese and Thai indigenous system of medicine today.

In western medicine hot and cold disease are mentioned in Galden. 20) However, they are always dealt with together with moist and dry diseases and thus simply divided according to the four Aristotelian qualities. But during the Middle Ages Galenic medicine was developed into an elaborate system of four degrees of cold in diseases which had to be matched with the right one out of four degrees of heat in herbal, mineral and animal remedies. Writers on those lines were, for instance, Raymundus Lullus (1234-1315) and Arnaldus of Villanova (1235-1311). 21)

#### g) Urinoscopy

Diagnosis by means of investigation of the urine was practised east and west wherever physiology was based on the system of humoral pathology because the urine was often regarded as the exact outward reflection of the humoral situation within the body 22)

#### h) Bloodletting

Similarly, bloodletting seems to have been a universal ancient practice. This is the more remarkable as blood was not regarded as a humour in India.

In fact, in Indian and Tibetan medicine the importance of the blood was derived from the idea that the mother's menstrual blood together with the father's semen and the right karma had the generative power to produce a new human or animal being. 23) In the same way, Aristotle regarded the blood as born in the human body together with *pneuma*, the physical substance of finest corporeality treated above under the heading c). The *pneuma* in the microcosm of the human body, according to this view, corresponds to the ether in the macrocosm, the universe. The idea that man is a small reflection of the universe, a microcosm repeating the features of the macrocosm, is a very old one and occurs in most ancient civilisations. According to this, the body fluids running through

veins and channels can be compared to rivers, the digestive fire which transforms the food in the stomach to the heat of the sun, the bones to the wood of the trees, and so forth. Ether, according to Aristotle, as the fifth element, is quite different from the other four elements, and the *pneuma* in the body, which corresponds to the ether in the universe, is different from the other constituents of the body because it is endowed with generative power. 24)

Because blood was born together with *pneuma* it was so important. And because it was so important, any bad blood or superfluity of it had to be removed by bloodletting. The Indians used leeches, just as was done in the west throughout Antiquity and the Middle Ages and in some places right into modern times. The Tibetans were and are more civilised in using a scalpel or a small knife.

#### i) Theory of generation

There are several east-western parallels in the theory of generation. In Indo-Tibetan medicine the following sequence is given : 'There are seven principal constituents which help to sustain life : 1. Salvia, 2. blood, 3. bone, 4. marrow, 5. flesh, 6. fat, 7. sperm... The formation of sperm takes about seven days : on the first day after digestion ( use of saliva ), the nutriment from food forms blood ; on the second day blood becomes flesh ; on the third day flesh becomes fat ; on the fourth day fat becomes bone ; on the fifth day bone forms marrow, and on the sixth day marrow forms sperm'. 25)

In Plato's *Timaus* we read : 'The natural order is that the flesh and sinews should be made of blood, ... and the glutinous and rich matter which comes away from the sinews and the flesh not only glues the flesh to the bones, but nourishes and imparts growth to the bone which surrounds the marrow, and their remains a part, consisting of the purest and smoothest and oiliest sort of triangles, which filters through the solid texture of the bones, from which it drops like dew and waters the marrow.' 26) Here the flesh, instead of taking the 5th place, comes between the blood and the bone, yet the rest agrees in a remarkable way.

In the Indo-Tibetan embryology the foetus is described as it progress week by week. 'First week : through the *srog-rlung*



( that is, breath of life, *pneuma* ) of the father's semen and the *kun. gzhi. rnam. shes* ( consciousness ) in the mother's blood every particle is thoroughly mixed like milk when churned into curds'. 27) Aristotle says : 'What the male contributes to generation is the form and the efficient cause while the female contributes the material. In fact, as in the coagulation of milk, the milk being the material, the fig-juice or rennet is that which contains the curdling principle, so acts the secretion of the male, being divided into parts in the female ... each part should correspond to the material being neither too little to connect it and fix it in form, nor too much so as to dry it up'. 28)

This idea was repeated during the Middle Ages by the Abbess Hildegard von Bingen ( 1098-1179 ) 29) and by Michael Scotus ( 1175-1235 ? ). 30)

These various agreements between Indo-Tibetan medicine and Aristotle are too specific and striking to be accidental, especially as they cannot be based on actual independent observation. If the *Susrutasamhitā* and the *Carakasamhitā* had drawn on Aristotle, it means that the relevant passages cannot date back to earlier than the 4th century B.C. As they are composite works whose beginnings may reach far back into the distant past but which were continually added to, this is not impossible. On the other hand, Aristotle was the tutor of the young Alexander the Great ( 336-323 B.C. ) whose subsequent campaigns took him right into India. We may give more credence to Pliny in his *Natural History* 31) than Alexander von Humboldt did in his *Kosmos*. 32) Pliny the Elder (23-79 A.D.) says : King Alexander the Great being fired with a desire to know the natures of animals and having delegated the pursuit of this study to Aristotle as a man of supreme-eminence in every branch of science, orders were given to some thousands of persons throughout the whole of Asia and Greece, all those who made their living by hunting, fowling, and fishing and those who were in the charge of warrens, herds, apiaries, fishponds and aviaries, to obey his instructions, so that he might not fail to be informed about any creature born, anywhere. His enquiries addressed to those persons resulted in the composition of his famous works on zoology, in nearly fifty volumes'. Humboldt asserted that hardly any information about India, except a passage on elephants, is extant in Aristotle's work and that, therefore, Pliny's statement must be wrong. But it is

known that Alexander corresponded with his former tutor throughout his campaigns and, considering that much of Aristotle's work has been lost, the remaining passages agreeing with Indian ideas could well be used as a proof that Pliny's account of this subject is true.

In the chapter on embryology of the *bShad.rgyud* 32a) the following passage can be found : 'The signs that most probably a boy is going to be born are that the baby comes on the right side of the belly facing the mother's backbone, that the right side of the belly is high, and that the milk starts coming in the right breast ... For the prognosis of a girl, all this applies to the left side, and when born it faces the front.' Galen of Pergamon, the Greco-Roman writer on medicine, showed 32b) that boys were more likely to come into being on the right-hand, better side of the womb than girls because it is warmer than the left-hand one as the result of being near the liver and the special pathways of the vessels there. 'Warmth' was associated with 'life', 'force' 'soul' and higher value. 32c)

Five hundred years before Galen, Aristotle already said the following : 'It is said by some, as by Anaxagoras, ... that this antithesis ( between male and female ) exists from the beginning in the germs or seeds ; .. the male is from the right, the female from the left testis, and so also .. the male embryo is in the right of the uterus, the female in the left. 32d)

#### j) Names of Galenos : bad kan

There occurs in the history of Tibetan medicine a certain Doctor Galenos, court physician to King Srong.btsan.sgam.po in the 7th century, who came from Persia. What was his connection with the great Galen ( 129-200 A.D.) who was to dominate the history of western medicine for a thousand years ? Either the Persian doctor assumed the pen-name Galenos, 33) or he had translated Galen, from the Greek, probably into Syriac because translations into Persian were not made at the time and the time of the great translations of the Galen's work into Arabic had not yet come. If any translations of medical texts mentioned for that period in Tibetan histories were still extant they would be of vital interest to western as well as eastern medical history because very

little has survived of the pre-Islamic period of that part of the world.

The Tibetan word for 'phlegm' already occurring in the *rGyud.bzhi*, is *bad.kan*. a word which does not look Tibetan at all. The Arabic word for 'phlegm' is *balgam* which is obviously derived from Greek *phlegma*. It looks as if Tibetan *bad.kan*, Mongolian *badgan*, was derived from the Arabic. The difficulty here is that the first Arabic works on medicine were translated from the Greek in the 9th century, that is, the works of Galen and of Paulos of Aegina which were translated by Hunain Ibn Ishak.

Though the Tibetan word is now pronounced *peken* it is likely that it was pronounced *bagdan* in the past in which case it could have been derived from the Arabic because m and n sound very similar, and (L) can easily turn into d. One need only think of the Greek names *Odyseus* becoming Latin *Ulysses*, or of the Latin *odor* 'odour' being related to Latin *olere* 'to smell' from which comes Latin *oleum*, English *oil*.

If the *rGyud.bzhi* was translated from the Sanskrit or composed in 750 A.D. the question is where the word *bad.kan* came from. The Persians use the Arabs loan word *balgham*. But they could not have done so before the Arabs had acquired it from the Greek. The Mongolian translations of medical works come into the picture only much later. Thus the etymology of Tibetan *bad.kan* presents a great riddle and may be vital in the dating of the *rGyud.bzhi*.

#### k) Anatomy illustrations

Another subject for comparison are the anatomical illustrations. There exists a series from the Medical College of LChags.po ri near Lhasa of which a copy found its way to the Young.ho.Kung Temple at Peking. Some of the figures are shown in a squatting position. 34) This is the position which also appears on a set of Persian anatomical drawings the extant copies of which probably date back to the 17th or 18th century but may go back to much older prototypes. A similar set has been found on 13th century

European manuscripts. According to Karl Sudhoff 35) the Persian and the European examples may go back to a lost prototype in Alexandria during the Hellenistic period between 300 B.C. and 300 A.D. It is then thinkable the Persian illustrations were imitated in India and reached Tibet in this way. But though there are many fine Indian miniatures in existence, no example of an Indian anatomical illustration has been found unless the yoga diagrams showing macrocosm and microcosm were counted as such. The Tibetan illustrations the date of which is unknown may also go back directly to Persian models.

There is also a Tibetan standard picture of surgical instruments. Some of them are similar to those appearing in the Arabic work of Abulcasis 36) (died c. 1013 A.D.) who lived in Cordoba in Spain. Manuscripts of this work are widely scattered and a beautiful one exists in Patna in India. Transmission certainly could have taken place one way or the other. But until more dates and data are available no conjecture can be made as to in which direction.

#### Modern application

Until now the parallels have been set down, taking them at their face value. But should this be done, for instance, with the three humour theory? The Indian three humours had early on been associated with the three *gunas* or chief qualities: Sanskrit *sattva* (goodness) correlated to wind, Sanskrit *rajas* (energy) to bile, and Sanskrit *tamas* (inertia) to phlegm. The humours, in their turn, were brought into connection with the Buddhist 'three fires': an excess of greed will lead to a wind disease, an excess of hatred to a bile disease, and an excess of spiritual dullness to a phlegm disease. Conversely, an excess of phlegm will make you slow and dull, an excess of bile irritable and irascible, and an excess of wind lustful and greedy. A similar connection of the humours with human temperaments was made in the west: the choleric, angry temperament was conditioned by yellow, hot bile, the melancholic, sad temperament by black, cold bile, the sanguine, optimistic temperament by blood, and the lethargic, phlegmatic temperament by phlegm.

However, in Tibetan medicine the three humours seem to have, in a way, swallowed up the idea of the three *gunas* as it exists in Hinduism, so that wind, bile and phlegm mean far more

universal quantities than just these substance in the body. They refer to constitutional types the way the temperaments do in the west. In Tibetan medicine all diseases are divided into hot and cold, and these again subdivided into wind, bile and phlegm diseases of which there is a total of 404. Here the humours have been far more closely systematised than had ever happened in the west, This scheme has survived in Tibetan medicine to the present day, and if it is to be used effectively it has to be reinterpreted in the light of modern knowledge.

Studying the history of Tibetan medicine and adapting it to modern use are two different tasks. For the first we have to study and translate the texts of which only an infinitesimal part has been translated into English, French or German until now. 37) For the second task we have to investigate whether the ideas behind certain practices are valid today or whether the practices can be defended on new, modern grounds or can be usefully transformed. This investigation can, however, only take place effectively when we have become acquainted with the texts.

#### References

- 1) 'There is a third class of disease which may be conceived of as arising in three ways, for they are produced, sometimes by wind and sometimes by phlegm and sometimes by bile', Plato *Timaeus* 84C, Collected dialogues edited by Edith Hamilton and Huntington Cairns, Bollingen Series 71, Princeton University Press, 1963, pp. 1204-5. Translation of *Timaeus* by Benjamin Jowett.
- 2) 'Because, as I think you yourself are aware, we Pythagoreans have a theory of the soul which is roughly like this'. Plato, *Phaedo* 86B, *ibid.*, p. 70, translation by Hugh Tredennick. These words have been put into the mouth of Simmias but Socrates whose point of view represents that of Plato admits the Pythagorean theory that the soul wears out a number of bodies (*Phaedo* 87D). From other passages, too, it has been conjectured that Plato was a Pythagorean.
- 3) Jean Filliozat, *The classical doctrine of Indian medicine, its origins and Greek parallels*, Delhi, Munshiram Manoharlal,

1964, p. 229 : 'Armand Delpeuch in his *Lagoutte et rhumatisme*. Paris, 1900, pp. 26 ff. has been struck on finding in the *Timaeus* ... quite aberrant in comparison with Hippocratic medicine, the classical teaching of Ayurveda, whereby diseases are provoked by the wind, bile and phlegm. But he believed that he could refer this teaching back to the Veda and thought that Plato had received it from the Pythagorean tradition, Pythagoras being reported to have searched for a medical philosophy in India. It is impossible to accept the idea that the doctrine in question goes back, in its complete form, up to the Veda, but it is certain that its analogy with the thesis of the *Timaeus* is remarkable.'

- 4) 'Selbst zu den Brahmanen soll er gekommen sein ... Die Sache wäre an sich wohl denkbar, aber die Zeugen sind zu unsicher'. ( he is believed to have reached even the Brahmins ... The idea itself is quite conceivable but the testimonies are not convincing enough ). Eduard Zeller, *Die Philosophie der Griechen in ihrer geschichtlichen Entwicklung*, 2nd ed., Tübingen. L. F. Fues, vol. i, 1856, p. 219, n. 4, p. 220 See Clemens of Alexandria ( fl. 300 A. D. ), *Stromata* I 304B. German trl. Overbeck, Basle, B. Schwabe, 1936, Book I, ch. 15, par. 68, 1 ; p. 198.
- 5) *The histories of Herodotus of Halicarnassus*, Book IV, ch. 186-187, trl. Harry Carter, London, Oxford University Press, 1962, p. 292.-For direct Greek-Persian connections see story of Greek physician Democedes curing King Darius, *ibid.*, Bk. III, ch. 130, p. 217.
- 6) Maximilian Wellmann, *Die Fragmente der sikelischen Aerzte Akron, Philistion und des Diokles von Karysthos*, Berlin, Weidmann, Band 1, 1901, p. 69.
- 7) *The medical writings of Anonymus Londinensis*, ch. xxi, MS fol. 26, ed. and trl. W. H. S. Jones, Cambridge University Press, 1947, p. 85.
- 8) Carl Friedrich, Hippokratische Untersuchungen. In : *Philologische Untersuchungen* herausgegeben von A. Kiessling und Ulrich

von Wilamowitz-Moellendorff, 15, Heft, Weidmann, 1899, pp. 34-35, 40.

- 9) Fredrich, *ibid.*, p. 28. See also Hippocrates, *Oeuvres completes, Des maladies* Book 4, ch. 32, Paris, J. B. Bailliere, vol. 7, 1851, p. 543.
- 10) *Suśruta Samhita*, Book I, ch. 21., verses, 9-16 ; ch 15, ed. and trl. Kaviraj Kunja Lal Bishagratna, Calcutta, vol. 1, 1907, pp. 197-201 ; 120-121, *rGyud. bzhi, bShad. rGyud*, ch. 5, *Rechung, Tibetan medicine in original texts*, London, Wellcome Institute, 1973, pp. 44-45.
- 11) Ludwig Stein, *Die Psychologie der Stoa* Berlin, S. Calvay, 1886, p. 141 : 'Offenbar kann diese Pneumaverschlechterung nach stoischer Ansicht nur durch die mangelhafte Qualität der Blutaussdünstungen oder durch die schlechte Beschaffenheit der eingeatmeten Luft erfolgen'. ( The deterioration of pneuma, according to Stoic views, is due to the bad quality of the exhalations from the blood or the bad quality of the air breathed in ). See also Marielene Putscher, *pneuma, Spritus, Geist*, Wiesbaden, Franz Steiner Verlag, 1974, p. 23.
- 12) ( Claus Vogel, *Zur Entstehung der hippokratischen Viersaftelehre*, Inauguraldisertation Universität Marburg, 1956, p. 8.
- 13) Edwin Clarke and C. D. O'Malley. *The human brain and spinal cord*, Berkeley, University of California 1968, p. 4.
- 14) *rGyud. bzhi, bShad. rgyud*, ch. 9, *Rechung, Tibetan medicine*, p. 50. In the present article, whenever *rGyud. bzhi* is mentioned, the singular is used though the title literally means 'Four treaties'. In actual fact, they are four volumes of the same work - Hippocrates, *On the nature of man*, ch. 7. ed Littre, *Oeuvres completes*, Paris, J. B. Bailliere vol. 6, 1849, pp. 46-49 ; Hippocrates, Trl. W. H. S. Jones, vol. 4, p. 19.
- 15) *rGyud. bzhi bShad. rgyud*, ch. 4, *Rechung, Tibetan medicine*, p. 39.

- 16) Aristotle, *De partibus animalium* II 7, 652b-653a, trl. William Ogle, *The works*, Oxford University Press, vol. 5, 1911.
- 17) Theory that phlegm runs down from the brain causing catarrh and many catarrhal diseases has persisted in western medicine throughout the Middle Ages until J. B. Van Helmont in the 17th century proved its impossibility, See Walter Pagel, *Jo. Baptista Van Helmont. Einführung in die philosophische Medizin des Barock*, Berlin, Springer, 1930, p. 62ff.
- 18) Vāgbhata, *Ashtāṅgahrdayasamhitā* I i, 17, ed. and trl. Claus Vogel, *Abhandlungen für die Kunde des Morgenlandes* herausgegeben von der deutschen morgenländischen Gesellschaft 37, 2, Wiesbaden, F. Steiner, 1965, p. 60.
- 19) F. Meyer, *Medicine tibetaine-l'homme et son milieu*, Colloques internationaux du Centre National de la Recherche Scientifique, No. 268, Himalaya Ecologie Ethnologie, Sevres-Paris, 1976, p. 196.
- 20) Galen, *De causis morborum*, chs. 1-3. *Opera omnia*, ed. C. G. Kuhn, Leipzig, vol. VII, 1824, pp. 1-2, 10 ; *De simplicium medicamentorum facultatibus et temperamentis*, Book IV, ch. 16, *ibid.*, vol. XIV, 1827, p. 674.
- 21) See *Arnaldi de Villanova opera medica omnia. II, Aphorismi de gradibus*, ed., preface and commentary Michael R. McVaugh University of Gronada, 1975.
- 22) 'Wenn nämlich Krankheit auf einer fehlerhaften Mischung der Körpersäfte beruhte, ... so musste dieser krankhafte Zustand auch im Harn sichtbar werden'. ( If disease was based on a faulty mixture of the humours .. so this diseased state had to become visible in the urine'. Johanma Bleker, *Die Geschichte der Nierenkrankheiten*, Mannheim, Boehringer, 1972, p. 17. See also Esther Fischer-Homberger, *Geschichte der Medizin*, Berlin, Springer, p. 27.
- 23) *rGyud. bzhi, bShad. rgyud*, ch. 2, *Rechung, Tibetan medicine* p. 32.



- 24) See Walter Pagel, *William Harvey's biological ideas*, Basel-New York, S. Karger, 1967, p. 254, and A.L. Peck, The connate pneuma. An essential factor in Aristotle's solutions of the problems of reproduction and sensation. In : *Science, medicine, and history. Essays written in honour of Charles Singer*, ed. E. A. Underwood, Oxford University Press, 1953, vol. 1, pp. 111-121.
- 25) *rGyud. bzhi, bShad rgyud* ch. 2, Rechung, *Tibetan Medicine*, p. 43, 44.
- 26) Plato, *Timaeus* 82 C. D, Collected dialogues, p. 1203.
- 27) *rGyud. bzhi, bShad. rgyud*, ch. 2, Rechung, *Tibetan medicine*, p. 33.
- 28) Aristotle, *De generatione animalium* I 20, 729a, trl. Arthur Platt, *The works*, vol. 5, 1910. - Job 10, 10 'Hast thou not poured me out as milk and curdled me like cheese ?' may be derived from Aristotle via Hellenistic sources because Job is a late book of the Bible.
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- 32b) Galen, *De usu partium*, Book 14, chapter 7 ; ed. Kühn, vol. IV, p. 172.
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- 32d) Aristotle, *De generatione animalium* IV, I, 763b, 30-764a, 1, trl. Arthur Platt, *The works*, vol. 5, 1910.

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