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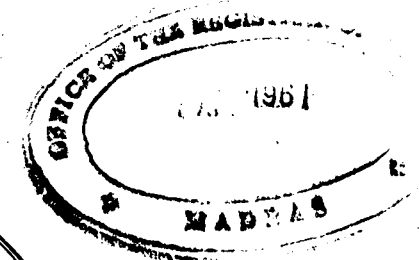
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# Indian Journal

OF THE

## History of Medicine

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### Medical Fees - Then and Now

BY

K. BHASKER RAO, M.D.,

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There is a reward for any work that is well done. Physicians who aim at relief of human suffering have been paid for their services either in kind or in cash from time immemorial. Only the amount and system of payment have varied from time to time.

Probably, the earliest physician's tariff was laid down in the Code of Hammurabi (about 2250 B.C.) in Mesopotamia. The fee was determined by the social status of the patient, the type of operation and its results. The payment was made in Shekels of silver—the coinage current then. Servants and slaves were charged 50 percent and 20 percent respectively of the fees chargeable to gentlemen (Sigerist, 1951): But when an operation ended fatally or in a grievous hurt, the physician's hands were cut off and if the patient was a slave, he was made to pay his value. This system of penalty was prevalent in other countries, like Egypt and India too and prevented the physicians from accepting any risks in treatment, especially in surgery. At the same time, it ensured that only those who were trained in medicine could practise it with confidence.

In India, in the Rigvedic days (1500 B.C. to 1000 B.C.) the physician got a cloth, a horse or a cow in return for his services (Rao, 1958). Few centuries later, as shown in Sathpatha Brahmana, the priest physician expected either some gold or a carriage and horse as a fee for a sacrifice performed to heal some disease (Eggeling, 1885). Jeevaka, physician to the Buddha and also to King Bimbisara of Magadha, was rewarded by a payment of 16,000 Kahapanas (silver coins), a maid servant, a man servant and a coach with horses for treating his very first patient—wife of a merchant prince at Saketa. For performing another operation for removal of some foreign bodies from the brain of a business magnate of Rajagriha he was paid 100,000 Kahapanas (Rhys Davids and Oldenberg, 1881). But he treated the Buddhist monks and the poor free. Medical practice

in ancient India was permitted only by license obtained from the King (Susruta Samhita I-2, 6-8). Susruta also stated that a physician should give medicine gratis to a Brahmin, a spiritual teacher, poor, friend and an ascetic; and that he should treat the patient like his own son (Jolly, 1951). Caraka emphasised that medical practice should be humanitarian in outlook and should be practised mainly for acquiring merit, wealth or for pleasure (Caraka Samhita I-30, 24). A medical teacher should be like a mango tree and give all fruits to others and retain none for himself. In Nalanda, medical education, boarding and lodging was free for students (Caraka Samhita, Vol. I).

In Greece, during the age of Pericles, general practitioners began to receive specified fees. There were state physicians in the city and in the districts getting an annual salary which was considered fairly high then. Democedes, in Athens (525 B.C.) was paid equivalent of about 10,000 Rupees. Romans later copied this practice which actually started with Egyptians. Physicians' offices consisting of consultation rooms, dispensaries and operation theatres were maintained by levy of special taxes (Garrison, 1917). Hippocrates, however, taught that, "one should not be too grasping, but consider carefully your patients means. Sometimes give your services for nothing. For where there is love of man, there is also love of art" (Guthrie, 1946). Even so, the Greek rulers paid handsome fees to their physicians. Erasistratus of Julis, a surgeon received equivalent of £ 24,375 for restoring to health, Antiochus—the eldest son of Seleukas Necator, King of Syria in 294 B.C. (D'Arcy Power and Thompson 1923).

With the rise of Islam, Arabic medicine also flourished. Some of the Arabic physicians dressed with grandeur—with long richly embroidered sleeves and tall turbans. They stipulated their fees in advance and were paid half of it, if the illness deteriorated or was not relieved. Garrison (1917) feels that some of these fees were phenomenal. Gabriel Batischua, a favourite physician in the court of Harun-al-Rashid got about \$ 1,500 per annum for bleeding and purging the Commander of the Faithful, besides a regular monthly salary of about \$ 2,500 and a New Year gift of \$ 6,250. He estimated his total wealth in fees at \$ 10,000,000. When he was recalled from banishment to heal Al-Meiamun he was paid \$ 1,25,000 which is regarded as the largest fee on record. Another Arab physician received over \$ 60,000 for curing one of the Caliphs of stone. Obviously, the treasury was full, the Caliphs were generous and the skilful physicians were paid more than they could ordinarily expect. But they maintained a high standard of medical ethics and were not corrupted by the vast riches they were given or promised. Mallick (1953) records how Hamayun Ibn Ishaq (807-877) refused the order of the Caliph to poison his enemies and was prepared to face consequences as he felt it was against his religion and profession to do so. The state maintained well equipped and adequately staffed hospitals for the public where the treatment was given free.

About this time, however, on the Continent, the plight of the physicians was rather pitiable. He was constantly harassed and paid ridiculously low. Under the Visigothic code he had to make a contract. If the patient died no fees were paid; but if he injured a nobleman during venesection a fine of 100 Solidi (about Rs. 900) was levied; and if the noble personage died inspite of one's best attempts, the physician was handed over to the relatives of the deceased to be dealt with as they pleased. If the patient was a slave and was injured or died during therapy he had to be replaced by another of equal value. Henry De Mondeville (1260-1320) a French Physician during this period recorded his difficulties to collect his fees. He advised, "Never dine with a patient who is in your debt, but get your dinner at an inn; otherwise he will deduct his hospitality from your fees".

There was a definite alround improvement in medical education and practise with the Renaissance. Royal physicians in England got an annual fee of varying from Rs. 800 to Rs. 4,000. A consultation fetched equivalent of Rs. 8 to 10; and it cost only half of it if it were by post. The surgeons were paid more than the physicians. Harvey was paid £ 40, annually as Professor of Physic in Cambridge in 1626 and left an estate of £ 20,000 when he died; but Vesalius got a good pay of \$ 1,000 at Pisa and was considered the best anatomist of the era.

In the 17th century England, prosperity brought more luck and fortune to physicians. John Radcliffe (1650-1729) was charging 5 guineas per consultation and had a prosperous practice. He made large donations to educational institutions and hospitals. The famous gold headed cane which he used was passed on to another flourishing practitioner, Richard Mead (1673-1754) who charged a guinea for each consultation and half a guinea for coffee house practice. William Smellie charged the rich but delivered the poor free (Johnstone, 1952), William Chesledon (1688-1752) surgeon at Chelsea and teacher of John Hunter had a good practice. He charged a fee of £ 500 for Lithotomy. During this time physicians and surgeons took pupils for training at £ 500 per student. John Hunter made about £ 5,000 per year but Sir Astley Cooper improved this figure and made about £ 10,000 to £ 25,000 per year by numerous consultations.

Garrison (1917) described how an enormous fee was obtained by Thomas Dimsdale for inoculating Empress Catherine of Russia and the nobility against smallpox. He was paid \$ 50,000 plus \$ 10,000 for travel and a pension of \$ 2,500 for life with a rank of a Baron of the Russian Empire.

About 1,700, in the Indian Medical Service, pay was higher in Bombay than elsewhere; and a senior surgeon expected to get £ 90 per annum. It was reduced in 1729 to £ 36 per annum. This encouraged the I.M.S. officers to indulge in trade, contracts and private practice with Rajahs and Nawabs. Some of the surgeons made large fortunes. It is recorded that an assistant surgeon from the I.M.S. died leaving behind £ 1,30,000. Nearly 100 years later this speculation in trade was forbidden but medical practice

with princely families continued (McDonald, 1956). Sir Peter J. Freyer, Civil Surgeon of Moradabad received from Nawab of Rampur Rs. 100,000 (£12,000) for treating the Nawab and Vice-President of his Council, General Md. Azimuddin Khan Bahadur (D'Arcy Power, 1957).

It is only during the past 100 years that both medical education and practise has been properly regulated. Now we have well trained and equipped doctors easily available and the fees charged are neither so exorbitant, nor phenomenal. He can always make a good living by what he earns and by hard work can save some for the future needs too. But the doctor can never be blamed as a mercenary. He not only is advocating cure of disease but is more vigorously applying all his thoughts, skill and energy to preventive medicine. Apart for these public health problems, he is treating the patient not as an individual but as a member of society. He considers the effect of the patients illness on society and also studies the social factors responsible for the disease. The nationalisation of medicine in some countries has brought medical relief within easy reach of all and the services of physicians have been utilised to cover not only the illness of an individual but what is more important to maintain his well being. These aspects of medicine—preventive or social medicine and nationalisation of medicine—are two important developments of our century. These two products are of his own creation and willingly has he limited and rationalised his fees for the benefit of society.

The doctor like any other human being likes money as he needs it and expects it in return for his services. But what he prizes most is not the money, but the gratitude of his patient whose misery he has relieved with his skill.

#### REFERENCES

1. Caraka Samhita: English Translation by Avinash Chandra, K. 1880—Vols. I and II.
2. Caraka Samhita: Published by Gulabkunvera—Ayurvedic Society, Vol. I, Jamnagar, 1959, 170 and 226.
3. D'Arcy Power, Sir (1957): Fees of our Predecessors—Side lights on history of Medicine edited by Z. Cope: Butterworths, London, 73.
4. D'Arcy Power, Sir and Thompson, C. J. S. 1923—Chronologia Medica—John Bale Sons and Danielson, London, 24.
5. Eggeling, J. (1885)—Sathpatha Brahmana, Part III, Clarendon Press, Oxford, 50.
6. Garrison, F. H. (1917): Introduction to History of Medicine, W. B. Saunders, Philadelphia, II Edition, 79, 119 and 396.
7. Guthrie, D. (1946): A history of Medicine, Thomas Nelson and Sons, London, 54.
8. Johnstone, R. W. (1952): William Smellie, Publishers—E. & S. Livingstone, London, 22.
9. Jolly, J. (1951): Indian Medicine, Translated by Kashikar, C. G., Poona-4 30.
10. Mallik, S. M. K. (1953): Brit. Med. J. 2, 461.
11. McDonald, D. (1956): Indian Medical Service, Proc. Roy. Soc. Med. 49, 13.
12. Rao, K. B. (1958): Medicine in Rig Veda—Indian Journal of History of Medicine, 3, 33.
13. Rhys Davids, T. W. and Oldenberg, H. (1881): Vinaya Texts—Vol. II, Oxford University Press, New York, 433.
14. Sigerist, H. E. (1951): History of Medicine, Vol. I, Oxford University Press, New York, 433.
15. Susruta Samhita, English translation by Kunjalal Bhishagratna, Calcutta, 1907, Vol. I.



## “Navanitakam”

Some new observations and conclusions regarding the book and author

BY

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*History of the Manuscript.* Navanitakam is another name of the ‘Bower Manuscript’ named after its discoverer, Maj. Gen. L. H. Bower. It was discovered at Kachur, principal oasis of Eastern Turkestan, on the great caravan route to China. A man of Kachur dug in anticipation of getting some treasure, in an area supposed to contain an underground city. The man could not find any wealth but discovered the treasure of knowledge—the manuscript. This manuscript was bought for a small sum by L. H. Bower, who had gone there on a private mission from the Government of India. The manuscript was forwarded to Mr. J. Waterhouse, the then President of the Asiatic Society. It was deciphered and published by Dr. A. F. Rudolf Hoernle, M.A., Ph.D., who spent 21 years on its study. Afterwards the manuscript was sold to the Bodleian Library in Oxford.

*Divisions into Parts or Books.* This book was edited in seven parts under the name ‘Navanitakam’ by Dr. Hoernle. The second and seventh part are divided into 14 and 2 chapters respectively. The basis of the division is not known. On studying the whole book carefully it seems to be a better course to divide the whole book into three books.

I. *Navanitakam.* This includes the first three parts of Hoernle's edition.

II. *Prasna Shastram.*—It includes the 4th, and 5th parts of Hoernle.

III. *Mahamayuri Vidya.*—It includes the last two (6th & 7th) parts.

The subject, style and language of the three books suggest that they are three different treatises. The whole book is named as ‘Navanitakam’ in the Lahore edition, but the whole book does not deserve the name, Navanitakam. The author himself mentions in the beginning that “these 16 chapters are to be known as Navanitakam”. (Page 20, Lahore Edition, 1925). These sixteen chapters are included in the first three parts of Hoernle's edition. The Third Part of Hoernle's edition may be taken as 15th and 16th chapters, and the first part may be included in the first chapter of II Part as an Introductory portion both constituting I chapter, followed by the remaining 13 chapters in II Part. Thus, the three parts in Hoernle's edition may be considered as one treatise of sixteen chapters, of Navanitakam,

which will agree with the above sentence of the author. Even if the complete manuscript is marked by the name 'Navanitakam' on every leaf, it should be taken only as a mistake of the copyist.

*Author.*—Nothing is said about the author of this book in the Preface to Lahore edition by Sri K. B. S. Mohan. It is stated that the book was named as 'Navanitakam' meaning 'Butter' according to the soft and sweet style of the book. By the style of the book we can imagine that the author had a gentle nature and merciful heart. 'Navanita' might be the title of the author and hence the book was called as Navanitakam after his name. The root-meaning of the word 'Navanitakam' also reveals the same—'A book compiled by Navanita'.

Regarding the last part—Mahamayuri Vidya—Yasomitra is stated by Hoernle as the copyist of that part of the manuscript, whose name is mentioned in the text (but not at the end) of the last part, which is the third treatise. As there is no specific mention that Yasomitra is the copyist of the manuscript, it is better to accept that he is the 'author' of Mahamayuri Vidya. The names of the writers of the other part of the manuscript are also not mentioned.

In view of the above observations, we can conclude that the authors of Navanitakam and Mahamayuri Vidya are Navanita and Yasomitra respectively and the name and identity of the author of the Prasna Sastra, remain unknown.

*Date.*—The script of manuscript—specially the mode of writing the letter 'Y' suggest the date of the manuscript to be 4th century A.D.

A number of Maharshis (Preceptors) including Susruta, Atreya, Punarvasu, Kasyapa and others are mentioned in the book. Some Slokas are similar to the compositions of the Maharshis named above. Vagbhata and others who belong to the later ages are not mentioned. This leads us to the conclusion that the author of Navanitakam flourished in the interval between the Arsa Yuga and Madhya Yuga, which may be taken as the Second century A.D.

*Place of the Author.*—According to the script of the manuscript, its place is thought to be Northern India, probably Kashmir. The mention of some herbs, the description of Himalayas in the very beginning of the book and the style also support the above inference.

*Religion of the Author.*—It is stated that the author was a Buddhist on the grounds that the Prasna Sastra and Mahamayuri Vidya belong to the

Buddhistic tradition and Yasomitra was a well-known Buddhist scholar. The homage to Buddha in the beginning of the II part in the words 'Namastathagatebhyah' is also taken as supporting this view.

The above conception is based on the idea that the whole collection is by a single author. According to our classification shown above, this manuscript is a collection of three books of different authorship. Hence the author of the whole manuscript need not be the same. A keen study of Navanitakam shows that its author is not a Buddhist. A number of Vaidic preceptors are mentioned in this book, who are mentioned by Susruta and others and not even one Buddhist preceptor is named in it. If the author is a Buddhist he should have mentioned the Buddhist preceptors of Ayurveda. Jaina medical authors, like Ugraditya, did mention the names of Jain tradition of preceptors as Rishabhanadha, Samanta Bhadra etc.

The origin of garlic narrated in this coincides with that of Puranas and other Vaidic books. It is a well-known fact that Buddhists do not follow the authority of Vedas.

The most important principle of Buddha and Jaina religion is non-violence. They do not admit the usage of Honey, Meat, animal Fat and other products of violence even for medical purposes. Hence they were omitted by Ugraditya (Kalyanakaraka) and other followers of Jainism and Buddhism. Contrary to this, Navanitakam contains a number of formulae, lines of treatment etc., which admit the usage of honey, meat etc.

As for the sentence paying homage to Buddha in the beginning, that may be taken as an addition made by the copyist. It is a general practice of writers to begin with some auspicious words as—Om, Sree etc., for Hindus, Namo Budhaya etc., for Buddhists and so on.

From the above facts, it may be concluded that the author of Navanitakam was a follower of Vedas and not a Buddhist.

*Tradition and style of the Book.*—This book begins with the description of Himalayas in six verses. This may be taken as the introduction of the kind, 'Vastunirdesa' as done by Kalidasa in his Kumara Sambhavam.

Many preceptors of Ayurveda are mentioned in this book—as Brahma, Asvins, Dhanvantari, Atri, Vasista, Kasiraja Divodasa, Susruta, Manibhadra and others. Some verses are similar to those found in the Samhitas. The following preceptors are named after some formulae :—

- (1) Kankayana.
- (2) Suprabha.
- (3) Nimii.

- (4) Usanasa (Sukra).
- (5) Vadvali.
- (6) Brhaspati.
- (7) Agastya.
- (8) Dhanvantari.
- (9) Jivaka.
- (10) Kasyapa.

The author of this book exhibits some knowledge of the Jyotisa and Dharma Sastras. At certain places in the book while describing the Chitrakarasayana, Pippalirasayana Vidhi, starting of the treatment etc., he prescribes that the physician and the patient should perform necessary religious rites. They include ablution, solitude, worshipping the Gods, specially Fire God, feeding Brahmanas and other deeds of religious importance. At the same time, he gives auspicious days, Naksatras (stars) and combination of planets separately. This shows his faith in the Dharma Sastras and Astronomy.

The author declares in the beginning that his intention is "to compile a book of medical formulae, some taken from the ancient samhitas, and some introduced by himself, which are useful for women, men and children, the subject being treated in a gentle and simple style", and so he did. His style of composition resembles that of Vagbhata.

*Contents and divisions.*—The book contains sixteen chapters, *i.e.*, the first three parts of Hoernle's edition. The following are the contents of the chapters.

|         |                                                 |
|---------|-------------------------------------------------|
| Chapter | I. Formulae of powders.                         |
| "       | II. Preparation of Medicinal ghees—Ghrutas.     |
| "       | III. Tailas—Preparations of medicinal oils.     |
| "       | IV. Mixtures for different diseases.            |
| "       | V. Formulae for Enema.                          |
| "       | VI. Rasayana Vidhi—Elixirs.                     |
| "       | VII. Manda, peya and other liquid preparations. |
| "       | VIII. Vrusya yogas. Aphrodisiacs.               |
| "       | IX. Eye ointments.                              |
| "       | X. Formulae for dyeing the hair.                |

|         |                                               |
|---------|-----------------------------------------------|
| Chapter | XI. Abhayakalpa—Preparations of Abhaya.       |
| "       | XII. Silajit Kalpa—Preparations of Silajit.   |
| "       | XIII. Chitrakalpa—Preparations of Chitraka.   |
| "       | XIV. Mixtures useful for children's diseases. |
| "       | XV & XVI. Female diseases—sterility.          |

The last two chapters are not found as full chapters in the manuscript. These contents are mentioned by the author himself, in the beginning. The third part in Hoernle's edition containing two topics *viz.* Misraka Yogas and Prasidha Modaka, treat of some female diseases. Hence, these two topics in 3rd part may be taken, as the 15th and 16th chapters of Navanitakam.

In conclusion, the two view points may be represented thus in a tabular statement.—

| A. F. Rudolf Hoernle's Division : |     | Our Division.     |               |
|-----------------------------------|-----|-------------------|---------------|
| Part I Chapter I                  | }   | Chapter I         | } Navanitakam |
| Part II Chapter I                 |     | Chapter II to XIV |               |
| Chapters II to XIV                | ... | Chapters XV & XVI |               |
| Part III—2 topics                 | ... | Prasna Sastram    |               |
| Part IV & V                       | ... | Mahamayuri Vidya  |               |
| Parts VI & VII                    | ... |                   |               |

#### ACKNOWLEDGEMENTS

A Re-examination of Navanitakam was suggested by Dr. D.V. Subba Reddy, Director, Upgraded Department of History of Medicine, Hyderabad, to whom the author is indebted for books, advice and help in the translation of the article into English.

#### REFERENCES

1. The Bower Manuscript, ed. by A. F. Rudolf Hoernle, Calcutta, 1893-1912, Superintendent, Govt. Printing, India (Archaeological Survey of India).
2. Navanitakam or (The Bower Manuscript), ed. from the Edited Principles of Dr. Hoernle by Kaviraj Balwant Singh Mohan with permission of Sir John Marshall, 1st ed., Lahore, 1925, Mehar Chand Lachman Das, Lahore.



## Sociology of Medicine in the Muqaddimah of Ibn Khaldun

(Continued from Ind. Jr. Hist. Med., Vol. IV, No. 1, p. 23, June 1959)

BY

D. V. SUBBA REDDY.

### III

#### CRAFT AND SCIENCE OF MEDICINE AND OF MIDWIFERY

The genius of Ibn Khaldun excites our wonder and admiration, when he begins to write not only on various branches of learning, on humanities, language and arts, but also on "Crafts and Sciences" with a wide knowledge, profound grasp, that would do credit to many medical writers.

*Crafts.*—His definition of crafts is worth quoting—

"A craft is a habit of something concerning with action and thought. Some crafts are simple, others are composite. The simple ones concern the necessities and the composite ones belong to the luxuries. The skill a student acquires in a craft and the habit he attains corresponds to the quality of instruction and the habit of the teacher.

"In small cities and towns, only simple crafts concerned with the necessities like agriculture are found. When the city is fully organised and sedantary civilisation develops and wealth is more, the crafts which are luxurious flourish. The crafts concerning with Sciences, the crafts of refinement, correspond to the civilisation of a given country. In the cities, they become ways of a living for those who practice them. In fact, they become lucrative activities because urban luxury demands that. All crafts are customs and colours of civilization" (Vol. ii, p. 346-53).

He continues—

"Crafts are numerous; but two kinds are important (i) Necessary crafts like agriculture, carpentry, weaving etc. (ii) Crafts that are noble, Midwifery Writing, Book production, singing and medicine" (Vol. ii, p. 355-56).

Since this article is intended and restricted to Ibn Khaldun's knowledge and discussion of matters relating to Health and Medicine, his definitions and passages connected with Medicine and Midwifery are quoted:

#### BRIEF DEFINITIONS

"Medicine preserves the health of man and repels disease. It is a branch of physics. Its object is the human body."

"Midwifery is something necessary in civilization and a matter of general concern, because it assures, as a rule, the life of the new-born child. The object of (midwifery) is new-born children and their mothers."

These brief definitions are followed by more detailed and elaborate descriptions of the two Crafts.

#### A. CRAFT OF MEDICINE

The aim of the craft of medicine—

"Its fruit is the preservation of health among those who are healthy and the repulsion of illness among those who are ill, with the help of medical treatment, until they are cured of their illness".

Origin of all illness is food—

"It should be known that the origin of all illnesses is in food, as Muhammad said in the comprehensive tradition on medicine, that is reported among physicians but suspected by the religious scholars. He said: 'The stomach is the home of disease. Dieting is the main medicine. The origin of every disease is indigestion.' The statement: 'The stomach is the home of disease', is obvious. The statement: 'Dieting is the main medicine', is to be understood in the sense that *himyah* 'dieting means' 'going hungry', since hunger means refraining (ihtima) from food. Thus, the meaning is that hunger is the greatest medicine, the origin of all medicines. The statement: 'The origin of every disease is indigestion', is to be understood in the sense that *baradah* "indigestion" is the addition of new food to the food already in the stomach before it has been digested" (Vol. ii, p. 373).

(Here is a brief account of Physiology and Pathology of digestion. This is omitted in this article).

Illness originates from fevers and most illnesses are fevers:—

"The reason for fevers is that the natural heat is too weak to complete the process of boiling in each of those stages. The nourishment thus is not fully assimilated. The reason for that, as a rule, is either that there is a great amount of food in the stomach that becomes too much for the natural heat, or that food is put into the stomach before the first food has been completely boiled. In such a case, the natural heat either devotes itself exclusively to the new food, so that the first food is left in its (half-digested) stage, or it divides itself between the old and new food, and then is insufficient to boil and assimilate them completely. The stomach sends the (food) into the liver, and the heat of the liver likewise is not strong enough to assimilate it. Often, an unassimilated superfluity, resulting from food that had been taken in earlier, has (also remained) in the liver. The liver sends all of it to the veins unassimilated, as it is. When the body has received what it properly needs, it eliminates the (unassimilated superfluity) together with the other superfluities such as sweat, tears, and saliva, if it can. Often (the body) cannot cope with the greater part of the (unassimilated superfluity). Thus, it remains in the veins, the liver, and the stomach, and increases with time. Any composite humid (substance) that is not boiled and assimilated undergoes putrefaction. Consequently, the unassimilated nourishment—what is called—*khilt*—becomes putrefied. Anything in the process of putrefaction develops a strange heat. This heat is what, in the human body, is called fever."

**Putrefaction as the cause of fever and illness:—**

“This may be exemplified by food that is left over and eventually becomes putrefied, and by dung that has become putrefied. Heat develops in it and takes its course. This is what fevers in the human body mean. Fevers are the main cause and origin of illness, as was mentioned in the (Prophetic) tradition. Such fevers can be cured by not giving an ill person any nourishment for a certain number of weeks; then, he must take the proper nourishment until he is completely cured. In a state of health, the same procedure serves as a preventive treatment for this and other illnesses.

“Putrefaction may be localised in a particular limb. Then, a disease will develop in that limb, or the body will be affected either in the principal limbs or in others, because (that particular) limb is ill and its illnesses produces an illness of its power. This covers all illnesses. Their origin as a rule is in the nourishment.”

Ibn Khaldun adds that “all this is left to (the attention of) the physician.”

The incidence of such illness is greater in cities and the Historian proceeds to give explanations for this greater incidence of illness in cities:—

“They eat a great deal and rarely restrict themselves to one particular kind of food. They lack caution in taking food, and they prepare their food, when they cook it, with the admixture of a good many things, such as spices, herbs, and fruits, (both) fresh and dry. They do not restrict themselves in this respect to one or even a few kinds. We have on occasion counted forty different kinds of vegetables and meats in a single cooked dish. This gives the nourishment a strange temper and often does not agree with the body and its parts.

“Furthermore, the air in cities becomes corrupt through admixture of putrid vapors because of the great number of superfluities (in the cities). It is the air that gives energy to the spirit and thus strengthens the influence of the natural heat upon digestion.

“Furthermore, the inhabitants of cities lack exercise. As a rule, they rest and remain quiet. Exercise has no part in their (life) and has no influence upon them. Thus, the incidence of illness is great in towns and cities, and the inhabitants' need for medicine is correspondingly great.

On the other hand, there is little illness among the inhabitants of the desert and the reasons for this are given:—

“As a rule, they eat little. Hunger prevails among them, because they have little grain. (Hunger) eventually becomes a custom of theirs which is often thought to be something natural to them because it is so lasting. Of seasonings they have few or none. The preparation of food boiled with spices and fruits is caused by the luxury of sedentary culture with which they have nothing to do. Thus, they take their nourishment plain and without admixtures, and its temper comes close to being agreeable to the body. Their air has little putrescence, because there is

little humidity and putrescence when they stay (anywhere), and the air is changing when they move around. Too, they take exercise, and there is a lot of movement when they race horses, or go hunting, or search for things they need, or occupy themselves with their needs. For all these reasons, their digestion is very good. There is no adding of new food when the old food (has not yet completely been digested). Thus, their temper is healthier and more remote from illness (than that of sedentary people). As a result, their need for medicine is small.

Ibn Khaldun repeatedly stresses that the Craft of Medicine is needed in settled areas and cities but not in the desert—

“Therefore, physicians are nowhere to be found in the desert. The only reason for this is the lack of need for them, because, if physicians were needed in the desert they would be there. There would then be a livelihood for them to lead them to settle there” (Vol. ii, p. 373-77).

Ibn Khaldun writes again of Medicine under the heading “the Science of Medicine” (Vol. iii, p. 148-151).

“Medicine is a craft that studies the human body in its illness and health. The physician attempts to preserve health and to cure illness with the help of medicines and diets but first he ascertains the illness(es) peculiar to each limb of the body, and the reasons causing them. He also ascertains the medicines existing for each illness. Physicians deduce the (effectiveness of) medicines from their composition and powers. They deduce (the stage of) an illness from signs indicating whether the illness is ripe and will accept the medicine or not. (These signs show themselves) in the color (of the patient), the excretions, and the pulse. The physicians in this imitate the power of nature, which is the controlling element in both health and illness. They imitate nature and help it a little, as the nature of the matter (underlying the illness), the season (of the year), and the age (of the patient) may require in each particular case. The science dealing with all these things is called medicine.

“Certain limbs are occasionally discussed as individual subjects and are considered to (form the subjects of) special sciences. This is the case, for instance, with the eye, the diseases of the eye and the collyria (used in the treatment of the eye diseases).

He refers to Great Medical writers of Ancient and medieval times.

“(Scholars) have also added to this discipline the (study of the) uses of the parts of the body, that is, the useful purpose for which each limb of the animal body was created. This is not a medical subject, but it has been made into an annex and subdivision of medicine. Galen has written an important and very useful work on this discipline.

“Galen is the leading ancient authority on medicine. His works have been translated (into Arabic). He is said to have been a contemporary of Jesus and to have died in Sicily on his wanderings while in voluntary exile. His works on medicine are classics which have been models for all later physicians.

“There have been leading physicians in Islam of surpassing skill, such as, for instance, ar Razi, al-Majusi, and Avicenna. There have also been many Spanish physicians. Most famous among them was Ibn Zuhr.”

Ibn K.'s account of Medicine of Bedouins is brief but interesting:

"Civilized Bedouins have a kind of medicine which is mainly based upon individual experience. They inherit its use from the *shaykhs* and old women of the tribe. Some of it may occasionally be correct. However, (that kind of medicine) is not based upon any natural norm or upon any conformity (of the treatment) to the temper of the humors. Much of this sort of medicine existed among the Arabs. They had well-known physicians, such as al-Harith b. Kaladah and others."

His account of Medicine in religious traditions of the Prophet is very illuminating:

"The medicine mentioned in religious tradition is of the (Bedouin) type. It is in no way part of the divine revelation. (Such medical matters) were merely (part of) Arab custom and happened to be mentioned in connection with the circumstances of the Prophet, like other things that were customary in his generation. They were not mentioned in order to imply that that particular way of practising (medicine) is stipulated by the religious law. Muhammad was sent to teach us the religious law. He was not sent to teach us medicine or any other ordinary matter. In connection with the story of the fecundation of the palms, he said:—You know more about your worldly affairs (than I)."

"None of the statements concerning medicine that occur in sound traditions should be considered to (have the force of) law. There is nothing to indicate that this is the case. The only thing is that if that type of medicine is used for the sake of a divine blessing and in true religious faith, it may be very useful. However, that would have nothing to do with humoral medicine but be the result of true faith. This happened in the case of the person who had a stomach-ache and was treated with honey, and similar stories" (Vol. iii, p. 148-151).

### B. CRAFT OF MIDWIFERY

Ibn Khaldun points out that this Craft of Midwifery is necessary to the human species and civilisation, as, without it, the individuals of the species as a rule could not come into being. He outlines the aim and object of the Craft as—

"Midwifery is a craft that shows how to proceed in bringing the new-born child gently out of the womb of his mother and how to prepare the things that go with that" (Vol. ii, p. 368).

Then, he adds that the Craft is as a rule restricted to women, since they, as women, may see the pudenda of other women, and explains the meaning of the word "midwife"—

"The word implies the meaning of giving and receiving. The woman in labor in a way gives the embryo to the midwife, and the latter receives it."

Ibn Khaldun's description of woman in Labor, and the role of midwife during and after the birth of the infant, is a master-piece of description which deserves to be reprinted for the benefit of this age.

"When the embryo has gone through all its stages (as indicated in the Quran), and is completely and perfectly formed in the womb—the period God determined for its remaining in the womb is as a rule nine months—it seeks to come out, because God implanted such a desire in (unborn children). But the opening is too narrow for it, and it is difficult for (the embryo to come out). It often splits one of the walls of the vagina by its pressure, and often the close connections and attachment of (its) covering membranes with the uterus are ruptured. All this is painful and hurts very much. This is the meaning of labor pains. In this connection, the midwife may offer some succor by massaging the back, the buttocks, and the lower extremities adjacent to the uterus. She thus stimulates the activity of the (force) pushing the embryo out, and facilitates the difficulties encountered in this connection as much as she can. She uses as much strength as she thinks is required by difficulty of (the process). When the embryo has come out, it remains connected with the uterus by the umbilical cord and its stomach, through which it was fed. That cord is a superfluous special limb for feeding the child. The midwife cuts it but so that she does not go beyond the place where (it starts to be) superfluous and does not harm the stomach of the child or the uterus of the mother. She then treats the place of the operation with cauterization or whatever other treatment she sees fit.

"When the embryo comes out of that narrow opening with its humid bones that can easily be bent and curved, it may happen that its limbs and joints change their shape, because they were only recently formed and because the substances (of which it consists) are humid. Therefore, the midwife undertakes to massage and correct (the new born child), until every limb has resumed its natural shape and the position destined for it, and (the child) has again its normal form. After that, she goes back to the woman in labor and massages and kneads her, so that the membranes of the embryo may come out. They are sometimes somewhat late in coming out. On such occasion, it is feared that the constricting power (muscle) might resume its natural position before all the membranes are brought out. They are superfluities. They might become putrid, and their putridity might enter the uterus, which could be fatal. The midwife takes precautions against that. She tries to stimulate the ejection, until the membranes which are late in coming out, come out too.

"She then returns to the child. She anoints its limbs with oils and dusts it with astringent powders, to strengthen it and to dry up the fluids of uterus. She smears something upon the child's palate to lift its uvula. She puts something into its nose, in order to empty the cavities of its brain. She makes it gargle with (swallow) an electuary, in order to prevent its bowels from becoming obstructed and their walls from sticking together.

"Then she treats the woman in labor for the weakness caused by the labor pains and the pain that the separation causes her uterus. Although the child is no natural limb (of the mother), still, the way it is created in the uterus causes it to become attached (to the body of the mother) as if it were an inseparable limb (of the body).

"Therefore, its separation causes a pain similar to that caused by the amputation (of a limb). (The midwife) also treats the pain of the vagina that was torn and wounded by the pressure of (the child) coming out" (Vol. ii, p. 370).

**RELATIVE ROLES OF THE MIDWIFE AND THE PHYSICIAN**

"All these are ills with the treatment of which midwives are better acquainted (than anyone else). We likewise find them better acquainted than a skilful physician with the means of treating the ills affecting the bodies of little children from the time they are sucklings until they are weaned. This is simply because the human body, at this stage, is only potentially a human body. After (the child) is weaned, (its body) becomes actually a human one. Then, its need for a physician is greater (than its need for a midwife).

**MIRACULOUS KIND OF BIRTHS**

"Some individuals of the species may be able to dispense with this Craft. God may arrange it for them that way as a miracle and extraordinary wonder. This, for instance, may be done for the prophets. Or there may be some instinct and guidance given to the child through instinct and natural disposition. Thus, such children may come into existence without the help of midwives.

"The miraculous kind (of births) has often occurred. It has, thus, been reported that the Prophet was born with the umbilical cord cut and circumcised, placing his hands upon the earth and turning his eyes towards heaven. The same applies to Jesus (who spoke) in the cradle, and other things.

"The instinctive kind (of births) is not unknown. Since dumb animals, such as, for instance, bees and others, have remarkable instincts, why should one not assume the same for man who is superior to them, and especially for those human beings who are singled out by acts of divine grace? Further more, the common instinct of new-born children that causes them to seek mother's breast is a clear testimony to the existence of an instinct in them. The ways of divine foresight are too great to be grasped completely (Vol. ii, p. 370).

**IV****OBSERVATIONS AND VIEWS ON ANATOMICAL AND PHYSIOLOGICAL SUBJECTS**

Ibn Khaldun writes also on various theories and prevailing views on different subjects such as formation of the foetus, length of human life, years of growth, size of human body, on heart, breathing, brain and the relation of body and soul—those topics which may be included in a treatise of his times on Anatomy and Physiology.

In connection with the development of the embryology the writer summarises the current views in the following passage—"The way in which he was created from a drop of sperm, a clot of blood and a lump of flesh still determine his mental make up. Whatever he attains subsequently is a result of sensual perception and the "hearts"—i.e. the ability to think—God has given him. Man's ability to think comes to him only after the animality in him has reached perception. It starts from discernment" (Vol. ii, p. 425).

In his description of craft of Midwifery, the Historian refers to the embryo going through all its stages as indicated in Quran and becoming completely and perfectly formed in the womb (Vol. ii, p. 368).

Again in the discussion on Alchemy, he reverts and wonders whether human science can claim the artificial creation of man from semen :

"All this is known only to the all-comprehensive knowledge (of God). Human science is unable to achieve it. Those who claim to have made gold with the help of alchemy are like those who might claim the artificial creation of man from semen. If we (could) grant to someone an all-comprehensive knowledge of the parts of man, his proportions, the stages of his (development), the way he is created in the womb, if we could know all this in all its details, so that nothing escapes his knowledge, then we (would) grant him the (ability) to create a human being. But where does anyone possess such (knowledge)" (Vol. iii, 276).

*Length of Life.*—The ancient and medieval views on the length of life of human beings are thus summarised :

"It should be known that in the opinion of physicians and astrologers, the natural life (span) of individuals is one hundred and twenty years, that is the period astrologers call the great lunar year. Within the same generation, the duration of life differs according to the conjunctions. It may be either more or less than one hundred and twenty years. The life (span) of persons who are under some particular conjunction will be a full hundred years. Of others, it will be fifty, or eighty, or seventy years, accordingly as the indications of conjunctions noted by these observers may require. The life of a Muslim lasts between sixty and seventy years. This is stated in the hadith. The natural life span of one hundred and twenty years is surpassed only on the occasion of rare configurations and extraordinary positions on the firmament. Such was the case with Noah and with a few (individuals) among people of Ad and Thamud" (Vol. i, p. 343).

He also alludes to the old belief of the philosophers that life lasted longer and bodies were stronger in the early days of the world :

"On the authority of philosophers, al-Masudi expressed the following idea, whose only basis is in arbitrary theorizing : 'When God created the world, the nature (element) that gives bodies their form was completely round (?) and as strong and perfect as could be. Life lasted longer and bodies were stronger, because the nature (element) was then perfect. Death can come only through dissolution of the natural powers. When they are strong, life lasts longer. Thus, in the beginning, the world had (people) whose lives had their full duration and whose bodies were perfect. Because of the deficiency of matter it steadily deteriorated to its present condition, and it will not stop deteriorating until the time of (complete) dissolution and the destruction of the world'" (Vol. i, p. 358-9).

*Period of Growth.*—He also refers to the man's years of growth.—"Reason and tradition make it clear that the age of 40 years means the end of increase of an individual's powers and growth. When a man has reached 40 years nature stops growing for a while and then starts to decline" (Vol. ii, p. 291). Talking of senility with special reference to

dynasties, the Philosopher-Historian adds "Senility is a chronic disease that cannot be cured or made to disappear because that is something nature and natural things do not change" (Vol. ii, p. 117).

*Size of the human form.*—It is interesting to note that in mediæval ages there was a belief of enormous size of the human beings in ancient times and the historian discourages and ridicules such an idea. "One should not think as the common people do, that it was because the ancients had bodies larger in size than our own. Human beings do not differ in this respect as much as monuments and relics differ. Story-tellers have seized upon the subject and used to make exaggerated fables. They have written stories in this vein about the *Ad, Thamud* and *Amalekites* which are complete lies" (Vol. i, p. 357).

*Colour of the body.*—Ibn Khaldun has a very long discussion on the colour of the skin and attributes the colour of the races to the climate and the air and heat:

"To attribute the blackness of the Negroes to Ham, reveals disregard of the true nature of heat and cold and of the influence they exercise upon the air (climate) and upon the creatures that come into being in it. The black color (of skin) common to the inhabitants of the first and second zones is the result of the composition of the air in which they live, and which comes about under the influence of the greatly increased heat in the south. The sun is at the zenith there twice a year at short intervals. In (almost) all seasons, the sun is in culmination for a long time. The light of the sun, therefore, is plentiful. People there have (to undergo) a very severe summer, and their skins turn black because of the excessive heat. Something similar happens in the two corresponding zones to the north, the seventh and sixth zones. There, a white color (of skin) is common among the inhabitants, likewise the result of the composition of the air in which they live, and which comes about under the influence of the excessive cold in the north. The sun is always on the horizon within the visual field (of the human observer), or close to it. It never ascends to the zenith, nor even (gets) close to it. The heat, therefore, is weak in this region, and the cold severe in (almost) all seasons. In consequence, the color of the inhabitants is white, and they tend to have little body hair. Further consequences of the excessive cold are blue eyes, freckled skin, and blond hair" (Vol. i, p. 170).

He also cites from experience valuable record of the changes in the color in different races due to change of residence:

"Negroes from the south who settle in the temperate fourth zone or in the seventh zone that tends toward whiteness, are found to produce descendants whose color gradually turns white in the course of time. *Vice Versa*, inhabitants from the north or from the fourth zone who settle in south produce descendants whose color turns black. This shows that color is conditioned by the composition of the air" (Vol. i, p. 171).

*Function of Heart.*—The ancients' knowledge of the anatomy of the internal organs was not very sound or accurate; but they used to do a lot of

theorising. Ibn Khaldun probably took his ideas from Arabian Physicians and Philosophers:

"The reason for perception of supernatural in dream visions is as follows: The spirit of the heart, which is the fine vapor coming from the cavity in the flesh of the heart spreads into the veins and, through the blood, to all the rest of the body. It serves to perfect the actions and sensations of the animal powers. The (spirit) may be affected by lassitude, because it is very busy with the sensual perception of the senses and with the employment of the external powers. When the surface of the body, then, is covered by the chill of night, the spirit withdraws from all the other regions of the body to its center, the heart. It rests, in order to be able to resume its activity and all the external senses are (for the time being) unemployed. This is the meaning of sleep as was mentioned before at the beginning of the book. Now, the spirit of the heart is the vehicle of man's rational spirit. Through its essence, the rational spirit perceives everything that is in the divine world, since its reality and its essence are identical with perception. It is prevented from assimilating any supernatural perception by the veil of its preoccupation with the body and the corporeal powers and senses. If it were without that veil or stripped of it, it would return to its reality, which is identical with perception. It would thus be able to assimilate any object of perception. If it were stripped of part of it, its preoccupation would be less. It is thus able to catch a glimpse of its own world, since external sensual perception, its greatest preoccupation, now occupies it less. Its (supernatural perception) corresponds (in intensity to which the veil is withdrawn from it. Thus it becomes prepared to receive the available perceptions from its own world that are appropriate for it. When it has perceived these perceptions from its own worlds, it returns with them to its body, since, as long as it remains in its corporeal body, it cannot be active except through corporeal means of perception.

*Breathing.*—The writer's knowledge and views on breathing and cause of sudden death reflect the mediæval views on physiology:

"Were one to go down deep into the water even in a box, one would have too little air for natural breathing. Because of that, one's spirit would quickly become hot. Such a man would lack the cold air necessary to maintain a well-balanced humor of the lung and the vital spirit. He would perish on the spot. This is the reason why people perish in hot baths when cold air is denied to them. It also is the reason why people who go down into deep wells and dungeons perish when the air there becomes hot through putrefaction, and no winds enter those places to stir the air up. Those who go down there perish immediately. This also is the reason why fish die when they leave the water, for the air is not sufficient for (a fish) to balance its lung. (The fish) is extremely hot, and the water to balance its humor is cold. The air into which (the fish) now comes is hot. Heat, thus gains power over its animal spirit, and it perishes at once. This is also the reason for sudden death, and similar things" (Vol. i, p. 74).

*Brain.*—Similarly, with reference to the nature and working of the brain, his ideas are to a large extent borrowed from the Arab philosophers:

"The faculties through which the body perceives knowledge are all connected with the brain. The active part among them is the imagination. It derives imaginary pictures from the pictures perceived by the senses and turns them over to the

power of memory, which retains them until they are needed in connection with speculation and deduction. From the (imaginary pictures), the soul also abstracts other spiritual intellectual pictures. In this way, abstraction ascends from the sensibilia to the intelligibilia. The imagination is the intermediary between them. Also, when the soul has received a certain number of perceptions from its own world, it passes them on to imagination, which forms them into appropriate pictures and turns those perceptions over to the common sense. As a result, the sleeper sees them as if they were perceived by the senses. Thus, the perceptions come down from the rational spirit to the level of sensual perception, with the imagination again being the intermediary. This is what dream visions actually are" (Vol. iii, p. 105).

Ibn Khaldun has a long discussion on Neuro-Physiology and Psychology of ascending order of sensual perception :

"The powers of sensual perception are graded and ascend to the highest power, that is, the power of thinking, for which there exists the term 'rational power'. Thus, the powers of external sense perception, with the organs of vision, hearing and all the other (organs), lead up to inward (perception).

"The first (inward) sense is the 'common sense' that is, the power that simultaneously perceives all objects of sensual perception, whether they belong to hearing, seeing, touching, or anything else. In this respect it differs from the power of external sense perception, as the objects of sensual perception do not all crowd upon external sense perception at one and the same time.

"The common sense transfers (the perceptions) to the imagination, which is the power that pictures an object of sensual perception in the soul, as it is, abstracted from all external matter. The organ for the activity of these two powers (common sense and imagination) is the first cavity of the brain. The front part of that cavity is for the common sense, and the back part for the imagination.

"Imagination leads up to the estimative power and the power of memory. The estimative power serves for perceiving (abstract) ideas that refer to individualities such as the hostility of Zayd, the friendship of Amr, the compassion of the father, or the savagery of the wolf. The power of memory serves as a repository for all objects of perception, whether they are imagined or not. It is like a storehouse that preserves them for the time when they are needed. The organ for the activity of these two powers is the back cavity of the brain. The front part of that cavity is for the estimative power, and the back for the power of memory.

"All these powers then lead up to the power of thinking. Its organ is the middle cavity of the brain. It is the power that causes reflection to be set in motion and leads toward intellection. The soul is constantly moved by it, as the result of its constitutional desire to (think). It wants to be free from the grip of power and the human kind of preparedness. It wants to proceed to active intellection by assimilating itself to the highest spiritual group (that of the angels), and to get into the first order of the spiritualia by perceiving them without the help of bodily organs. Therefore, the soul is constantly moving in that direction. It exchanges all humanity and human spirituality for angelicality of the highest stage, without the help of any acquired faculty but by virtue of a primary natural disposition that God has placed in it" (Vol. i, 196-7).

His description and discussion of sleep and unconsciousness, of dream vision and dream-words are very learned and subtle.—(Vol. i, p. 209-13).

*Insanity.*—The discussion on Insanity is brief but gives an interesting explanation of the cause and effects :

"In the insane, the rational soul is but weakly connected with the body, because the humors, as a rule, are corrupt and have a weak animal spirit. Therefore, the soul belonging to (the body of an insane) person is not deeply immersed in the senses. The painful disease of deficiency that affects it keeps it too much occupied. Frequently, it was pushed into attaching itself to (the insane) by some other Satanic spirituality, which clings to them and which (the soul) itself is too weak to keep away. The insane thus become possessed. When they have become possessed in this manner, either because of the corruption of their constitution as the result of the essential corruption of their soul, or because of the onslaught the Satanic souls make upon them when they are attached to (their bodies), they are totally removed from sensual perception. They perceive a glimpse of the world of their soul. (Their soul) receives the impress of forms which, in turn, are transformed by the imagination. In this condition, they frequently speak without wanting to speak" (Vol. i, p. 218).

*Soul is the life of the body.*—This section assembling together Ibn Khaldun's views on different subjects relating to the human body, its growth, its organs and its functions may be brought to a close, with the views on the soul which sustains and governs the body :

"It should be understood and realized that all philosophers have praised the soul and thought that it is the soul that governs, sustains, and defends the body and is active in it. For, when the soul leaves the body, the body dies and gets cold. It cannot move or defend itself, because there is no life in it and no light. I have mentioned the body and the soul only because this craft (alchemy) is similar to the body of man, which is built by regular meals and which persists and is perfected by the living, luminous soul, which enables the body to do the great and mutually contradictory things that only the living power of the soul can do. Man suffers from the disharmony of his component elements. If his elements were in complete harmony and (thus not) affected by accidents and (inner) contradictions, the soul would not be able to leave his body. Man would then live eternally. Praised be He who governs all things, He is exalted" (Vol. iii, p. 232).

#### REFERENCE

Ibn Khaldun the Muqaddimah (An introduction to History) Translated from the Arabic by Franz Rosenthal in three volumes. Bollingen Series XLIII, Pantheon Books.



**Iqtiarate Qasimi**  
(Selections by Qasim)

KNOWN AS

**Dastoor-ul-Atibba**  
(Modes adopted by Physicians)

AN ANALYSIS OF THE CONTENTS

BY

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There is one unique medical manuscript in the State Central Library, Hyderabad, written in Persian language, by the famous historian, Mohammad Qasim Firishta, entitled as Hindu Shah. He was born in Astarabad in Northern Persia in 1552 and died in 1623. He was brought to Ahmednagar as a child in the reign of Hussain Nizam Shah I, and while yet a youth, entered the service of Murtuza Nizam Shah I. The persecution of foreigners which followed the murder of Hussain II drove him to Bijapur where, in January 1590, he entered the service of Ibrahim Adil Shah II. Shortly afterwards he wrote *Iqtiarate Qasimi* (*Dasturul Atibba*) a work on medicine (for further details see article by Reddy, I. J. H. M. Vol. IV, No. 2, p. 33, Dec. 1959).

Ibrahim pleased with its style and aware of Firishta's devotion to historical studies, urged him to undertake a comprehensive history of Mohammadan rule in India. Firishta at first declined the task as being beyond his powers, but eventually offered to submit for approval a few chapters of such a work as he could undertake. Ibrahim correctly understood the selection of this subject as a hint that the historian demanded unfettered liberty in the relation of facts, and gave him permission to proceed with his work. Firishta, who was an industrious compiler, mentions in the Preface to his history no less than 32 books which he had collected and consulted, and adverts to some others in the body of his work. His history (ed. Bombay 1831) despite its many defects is valuable not only as a summary of known authorities, but also because it embodies fragments of work of which the originals have been lost. The best translation is that of Briggs, London 1829.

**DASTURUL ATIBBA**

*The preface.*—It contains a Preface, three Meqalas and a concluding part. The "Preface" deals with fundamental principles of medicine and humours in nine Chapters with the following titles.

- (1) About the components of the body which the Indian physicians call "Dhatus" which are seven in number.
- (2) About humours which are called "Doash" which are three in number.
- (3) Five preliminary elements, which they call "Tetwa".
- (4) Seven Temperaments; three of them are simple and four of them are compound.
- (5) About the treatment of the diseases which are of two kinds.
- (6) Ten essential rules to be observed by the physician.
- (7) About the six seasons of the year, which are named "Ruth".
- (8) Rules of taking food and bathing.
- (9) Indigestion of the food and drinks named "Ajeern".

The Sixth Chapter of the above mentioned Preface is about the ten rules, which are essential for a physician to observe, if he desires to commit the least error in the treatment of the diseases. The rules are as follows:—

- (1) To find out the site of overwhelming humour; whether it is in the Chyle, blood, muscles or bones.
- (2) Country and the locality where the patient resides.
- (3) Season and the climatic conditions.
- (4) Vitality of the patient.
- (5) Appetite and the quantity of the food for the patient.
- (6) Habits of the patient.
- (7) Age.
- (8) Temperament; whether it is windy, phlegmatic or bilious; whether it is composed of two humours or three.
- (9) To know which humour over-rules the patient in different periods of the day.
- (10) To know whether the patient is showy or short tempered.

**FIRST MEQALA**

The First Meqala extends over 100 leaves and contains the properties and the uses of 683 herbs and victuals in alphabetical order and their employment in the treatment of diseases. These simple medicines were selected from those in popular use by Unani or Ayurvedic doctors. In addition to the Unani names for herbs Ayurvedic names are also given for some. The Indian physicians have also mentioned that the medicinal activity (strength) of the root of a herb lasts for three years, that of the leaves one year, that of the fruit two years, that of the flower only six months, that of the gum two years, that of the grass one year. They have also mentioned that the medicinal activity of the oxides made out of the metals lasts for ever.

**SECOND MEQALA**

The Second Meqala is about the popular compound medicines. It is divided into Fifteen Chapters and bears a particular technical name as follows :—

- (1) Muferrehath (a kind of Laguim)
- (2) Majoonath (Laguim)
- (3) Jewarishath (Laguim)
- (4) Aqras (Tablets)
- (5) Huboobath (Pills)
- (6) Sufoofath (Powders)
- (7) Sinnoonath (Tooth Powders)
- (8) Rogunha (Oils)
- (9) Metbooqath (Boiled mixture)
- (10) Ashriba (Drinks)
- (11) Merhem wa Zamad (Ointments)
- (12) Huqna wa Shiaf (Enema)
- (13) Gergera wa Saooth (Washing of Mouth and Nose)
- (14) Resa-ene-muferreda (Simple Drugs)
- (15) Resa-ene-murekkeba (Compound Drugs).

The First Chapter of the Second Meqala called *Muferrehath* (a kind of Lehyam) contains the following compounds :—

- (a) *Muferrehay Dilkusha*.—It removes the intoxication caused by liquor and head-aches and the diseases caused by the bile and melancholy and strengthens the heart.
- (b) A Second type of *Dilkusha* increases the appetite, removes the grief from the heart and soothes it.

The Second Chapter *Majoonath* contains :—

- (a) *Majoonay Maithi*.—Increases the virile power and strengthens the vital organs of the body.
- (b) *Majoonay Kaisker*.—Best to increase the virile power.
- (c) *Majoonay Moasli*.—Reddens the face and increases the virile power.
- (d) *Majoonay Toqmay Seembhel*.—Most powerful to increase the virile power.
- (e) *Majoonay Setavuri*.—Is useful in Piles, Asthma, Retention of urine and blood, Hernia, Dropsy, Rheumatism, Back-ache, Indigestion and all the diseases of Pharynx, Neck and Chest. It vanishes the pale colour of the face and increases the vital power of the body.
- (f) *Majoonay Moochres*.—Increases the virile power.
- (g) *Majoonay Ispend*.—For increasing virile power.
- (h) *Majoonay Dhatoora*.—Prevents the habitual use of Opium.
- (i) *Majoonay Sheethrej*.—It is useful in all kinds of Piles, Paralysis of the muscles, Indigestion and Flatulence.
- (j) *Majoonay Bewaseer*.—Kankaben, the famous Indian physician and Saint writes that this compound medicine is useful in almost all the six varieties of the Piles, Rheumatism and Ferengi disease (Syphilis).
- (k) *Majoonay Seenbhel*.
- (l) *Majoonay Mubhi*.
- (m) *Majoonay Darcheeni*.—All these three compounds increase the virile power, and are very useful in Cough, Consumption, Piles and Senkherni.

The Third Chapter *Jewarishath* contains :—

- (a) *Jewarishay Nonqah*.—It is very useful for the digestion of food and the increase of virile power.
- (b) *Jewarishay Bhangda*.—Is useful in the abdominal pain, weakness of the stomach, cough due to phlegm, weakness of the sight and muscular system, Rheumatism, back-ache, Faltulence, Colic, Renal Colic, Epilepsy, Head-ache, Dysuria, Leucoderma and poisonous biting.

- (c) *Jewarishay Kafoori*.—It is useful to increase the strength of the stomach and helpful in the digestion of food.
- (d) *Jewarishay Bikremajeet*.—The Indian King. It strengthens the stomach and Kidneys and increases the virile power.

The Fourth Chapter "*Aqras*" (Tablets) contains :—

- (a) *Qursay Mazu*.—It is useful in all sorts of Diarrhoea and Dysentery.
- (b) *Qursay Sehaj*.—It is especially suitable for children in Diarrhoea, Cough, Dysentery and abdominal pain.
- (c) *Qursay Kerefs*.—Is useful for Rheumatism and back-ache.
- (d) *Qursay Tebasheer*.—Is useful in Diarrhoea, Dysentery and can be used for children also.
- (e) *Qursay Sa-ad*.—Is useful in Piles, Diarrhoea, Dysentery and Senkherni.
- (f) *Qursay Murmekki*.—Is useful in all kinds of Piles, Indigestion and Impotency.

The Fifth Chapter *Huboobath* (Mathra-Pills) contains :—

- (a) *Hebbay Seemab*.—(Mercury-mathra). Is useful in Indigestion, Senkherni, Gonorrhoea, Piles and Flatulence.
- (b) *Hebbay Shenjref*.—Is useful in consumption due to Choler and Constipation and Diarrhoea.
- (c) *Hebbay Chorankes*.—The meaning of the Chorankes is "Fever". It is also useful in Choler and Constipation.
- (d) *Hebbay Ram Ban*.—Ram Means 'God' and Ban means 'Arrow'. So the meaning of Ram Ban is Arrow of Ram. It is useful in Fever with Rigour.
- (e) *Hebbay Miskeen Newaz*.—The Indians call it 'Ghoda Chudi'. Most of the Yogees keep it always with them and they use it in very many diseases.
- (f) *Hebbay Heshmeeza*.—Is useful in all kinds of eye diseases.
- (g) *Hebbay Sozak*.—It is useful in all kinds of Gonorrhoea.
- (h) *Hebbay Semmulfar*.—(Tablet of white Arsenic). Is useful in Dane-a-ateshek (Syphilis).
- (i) *Hebbay Biladur*.—Is useful in Ateshek (Syphilis).

- (j) *Hebbay Angza*.—It is useful in Spasms, Danai Fereng (Syphilis).
- (k) *Hebbay Seemab*.—(Mercury Tablet). It is useful in Impotency and overwhelming of Phlegm.
- (l) *Hebbay Bazinjan*.—It is very useful in Impotency.
- (m) *Hebbay Totia-A-Bend*.—It is useful in Asthma and the Phlegm which adheres to Esophagus and Pylorus.
- (n) *Hebbay Gendak*.—Is useful for digestion of food and increasing the appetite.
- (o) *Hebbay Amba*.—(Pills made out of the seed of the Mango). It is very useful in chronic Diarrhoea.

The Sixth Chapter is about Powders :—

- (a) *Chooren Wechi*.—It is useful in Piles, Peptic Ulcer, Senkherni, Jaundice, Asthma, Hernia, Gonorrhoea and loss of appetite.
- (b) *Sufoofe Qerenfel*.—(powder made out of Cloves). It is useful in the diseases caused by Choler, Phlegm and Wind and bodily weakness, loss of appetite, Diarrhoea, Consumption, Asthma and Senkherni.
- (c) *Sufoofe Kishneez*.—Is useful in the loss of appetite, paleness of the face and the body and Cough, Fever, Vomiting and Chest diseases.
- (d) *Sufoofe Webel*.—Is useful in Piles.
- (e) *Sufoofe Naradan*.—Peptic Ulcer, Piles, Cough, Chest diseases, Skin diseases.
- (f) *Sufoofe Heleela*.—Is useful in all kinds of Senkherni, Diarrhoea, Indigestion, Hernia and Retching.
- (g) *Sufoofe Neem*.—It is useful in the 1st stage of Leprosy.
- (h) *Sufoofe Henzel*.—Is useful in chronic cough, Phlegm and Asthma.
- (i) *Chooran Alami*.—(Dedicated to Allauddin Khilji who always used it). It is useful in Flatulence, Overpowering of Phlegm and loss of appetite.
- (j) *Chooren Sheerag*.—Is useful in Colic Pain, Asthma, Chronic Cough, Jaundice, Flatulence and Retching.

The Seventh Chapter about the *Sinoonath* (powders used for cleaning the teeth):—

- (a) *Sinoone Mazoo*.—This tooth-powder strengthens the roots of the teeth.

The Eighth Chapter is about *Oils*:—

- (a) *Roagene Zeqoom*.—(Oil of Citrullus Colocynthis). It is useful in Leucoderma, Hernia, Piles, Colic pain, Dropsy, hardness of abdomen and Leprosy.
- (b) *Roagene Heleela*.—(Oil of Myrobalen). It is useful in Chronic Fever, Cough, Asthma, Dysentery, Jaundice, Leprosy, loss of appetite, Consumption, Vomiting, Epilepsy, Piles, Scrofula, and Head-ache.
- (c) *Roagene Adosa*.—(Oil of Adhatoda Vasica). It is useful in Cough, Asthma and Consumption.
- (d) *Roagene Qust*.—(Oil of Qust). It is useful in Head-ache, Thirst and loss of appetite.
- (e) *Roagene Sondli*.—(Oil of Sandal). It is useful in the dryness of limbs, Prorigo, Ringworm and Cancrum Oris.
- (f) *Roagene Sam Abres*.—It is very useful in Scrofula.
- (g) *Roagene Hugna*.—In India it is called *Vesenth Kerem*. It is useful for delicate personalities in the overpowering of Wind and Flatulence. It strengthens the body and improves the eye-sight.
- (h) *Roagene Kerenj*.—It is useful in Paralysis, Convulsions and Anaesthesia.
- (i) *Roagene Neelofer*.—It blackens the white hair and lengthens them.
- (j) *Roagene Bhangra*.—It is useful in eye-diseases.
- (k) *Roagene Bichnak*.—Is useful in Scrofula.
- (l) *Roagene Murmeki*.—Is useful in Convulsions, Rheumatism and all kinds of skin diseases.
- (m) *Roagene Qerdel*.—It is useful for all kinds of ear-ache.
- (n) *Roagene Mustegi*.—It is useful in stomach-ache.
- (o) *Roagene Gundek*.—It is useful in internal and external Piles. It is also useful in Prorigo of the horses.
- (p) *Roagene Baid Anjeer*.—It is a Purgative for Cholera and Phlegm.

The Ninth Chapter is about Medicines for Diarrhoea and Fevers:—

- (a) *Metbooqe Kishneez*.—(Boiled mixture of Kishneez). It is useful in Cholera and Phlegmy Diarrhoea, Dysentery and Cholera.
- (b) *Metbooqay Sa-ad*.—Is useful in all kinds of Diarrhoea.
- (c) *Metbooqay Lisanulasafeer*.—Is especially useful in bloody Diarrhoea.
- (d) *Metbooqay Tep Wa Lerza*.—It is useful in fever with rigour.
- (e) *Metbooqay Hebsal Bowl*.—It is useful in Retention of Urine due to stones in bladder.
- (f) *Metbooqay Beleela*.—It is useful in all kinds of Gonorrhoea.
- (g) *Metbooqay Bansa*.—Is useful in the vomiting of blood.
- (h) *Metbooqay Sheethrej*.—It is useful in Coryza, Cough, Head-ache due to phlegm, Indigestion, Diarrhoea.
- (i) *Metbooqay Heleela*.—It is useful in the fever which lasts for more than seven days.

The Tenth Chapter about *Ashriba* (Drinks). Indian physicians call them "*Asu*" (Asava).

- (a) *Sherbate Nanqa*.—This drink is taken from the Indian medical book called "*Chendret*". It is useful in the digestion of the food, cold and flatulence. It increases virile power.
- (b) *Sherbate Neeb*.—It is a good purifier of blood.
- (c) *Sherbate Qerenfel*.—It is useful in the Edema of Kidney, Liver, Lungs and Ascitis, Piles, Jaundice, Stomach worms, and loss of appetite.
- (d) *Sherbate Seer*.—It is useful in all kinds of diseases due to overwhelming of wind.
- (e) *Sherbate Qiarshember*.—Is useful in Jaundice and the overwhelming of Cholera.
- (f) *Sherbate Nafay*.—In Hindi it is called '*Jukrah*'. It is useful in Indigestion.

The Eleventh Chapter is about Ointments:—

- (a) *Merhemay Shenjref*.—(Ointment of Shenjref). It is useful in Awteshek (syphilitic) and other chronic ulcers.
- (b) *Merhemay Soos*.—It is useful in all kinds of cold Edema occurring in children as well as the old people.

in bladder, head-ache due to phlegm. By its continuous use, the white hair are dropped and black hair grow instead. If a patient, who is in delirium and about to die, be given this medicine, he will come to his senses and get sufficient strength to speak.

*Pertap Linkaiswer*.—It is useful in convulsions of all kinds and almost all the diseases which are caused to a woman after the birth of a child.

*Pencha Mereth Perni*.—It is useful in the Dysentery of intestines, Stomach-ache, Diarrhoea, Dropsy, Chronic fevers, Senkherni. It can be given to children also.

### THIRD MEQALA

The Third Meqala is about Materia Medica and it contains 160 Chapters. Every chapter deals with a particular disease, with several kinds of treatments. They are as follows :—

1. Sudaw = Head-ache.
2. Sheqeeqa = Migraine.
3. Sesam = Meningitis.
4. Bersam = Inflammation of the Diaphragm.
5. Dwar = Vertigo.
6. Falij = Paralysis.
7. Loqwa = Facial Paralysis.
8. Sekhta = Apoplexy.
9. Qeder = Anaesthesia.
10. Subath = Somnolence.
11. Kaboos = Nightmare.
12. Seraw = Epilepsy.
13. Maliqolia = Melancholia.
14. Ishk = Eroto Mania.
15. Teshennuj = Convulsions.
16. Nisyan = Forgetfulness.
17. Iqtelaj = Tachycardia.
18. Rasha = Chorea.
19. Tesaoob = Yawning.
20. Zukam = Coryza.
21. Nuzla = Nasal Catarrh.
22. Amrazay Cheshem = Ophthalmology.
23. Derday Goash = Otagia.
24. Ruaf = Epistaxis.
25. Qaishoon = It is called *Bhains* in Hindi. The aerial orifice becomes constricted in this disease.
26. Kend wa Qiltai beeni = Polypus Nasi.
27. Jerahetay beeni = Nasal wounds.
28. Nasooray beeni = Polypus Nasi.

29. Basooray beeni = Fissure of the Nose.
30. Derday Dendan = Odontalgia or Tooth-ache.
31. Wermay Lohath = Uvulitis.
32. Junbeedenay Dendan = Loosening of the teeth.
33. Kund Shudenay Dendan = Loss of polish from the teeth.
34. Kiremay Dendan = Germs of the teeth.
35. Qela = Dislocation.
36. Nefesud-dem = Haemoptysis.
37. Qenaq = Croup.
38. Gireftegi-a Awaz = It is called *Serhenk* in Hindi.
39. Buqer = Ozema.
40. Seqalay Zuban wa Izm-e-awn = Sore throat.
41. Sefde-a-Zeban = Renula.
42. Terqeeden-a-leb = Cracked lips.
43. Der Uftaden-a-kam wa Zuban = Elongation of Uvula and the tongue.
44. Der bend Shudenay Cheesha der Gulu =
45. Su-awl = Bronchitis.
46. Surfe-a-diq = Cough of the Consumption.
47. Sill = Phthisis.
48. Zeequn Nefs = Asthma.
49. Rebv = Quatrant.
50. Zatur - Riya = Pneumonia.
51. Zatul jenb = Pleurisy.
52. Werm-a-Shush = Edema of the lungs.
53. Derd-a-dil = Angina Pectoris.
54. Qefqan = Palpitation.
55. Atesh = Excessive thirst.
56. Geshi = Syncope.
57. Wej-a-Maida = Stomach-ache.
58. Werm-a-Maida = Gastritis.
59. Qai awmeden az te-am wa Shrob = vomiting due to over eating and drinking.
60. Qilletay joo = Loss of appetite.
61. Fwaq = Hiccough.
62. Joo-ul-Kelb = Bulimia.
63. Joo-ul-Beger = Bulimia.
64. Gibta = Overjoy.
65. Haiza = Cholera.
66. Gesi wa Tehowow = Retching.
67. Terqia = Blackening of the Teeth.
68. Zeheer = Dysentery.
69. Sehej-a-Amaw = Ulcerative Enteritis.
70. Zerb = Diarrhoea.
71. Zofe Kebid = Weakness of liver.
72. Zoafe wa derd-a-Tehal = weakness and pain of spleen.
73. Istesqa = Ascitis.
74. Zeleq-a-Am-aw = Ulcerative Enteritis.

75. Erqan = Jaundice.
76. Awkila = Cancrum Oris.
77. Nar-a-Farsi = Syphilis. *Bhalek* (Hindi).
78. Qenazeer = Scrofula.
79. Dummel = Boil.
80. Sil-aw = Carcinoma.
81. Dubaila = Abscess.
82. Ta-own = Plague.
83. Sertan = Cancer.
84. Shikenj wa befelek wa Girhay pistan = Wrinkles and Nodes of the nipple.
85. Jumra = Eczema.
86. Dadh = Ringworm.
87. Jerb = Scabies Itch.
88. Kelif = Freckles.
89. Beheq = Ptyriasis.
90. Soolool = Warts.
91. Beresh wa Nemesh = Lentigo.
92. Jirahath = Wound.
93. Shiraw = Urticaria.
94. Safa = Favus.
95. Sheer bend = Retention of milk.
96. Qesef = (*Dhepoori* in Hindi).
97. Belqia = Anthorax.
98. Seqtha = Fall.
99. Husba wa Judri = Measles and Varicella.
100. Awbile-a-athfal (*Sithla* in Hindi) = Chicken pox.
101. Jawersia = Miliaria Alba.
102. Der Tedbeer-a-athfawl = Care of children.
103. Awram (they are called *Awmas* in Hindi) = Edema.
104. Juzam = Leprosy.
105. Beres = Leucoderma.
106. Qurooh-a-rehem = Carcinoma of the uterus.
107. Quroojay rehem = Prolapses of uterus.
108. Iqtenaqur-rehem = Super-involution of the uterus.
109. Shiqaq-a-Qubel = Fissure in Vagina.
110. Idrar-a-Tems = Menorrhagia.
111. Qeth-a-tems = Stoppage of Menses.
112. Uftaden-a-Jineen = Miscarriage.
113. Isqat-a-Jineen = Abortion.
114. Inqeta-a-Hemel = Parturition.
115. E-awnet-a-hemel = care of pregnancy.
116. Hifz-a-geneen = care of Embryo.
117. Ustray wiladeth = prolonged labour.
118. Seqootay Mesheema = Abortion of Placenta.
119. Awamas-a-Gurda = Nephritis.

120. Seng wa raig-a-Gurda wa mesana = stones and sand of the Kidney and the Liver.
121. Jerb-a-Mesana = Vesical irritability.
122. Qurooh-a-Zeher = Wound of penis.
123. Bowlud-dum = Haematuria.
124. Selselul bowl = Incontinence of Urine.
125. Hirget-a-bowl = Burning sensation of urine.
126. Usrul-bowl = Dysuria.
127. Sailan-a-moni = Spermatorrhoea.
128. Kesret-a-ehelam = Excessive nocturnal emission.
129. Awmasay Qusya = Orchitis.
130. Shiqaq-a-miq-ad = Fissure of the Rectum.
131. Nasooray miqad = Sarcoma of the Rectum.
132. Bewaseer = Piles.
133. Kiremay Shikem = Stomach worms.
134. Derday Pusht = Back-ache.
135. Qulla = It is called *Sool* in Hindi.
136. Derday Mefasil = Rheumatism.
137. Nuqres = Gout.
138. Derday Kemer wa pusht = Back-ache.
139. Fiteq = Hernia.
140. Irq-a-Medeni = It is called *Naru* in Hindi.
141. Irqunnisa = Sciatica.
142. Da-ul-fael = Elephantiasis.
143. Dewali Paw = Varicose veins.
144. Sufaide-a-Naqun = Whiteness of the nails.
145. Daqes = Onychia.
146. Asnanul far fil aza-feer = Pointed nails like the teeth of a mouse.
147. Hazaz = Lichen.
148. Daus saleb = Alopecin Areata.
149. Intesharay Sha-ar = Confusion of hair.
150. Shiqaq-a-sha-ar = Splitting of hair.
151. Anbat-a-sha-ar = growth of hair.
152. Jadat-a-sha-ar = curliness of hair.
153. Qummel = Pediculosis (Lousiness).
154. Shiqaq ha-a-shusa = Pleurodynia.
155. Nemla = Herpes.
156. Gende-a-begel = Nasty smell of the armpit (axilla).
157. Tepha = Insanity.
158. Adwia Quwet-a-bah = Medicines for Impotency.
159. Awqat-a-Jima = Proper time for coitus.
160. Munzij wa Mushil = Purgatives.

The concluding part is about several tastes and the divisions of the Earth.

They have mentioned that there are six kinds of tastes and each possesses a special quality. They are as follows :—

1. Sheereen = Sweet.
2. Tursh = Sour.
3. Teleq = Bitter.
4. Zuqt = Pungent.
5. Taiz = Biting.
6. Shore = Salty.

Indian doctors have divided the Earth into three divisions according to their depth :—

1. Chankel Des.
2. Anoop Des.
3. Sadharen Des.

1. *Chankel Des.*—Is that where the water can be obtained only after digging a long way off. The Marwar and Gujerat is situated in that land. There the trees are short and the belly of the people is small. The meat of the animals is light.

2. *Anoop Des.*—Is just the opposite of it. You will get water only if you dig a little. Bengal and Konken is situated in that land. Its trees are large and the moist is vast. The people there have big belly. They are dull and sad. The meat of the animals is heavy.

3. *Sadharen Des.*—Is moderate in water-stock and trees. The bodies of the people are also moderate and their health is good. The meat of the animals there is also moderate in lightness and heaviness.

\* \* \*

The author is grateful to Dr. D. V. Subba Reddy, Director, Department of History of Medicine for showing the manuscript and its microfilm copies and for encouraging him in the difficult task of studying the voluminous treatise with a view to prepare a brief but comprehensive analysis of its contents, to enable the medical historians to commence more detailed studies of this treatise written in Deccan, more than 350 years ago, by a Muslim scholar, who made a study of Ayurveda.

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## A Short Note on “Medicine and Allied Subjects” in Siva Tattva Ratnakara by Basavaraja

BY

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“Siva Tattva Ratnakara”, compiled by Basavaraja of Keladi, is a magnificent encyclopaedia in Sanskrit Verse, dealing with a large variety of subjects, concerned with life, literature and sciences of India.

*The Author.*—The Keladi kings belong to a purely Kannada dynasty, who ruled a large part of “Malla Desa” for about 250 years and were famed for their charities and patronage of literature and arts. The XIV ruler of the dynasty, Basappanayaka I, <sup>(1619-1637 Saka)</sup><sub>1698-1715 A.D.</sub>, son of Chennambika and Somasekhara, was the author of many learned treatises in Sanskrit and Kanada. In the early part of his reign, he is said to have been busy waging wars and winning victories against the Marathas, Mysoreans, Malayalies, Moghuls and Portuguese. After these conquests, he consolidated the kingdom and turned his attention to literary and philanthropic works. He performed many charities, arranged for the distribution of bread to the Hindu *sadhus* and Muslim *fakeers*, provided food to the hungry, and even milk and butter to the children. On the anniversary of his mother's death, he distributed clothes to the indigent beggars.

*The Treatise.*—The treatise ‘Siva Tattva Ratnakara’ has been described by the author as the “essence of all sciences coming within the purview of Vedas and Agama”. He also states that he wrote the book “for the good of the world”. He named the treatise ‘Ratnakara’ as he wrote it after examining all existing literature, studying all sciences and condensing them. The exact date of the composition of the book is given as <sup>Saka 1631.</sup><sub>1709 A.D.</sub> Competent critics are of opinion that Basavaraja has excelled King Someswara III and other royal writers of encyclopaedias in dealing with almost every branch of Sanskrit literature, exhaustively and thoroughly. He also acknowledged the authors or works he consulted, though many of them have been lost during the last 250 years.

*The Plan of the Book.*—The treatise is divided into 9 books (Kallolas), sub-divided into 108 Sections.

*Contents.*—A complete list of the contents or a synopsis of the entire treatise, will be highly interesting and worth reading, but on account of

limited space, only subjects of interest to medicine and allied branches of knowledge, are mentioned below :—

#### KALLOLA V

*Chapter I.*—Deals with *Vayasthamba i.e.*, cheating time and living as a youth for an indefinite period, course of treatment and prescriptions for securing perpetual youth. (Verse 46-50). Signs of approaching death at stated times according to omens (Verse 84-89). *Kalavancana i.e.*, regulation of life and treatments to live for an indefinite period. Mantras and “homas” to attain this (Verse 90-101). Prescriptions for the revival of the dead (Verse 131-136).

*Chapter XV.*—Qualities desirable in the king’s physician.

#### KALLOLA VI

*Chapter I.*—Laying out cities and construction of varieties of houses etc.

*Chapter XII.*—Kama Sutra *i.e.*, Sexual Science.

*Chapter XIII.*—Attainment of perpetual youth (Verse 131-136).

*Chapter XIV.*—Apartments for different seasons (Verse 21-52). Oil bath (Verse 53-59). Perfumes for different seasons.

*Chapter XVI.*—Clothing suitable to different countries and to different seasons. Flowers for different seasons.

*Chapters XVIII & XIX.*—Deals in detail with cookery.

*Chapter XX.*—Tests for purity of eatables, various dishes suitable for various seasons, various kinds of water for drinking purposes according to seasons; massage, medicated oils, pan-supari, beds, fumigation or Dhupa.

*Chapter XXI.*—(Verse 4-18) Origin of Ayurveda (Ayurveda). Its eight component parts (Astangas). 4 kinds of treatment. (Verse 19-22) The qualities of a physician. (Verse 23-40) The bad humours (Doshas) in the body. Time required for digesting various kinds of foods. (Verse 48-55) Six kinds of tastes (Shadrasas). Their nature and effects. (Verse 56-100) Diagnosis (Rogapariksa). Parts of the body and things to be examined. Pulse (Nadi). Various kinds of pulse described. How pulse works in different diseases. The number of pulse-beats in various living beings. (Verse 101-115) Windiness (Vataprakopa). Causes thereof. Biliousness (Pittodreka). Causes thereof. Reasons for all the three humours getting out of order. (Verse 116-141) Various kinds of fevers. Their effects. (Verse 142-145). Things which reduce VATHA, PITHA and KAPHA. (Verse

142-158) Treatment (Rogachikistsa). (Verse 159-188) Drugs which produce various results in the body. (Verse 189-210) Seasons suitable for various kinds of medicines their weights, measures and doses.

*Chapter XXII.*—(Verse 1-48) Qualities of food-stuffs and herbs. Changes brought about by the combination of two or more things. How to reduce the strength of minerals. Change of form of things. Change from liquid into solid etc. (Verse 49-118) Preparation of Purnachandrodaya, Maharajamruganka, Savarnamalyadivasanta, Trailokyachintamani, Bhupali, Laxmivilasa, Ardhanaisvararasa and Vasantakusumakara pills. How to test whether the preparations have been satisfactory. Liquids. Their doses. (Verse 119-129) Doses of solids. Duration of potency of the various classes of medicines.

*Chapter XXIII.*—(Verse 1-33) Origin of mercury (Rasa). Its varieties etc. (Verse 34-57) Its impurities. Various uses of the different kinds of mercury. RASAVAIDYA *i.e.*, treatment of mercurial preparations. (Verse 58-73) RASAS and UPARASAS. Ordinary Rasas. Metals. Their origin. Precious stones. (Verse 74-140) Mica (Abhraka); Pyrites (Maksika), Cowry (Vartika), Blue vitriol (Kharpari), Sapphire (Rajavarta) (Kankustha), Realgar (Manisila), Red chalk (Gairika), yellow orpiment (Talaka), Red lead (Sindura), Arsenic (Gowripashana), Antimony (Souviranjana) (Rasanjana), Tawny (Gorochana), Puspanjana, Nilanjana, mercury (Chapala). Their origin, place of origin, nature, qualities, colour, uses etc.

*Chapter XXV.*—Chemical laboratory; machinery. Burning (purifying) by means of various kinds of Putapaka. Proper arrangement of articles in the Laboratory etc.

*Chapter XXVI.*—The origin of serpents (Sarpotpatti). Their varieties and nature. Their life-period and changes at different stages. How to determine the kind of serpent which has bitten; when will man live even though bitten and in which part of the body. The place of the secretion of poison. Poison-Doctor (Visavaidya). Deciding the nature and result of the bite by the mere announcement.

*Chapter XXVII.*—Treatment of poisons by mantras, treatment by drugs, treatment of serpent bite, treatment of rat poison and spider poison.

#### KALLOLA VII

*Chapter VII.*—(Verse 3-20) Punsavanam. Its rites etc. Simantonnyana and Jatakarma. A daughter or a son should not be born after 3 sons or 3 daughters respectively. Namakarana, Andolana (putting the baby in the cradle). (Verse 21-50). Annaprashana, Karnavedha (earboring), Nishkramana, Chandradarshana, Jivikanirnaya, Upaveshana suitable time for each of these ceremonies. Ornaments for children (Verse 51-68) Chudakarma, Aksharabhyasa. Food of the pupil.

*Chapter XV.*—This chapter expounds the chief principles of Yoga Sastra. (Verse 1-5) Mantra, Laya, Hatha, Raja and Saiva and the 5 kinds of yogas. The mantra to be repeated by those desirous of salvation. (Verse 6-14) Angas of yoga are 6 to 8 according to different opinions. The essential qualities that ought to exist in a Yogin. All this comes under mantra yoga. (Verse 15-65) Hatha Yoga. Different kinds of postures (Asana) described. The nature of Kundalini. The acquisition of the 8 supernatural powers (Ashtasiddhi). Sushumna—its nature and motion. The principles of pranayama or breathing exercises. Ida, Pingala and Saraswati. 72 thousand Nadis; 4 of them are chief ones. Of these, Prana is the most important. The action of the 5 inner vayus. 5 other outer Vayus. (Verse 66-135) Building of mathas. The postures of the Yogin. His food; foods acceptable and to be avoided. Qualities thereof. Hasamanthra, Prathyahara, Dharana, and Samadhi. Means to control vayu (breath). Khecharimudra; how to attain it.

#### KALLOLA VIII

*Chapter III.*—The whole of this chapter deals with wrestling (Mallayuddha). Three kinds of wrestlers. Their food. Various kinds of exercises and stratagems in wrestling. Danger spots (ayasthanas) or Marma-sthanas). Their various names. Daily conduct of wrestlers. Strength at different ages.

#### KALLOLA IX

*Chapter I.*—(Verse 3-8) Pindanda and the nature thereof. The Body of those who perform meritorious acts and that of sinners. Why souls are born as men. (Verse 9-25) 4 kinds life, viz., Udbhijja (vegetable), Andaja (egg-born), Swedaja (sweat-born) and Jarayuja (womb-born). How the five prime Vayus in the body distribute the food in the different parts of the body. 12 kinds of excretions (Malas); their places. (Verse 26-31) How liquids are converted into various kinds of matter, which go to form the body. Semen is created in the body according to the kinds of food taken. (Verse 32-170) The origin of life in the womb and further details regarding it. Pindanda (body) described as a miniature Brahmanda (universe).

The book and especially the medical portion in the book is now a subject of detailed study in the Department of History of Medicine. A Telugu translation of the medical portion with a historical and critical introduction will be published later.

#### REFERENCE

*Sivatavarnakaram* by Basavaraja of Keladi, Sanskrit, ed. by B. Rama Rau & P. Sundara Sastriar, Madras, 1927, Nath & Co., Madras.



## “Genesis of Alchemy”

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In solving the problem of the genesis of alchemy we cannot go wrong if we take as precedence the method adopted by biologists in tracing the ancestry of man. Starting with oneself one can go upto some generations in the past when the family records would end. One can then take a jump into the past and assume that one descends from an Adam and Eve. The problem really begins with dating the period when these hypothetical ancestors were supposed to have lived, and more so with what was their origin. In trying to solve the latter problem, among other difficulties, we have to define our terms, above all, what we understand by “man”; there are findings when man looked like an ape but was not an ape. The anthropologists, who deal with it first hand, realize the difficulty in pronouncing a verdict. By this digression I beg to indicate that a similar situation also faces us in tracing the history of alchemy.

Alchemy is a craft as well as a science or rather a pseudo-science. In tracing its past sometimes its special formulae sometimes its theories have been considered. Those who have laid greater emphasis on its practical side have looked upon alchemy as the art of synthesizing gold and believed this craft to have descended from other crafts, possibly from goldsmithy. This would be a legitimate conclusion if we agree with the majority that alchemy tried to make gold. Farrington<sup>1</sup>, as a notable representative of this school, writes that, “if one succeeded in making things that were not normally found in nature like bronze, one did so not by isolating and combining qualities but by mingling substances. The smiths and the potters, who knew these things, were the pioneers of chemistry in early times.” If the popular definition of alchemy is correct gold-smith would be the immediate ancestor of the alchemist. But the very definition of alchemy can be questioned when we specially ask, did any one ever make gold, and if not, how did the unsuccessful craftsman continue his art, and what was the art which he tried to improve and out of which he evolved alchemy? Such questions can be multiplied and we will soon find ourselves in a labyrinth without any way out of it.

Instead of starting from the present and reaching its hoary past it is easier to follow stepwise how, from archaic times up to the present, alchemy

might have developed both theoretically and practically. The activities of man are primarily dictated by his necessities and his first necessity was to live as long as possible. Davison<sup>2</sup> writes in this connection that, "the idea of death has always been very difficult for the primitive peoples to grasp and the impulse to live was so strong that death seemed unnatural. . . As death was considered abnormal they looked for a cause. The most obvious cause was loss of blood (as of the animals they killed. The result was that) all sorts of red objects have been connected with this belief (and) red berries, red flowers, and even red stones have been credited with life-giving attributes of blood." It can be easily imagined that red vegetable products were tried earlier than red inorganic substances. From such a position occupied by herbs a cult developed which became herbalism. By herbalism is normally understood the art of treating diseases by fresh herbs. But in the beginning even the conception of disease was different and herbalism correspondingly carried a different connotation. Apart from it herbalism was not only a practical science but also a theoretical one. We have only to ask, what was the theory behind the use of the Soma juice which the Hindus and the ancient Iranians alike believed as conferring immortality? An explanation is again wanted for the more general product, Amritha, a Sanskrit word, etymologically allied to Ambrosia of the Greeks, who, in their turn, believed that the latter was a drug of immortality. Even the Chinese felt that a fast growing mushroom, called Chih, must contain a life prolonging element. The question for us is not how these peoples accepted such beliefs but how these concepts originated. The explanation lies buried in the primitive religion of man which was Animism. Man has a body and a soul. Life results when the soul acts upon the body. Animism extended this dual nature of man to every thing in the universe and consequently herbs also came to have a body and a soul. Soul was the permanent or unchangeable element; the material body was the mortal element. This alone turned into dust and every time an individual or a plant came into existence its body was reconstructed from dust or inorganic units. The soul of the dead however retained its individuality and could enter into another body and impart its virtues to the latter. When man consumed a herb the soul of the plant was added to that of man while the body of the plant served as a mere roughage. We have thus in the soul of the plant the active principle, a dose leading to immortality, which could be taken to increase the life of man. Now the souls of plants, as of man, came from the heavenly bodies, mostly from the sun. Plants absorb solar energy. That is why *plants became the drugs of immortality* in preference to other substances. Some herbs absorbed greater doses of soul than others. Just as the carrot has provitamin-A to such an excess that it is a problem in plant physiology to discover its role in the life of this plant, it was assumed that some herbs are miniature stores of soul units and could thus donate them to man. The search of such plants was the chief aim of the herbalist. The Soma plant was his great discovery. Disease meant insufficiency of soul content and ordinary medicinal plants supplied its required amount.

The difference between a herb curing a disease and another imparting immortality was merely quantitative. This is the first cardinal point to be recognized.

It did not take long to realize that man did not become immortal even though herb after herb was tried for the purpose. Man deceived himself by believing that the right herb was not taken in the right condition for when the plant withers or the juice is exposed long the vegetable soul escapes and the residual juice is without its active principle. It became a *science* to select the herb and it required an *art* to conserve the active principle. Herbalism was the science and alchemy was the art. Many plants came within the purview of such a science. As can be easily seen the obvious weak point in the system of Herbalism was the finding of the ideal plant producing a powerful juice like the Soma. But what was required was souls rather than herbs. Thus instead of one plant giving a large quantum of soul, smaller units could be collected from several important plants which together would finally contribute the same quantity of life-element. This means that the souls have to be extracted from the plants and pooled into an accumulated dose. The question now arose of a suitable vehicle which could finally give a concentrate equal in potency to that of a portion of Soma juice. A herb has a delicate body and on that account can easily donate its soul. A metal has a heavy body and would not easily part with its soul; and if extracted and replaced by another would likewise conserve the new soul equally well. When a metal is heated with a herb, the former is forced to deliver its soul and on vacuum being thus created the vegetable soul, being the more energetic, enters the metal body which must accept the more powerful soul. It is a case of experimental or induced transmigration of a vegetable-soul into an inorganic body. Animism gave rise to the theory of transmigration of souls so that we have now a vegetable-soul in a metal-body. It is a herbo-mineral or an inorganic-herbal preparation. Here begins *alchemy as a handmaid of—herbalism*. The claim is that recorded by His Highness Bhagvat Singh Jee of Gondal<sup>3</sup>, academically qualified as an M.D. He writes that, the Hindoos "have described the method of *transferring the properties of vegetable cures to certain metals*". He further states that, "the metals are subjected to various processes of purification" which originally signified that the ineffective souls of metals were evacuated from them and the metals were prepared to accept the souls of herbs instead. At a later stage souls, even of inorganic substances, like that of sulphur, were introduced instead of those of plants. Such inorganic donors were sublimable or spirit-like in nature, the red mercuric sulphide being preferred to all. To talk of transferring the properties of herbs to metals sounds meaningless; whereas to say that the soul of a herb was forced to transmigrate into the body of a metal is clearly applied animism. Without accepting animism no plant can be believed to impart immortality for immortality resulted on imbibing the "souls" of plants. The active

principle of such a herb subsequently incorporated in an inorganic vehicle had the same end result and was the first alchemical preparation. Later an alchemical preparation was called a chemical.

At this stage we have to reflect in one case, how did people continue to believe that plants, like the Soma, ever existed and on the other how the Elixir of Life was ever produced. If we wonder at the latter we have first to wonder at the former. In practice a herb that produced a red juice must have been accepted as equal to Soma. Fruits like the apricot are actually capable of regenerating blood and no wonder that the peach, which belongs to the same family, has been extolled in China as a fruit of heaven and conferring immortality. In an age when a hero could become a god the peach could likewise become the fruit of heaven. Similarly a preparation made by digesting rusted iron or crude iron oxide with an organic acid from some herbs or fruits would yield a preparation useful for treating anaemia. The virtue of such a compound would have been exaggerated to mean that it could even make a mortal being—immortal. Whereas iron-rust and a sour-fruit would be a *mineral* and a *drug* respectively, a substance produced jointly by them, like crude iron-citrate, would be an *alchemical preparation*. When such a chemical, as iron-citrate, is calcined to give pure iron-oxide it would still be accepted as herbo-mineral, for the inorganic vehicle continues to retain a herbal soul. Only when such a compound, by now iron-oxide, is heated strong enough to become a metal again, the incorporated plant-soul would be believed to have departed from its metallic body. A compound, like ferrous sulphate, where no "plant-soul" ever entered it, would not be a herbo-mineral or an alchemical preparation, but a pure mineral instead. Further if iron is calcined, say with apple juice, assumed to be good for strengthening the heart, ferric-oxide produced from crude iron-malate would be a typical herbo-mineral product or a chemical in the original sense of the word, and superior to apple itself. The same iron rust calcined into ferric oxide by heating it, say with peach fruit extract, would now be a remedy for anaemia and superior to the peach. Thus ferric oxide according to its origin, or according to the "soul" of the plant incorporated into it, becomes an alchemical preparation and a remedy superior to the fruit or the herb otherwise used for treating the same ailment. The inorganic vehicle enhances the properties of the herbal soul while the latter alone decides the main virtues. Mooden Sheriff<sup>4</sup> gives a selected list of 708 Simples, of vegetable, animal and mineral origin, but mostly herbal. I have cited this authority for he was a practising physician and an Indian. Others were compilers, without being physicians, or interested mainly in prolonging the list of drugs as much as possible. There is a Pharmacy at Gondal, making preparations according to the Indian system of medicine, instituted there at the inspiration of its Maharaja, H. H. Bhagvat Singh Jee. The 1936 edition of its catalogue edited by the renowned physician Kalidas Shastri<sup>5</sup> gives 972 herbo-mineral preparations. One can easily contrast

the list of herbs with that of alchemical preparations to realize how *alchemy has been kept alive*. Thus alchemy is no longer a fossil science. Those who are interested in alchemy are mostly physicians of the old school of—medicine and the ablest among them enthusiastic believers in the superiority of herbo-mineral preparations as distinct from vegetable drugs. They see the miracle such drugs sometimes achieve and on the basis of such rare experience naively believe that alchemy should be able to change copper into gold. As far as I know they do not occupy themselves with any practical work apart from making herbo-mineral drugs.

While herbalism had no technique but only *observations* to guide in selecting herbs, alchemy was faced with the serious *practical* problem of extracting souls of plants and infusing them into metals as vehicles or bodies. The active principle recognized by the herbalist was the soul which was accepted unconditionally by the alchemist. The theory of transmigration gave a clue to the technique of preserving the "soul of herbs" as "induced transmigration." Having obtained a concentrate of souls in a herbo-mineral preparation the latter was potent enough to change the constitution and thus the predisposition to disease. Such was alchemy as a branch of medicine. As a cult of immortality alchemy changed the nature of man to a much superior state. With a super-dose of "souls" the body, as an assemblage of material units, became ethereal and thus immortal. It became buoyant and man could then walk on water or fly about in the air; he was now a Jinn. The conception is by means unfamiliar. During two days of internment in the grave the body of Lord Jesus underwent such a change that he ascended with his body intact to heaven. The alchemists believed that such a virtue can be acquired on taking a drug of immortality. The same alchemy could also change the constitution of metals, which became weather-proof and fire-proof or simply gold. Even stones, liable to weathering, could become diamonds or other precious gems and thus acquire forms which made them everlasting members of their own class of substances. Alchemy then extended immortality even to metals and to make them last for ever was to make them into gold. The Concise Oxford Dictionary describes Elixir as the preparation (a) which changes metals into gold or (b) prolongs life indefinitely. It is self-evident that there is no connection between these two achievements. But once we accept that the alchemist was primarily an animist he could apply his theories to produce mutations, both in the organic and the inorganic world. The mutation or change of constitution lay in the transformation of the material component which became sublime or soul-like in character. To quote Philo<sup>6</sup>, "the soul can so dominate the body that it shows forth an imitation of the powers of the soul." Extra powers of the soul were contributed by the concentrate of plant souls. When a portion of the same juice or a preparation containing it was taken its soul-elements made the body of man soul-like and he became an immortal and a jinn. When the same juice was dropped on copper it

became gold. The "soul" of the Juice was incorporated into the gold which was formerly copper. Gold making Juice was a later name for the juice of immortality. In Hakka and Fukin dialects of South China Gold-making-Juice is called Kim-Iya. The Arabs modified it into Ki-Miya, and adding their definite article, "Al", got their Al-Kimiya, hence our Alchemy. Whereas Soma was a plant juice producing immortality the specific notion of a juice producing gold was first conceived in China. With the notion of a gold making herb or a *gold making plant juice begins alchemy* as we can clearly recognize it. It was a preparative art while Herbalism was not. The term Kimiya appears first in China. The genesis of alchemy from herbalism is definitely revealed by the designation, Gold (making) Plant Juice. The first substance sought by the alchemist was a Juice.

From the practical stand point the entire play of alchemy lay in isolating plant souls and processing them further. The one technique that was used most for the purpose was distillation. This stage must have followed that of making herbo-minerals or chemicals. We have the simple observation that a rose flower, after a couple of days, loses most of its fragrance, even before it is completely dried. What happened to its essence? What was this essence? The ready reply of the alchemist would be that the flower has a soul and the departed soul produced its fragrance. When rose flowers are distilled with water, steam acts as a vehicle and carries over the soul of the flowers. Essence of rose or the soul of the rose flower, for example is called "Ruh" in Arabic, being exactly the very word used also for the Soul of man. This is incidentally mentioned to reveal how alchemy cannot be understood apart from animism. However the question can be independently asked, who invented distillation first? I have been unable to find a verdict on this point. It would appear that distillation is earlier than alchemy, and the Chinese, who were otherwise familiar with the process of making essences or spirits of wine, applied it to alchemy. Thus on its theoretical side alchemy descends from herbalism and on the practical side from the art of using stills and the process of distillation. Having extracted the souls of herbs and of other substances they hermetically sealed the vessels to prevent their escape. Among the first vessels used for conserving essences was dried gourd and for sealing they used bees wax. The coexistence of a still and a hermetically sealed vessel has to be assumed. If there is controversy over distillation it may be easier to decide who introduced the hermetical seal first? Unfortunately this does not seem to have been undertaken before and I have shown that it must have existed early enough in China. At this stage the history of alchemy has shifted to that of perfumery, for how did the earliest perfumer conserve his volatile essential oil? The alchemist had to do adopt the same technique.

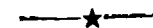
## SUMMARY

Alchemy is a cult immortality and an extension of Herbalism which accepted the Soma juice as conferring immortality. By its use the—constitution underwent a change from being material to some thing ethereal. To confer immortality upon a metal was to make it into gold. Kimiya means a Gold making plant Juice; the word alchemy is derived from it.

Whereas Herbalism depended upon observations alchemy was an experimental art. It extracted the active principles of herbs, assumed to be volatile "souls", and infused them into metals. An inorganic body with a plant-soul became a herbo-mineral preparation, later called a "chemical". Calcining of metals with herbs gave such chemicals. Some plant products, like flowers could be distilled and the distillates contained the "souls" which were conserved in hermetically sealed vessels and served as drugs of immortality.

## BIBLIOGRAPHY

1. Farrington, B.: Head and Hand in Ancient Greece, The Thinker's Library.
2. Davison, Dorothy (1934): Men of the Dawn, The Thinker's Library, p. 102-103.
3. Bhagvat Singh Jee, H. H. (1927): A short history of Aryan Medical Science, Gondal, p. 137.
4. Moodeen Sheriff (1869): Medicinal Plants, Madras.
5. Kalidas Shastri (1936): Ayurvedic Pharmaceutical Works, Gondal, Catalogue, 22nd Edition; Items 1-972.
6. Bharat Iyer, K. (1947): Comaraswamy Commemoration Volume, Philo quoted on p. 225.
7. Mahdihassan, S. (1960): Das hermetische Siegel in China, *Pharm. Ind.*; 22: 92-94.



## UPGRADED DEPARTMENT OF HISTORY OF MEDICINE, OSMANIA MEDICAL COLLEGE, HYDERABAD

### First Report

September 1956 to March 1958

*History of the Proposal - Implementation by the Government of Andhra State - Opening of the Department at the Andhra Medical College, Visakhapatnam in Sept. 1956—Shifting of the Department to Hyderabad and a Report of its working upto 31-3-1958.*

#### Origin of the idea of a Department of History of Medicine—Professor Sigerist's view accepted by the Bhore Committee in its Recommendations

The idea of a Department of History of Medicine in India was conceived in the fertile brain of the Late Prof. H. E. Sigerist, during his sojourn in India in 1944. This great teacher and writer on medical history, then Director of the Johns Hopkins Institute of the History of Medicine, Baltimore, was one of the foreign experts to advise the Health Survey and development Committee (presided over by Sir John Bhore and known as Bhore Committee), appointed during the war-time by the Government of India under British rule. Prof. Sigerist's previous knowledge of Indian History and Culture, his visits to the cities and medical institutions in India, supplemented by his "on the spot" study of social, medical and cultural background and current trends of medical theory and practice in India, impressed on him the need for an Institute of History of Medicine, as an essential limb of the All India Institute of Medical Sciences, then dimly visualised for the training of post-graduates, teachers and research workers. Prof. Sigerist prepared and submitted a note on "The need for an Institute of History of Medicine in India" (Ref: Bhore Committee Report, Vol. III, Page 204, Appendix 47) and the committee included among its recommendations, a Department of History of Medicine, as one of the sections of the All India Medical Institute (Bhore Committee Report: Vol. II, Page 432). Prof. Sigerist was eagerly looking forward to the implementation of his recommendation and expressed the hope that he and Dr. Reddy might work in the department.

#### Upgrading Committee Recommends a Department of History of Medicine, in the Andhra Medical College, Visakhapatnam

The termination of the war and the sudden decision of the British to quit India and the unexpected partitioning of India, created new and complicated problems which interfered and delayed the organisation of the All India Medical Institute at Delhi. As a transitory step, till the organisation and development of the Institute at Delhi, it was thought feasible to upgrade certain selected departments of medical colleges, in different centres of India, by affording special facilities and grants to the States and institutions, to expand and equip themselves as centres for training of post-graduates, teachers and research workers, in certain departments of basic sciences and clinical specialities.

An Upgrading Committee was appointed with Dr. A. L. Mudaliar, Vice-Chancellor of Madras University, as its Chairman. This Committee went round India inspecting colleges and departments, interviewed heads of departments with a view to

assess the personnel and facilities in different centres. It was then that the idea of a Department of History of Medicine in the Andhra Medical College was suggested by the then Surgeon-General of the composite State of Madras, Major-General S. L. Bhatia, himself a student of Cambridge, infused with love of scholarship and scientific humanism and also a friend of Prof. Sigerist.

The Upgrading Committee considered this matter and was pleased to recommend that, in addition to upgrading existing Departments of Obstetrics and Gynaecology, Department of Venereology and Department of Anatomy in the city of Madras and the Department of Pathology in the Andhra Medical College, an upgraded Department of History of Medicine may be opened in the Andhra Medical College, Visakhapatnam. It may be added here that there was at that time no Department of History of Medicine in any medical college in India. Dr. A. L. Mudaliar, and Maj.-Gen. Bhatia, the sponsors of the Upgraded Department, have continued their interest in this new experiment.

Of the five departments in Madras State then recommended for upgrading, three in the Madras city were upgraded in 1952; for many reasons the cases of the two department in the Andhra Medical College, Visakhapatnam, were not considered ripe for implementation. After the formation of Andhra State in 1953, the question of upgrading the two departments, allotted to Andhra Medical College, Visakhapatnam, was taken up earnestly. The Department of Pathology had been in existence for nearly 30 years and had been presided over, by some of the most eminent Pathologists in India. Therefore, after some correspondence and visits by the Union Minister of Health, Hon. Rajkumari Amrit Kaur and the Director-General of Health Services, Col. C. K. Lakshmanan, the Government of India agreed to the upgrading of the department, and in December 1956, Dr. D. Govinda Reddy was appointed Director of the Department of Pathology, Andhra Medical College, Visakhapatnam, which then began to function as an upgraded department, affording post-graduate training in Pathology for students from all over India. This was the first department to be upgraded in the Andhra area.

#### Formation of Andhra State facilitated the creation of a department of History of Medicine

The Department of History of Medicine recommended for upgrading as early as 1947, had to be brought into existence. The Government of composite Madras Province did not give any serious attention to this matter. It was only after the formation of the Andhra State that the correspondence relating to the upgraded Department of History of Medicine was traced and the matter taken up with the Director-General of Health Services, Delhi, who raised some questions and enquired about the accommodation, equipment and staff of the department, before giving any consideration to the upgrading of the department. The upgrading committee knew fully well that there was no department as such, when they made the recommendation, but they believed that a department could be brought into existence quickly by providing some accommodation and equipment at Visakhapatnam and appointing a Head of the Department.

The enquiries and replies necessitated prolonged correspondence between Kurnool and Visakhapatnam on the one hand and between Kurnool and Delhi on the other. It may be mentioned that Dr. Ramana Murthy, the first Director of Medical Services of Andhra State and Dr. S. Krishna Rao, who was in-charge as Director of Medical Services for some months, and Dr. Govinda Reddy, then Principal of the Andhra Medical College, did their

utmost to expedite the correspondence. It was, however, after Major K. N. Rao assumed charge as the Director of Medical Services, Andhra State, that the correspondence acquired a new tempo. Maj. Rao with his dynamic activity and drive and Mr. Kaiwer, Health Secretary, with his wide knowledge and experience of medical department, planned and worked as a team and persuaded the Government of Andhra State to sanction the creation of a Department of History of Medicine in Andhra Medical College, as a necessary preliminary step for the upgrading of the department by the Union Government. Dr. B. Gopala Reddy, who was then the Chief Minister and also Finance Minister and the late Mr. Kala Venkata Rao, who was the Health Minister, took interest and lent support. The Government order (No. 1465 Health dated 28-9-1955) sanctioning the department is a historical document, creating for the first time, a Department of History of Medicine in India, the only one probably, in the whole of Asia. This gesture of the Cabinet of Andhra State was much appreciated all over India and in other parts of the world.

#### Opening of the Department of History of Medicine in the Andhra Medical College, Visakhapatnam

But a new department can be opened and begin to function only if proper head of the Department is recruited. Again Major Rao commenced correspondence to secure a suitable person for the post of the Professor of History of Medicine, to organise the new department sanctioned and finally recommended to the Government of Andhra State Dr. D. V. Subba Reddy, then Professor of Physiology, Madras Medical College, for the new Chair of History of Medicine in the Andhra Medical College (G. O. Ms. No. 641 Health d/-9-4-'56).

This was again a milestone in the annals of medical education in India. Dr. Subba Reddy joined his new appointment at Vizag on 23-9-1956, the day on which the Department of History of Medicine was born. Three days later, on 26-9-1956, the Department was officially inaugurated by the Hon. Mrs. M. Chandrasekar, Deputy Minister of Health, Government of India. The department was temporarily housed in a hall in the first floor in the Raja of Panagal buildings, situated on a high sand hill, overlooking the town of Visakhapatnam and the Bay of Bengal.

The speeches made on the occasion and the snaps taken at the time are published elsewhere. The other staff sanctioned, like the Steno-typist, Artist, etc., were soon appointed. Indents were prepared and orders placed for office equipment, library etc. The department was very fortunate in having been located between the Principal's room and the Office of the Principal, Andhra Medical College. The office staff was very helpful and expeditious in attending to our needs and to our correspondence. They also trained our new staff to maintain Registers, files and accounts. Dr. Govinda Reddy was ever ready to give us suggestions and to solve our problems from day to day and also actually lent us some furniture, a typewriter and other office requisites and placed orders without any delay. It was a surprise for the visitors as well as to other departments that, within three months, the department had not only furniture but also Library equipment and Library, which excited the envy of older departments. A large part of the credit for this rapid building up of the department, at Vizag, must go to the Principal, Dr. Govinda Reddy and to his office staff.

#### Formation of Andhra Pradesh and Transfer of the Department to Osmania Medical College, Hyderabad

Meanwhile, on 1-11-1956, consequent on the Linguistic Reorganisation of the old states, the old Princely State of Hyderabad was disintegrated and the Telengana section was integrated with the Andhra State to form the enlarged Andhra Pradesh, with its

capital at Hyderabad, an old and well developed city, with famous Libraries and Museums and a greater variety of literary and artistic talents. In the new cabinet headed by Mr. N. Sanjeeva Reddy, the Health portfolio was in the charge of Nawab Mulla Nawaz Jung Bahadur, an enlightened and seasoned administrator, associated with all cultural activities and social service in the Nizam's Dominions. A proposal was made to shift the Department of History of Medicine, Andhra Medical College, Visakhapatnam, to Osmania Medical College, Hyderabad. The Nawab Sahib readily appreciated and approved the proposal and necessary orders were issued on the last day of 1956 (G. O. Ms. No. 290 Health dated 31-12-1956). But, as the budget sanction was given for 1956-57 for this department in Andhra Medical College, Vizag, and as orders had already been placed for certain articles and books etc., and as articles and bills were coming, the department continued to be in Vizag. The packing and transfer of furniture and books, threw considerable strain on the few members of temporary staff, some of whom also declined to move to distant Hyderabad. The Professor and Artist only had to face all the difficulties, inconveniences and delays, though these were shared or reduced, by the co-operation of the new Principal, Dr. G. V. Satyanarayanamurthy and his office staff.

#### Opening of the Department in Hyderabad in April, 1957

The Professor arrived in Hyderabad on 3-4-1957 and immediately opened a Department of History of Medicine in this city. The Department of History of Medicine was attached to the Osmania Medical College but as there was no accommodation in the already overcrowded Osmania Medical College, the department was actually located in Bashir Bagh, in the then untenanted buildings leased to Gandhi Medical College. For all work connected with the Department of History of Medicine, the Professor had to go to the office of the Principal, Osmania Medical College, in Afzal Gunj. Dr. Bankat Chandra, Principal, Osmania Medical College was also, at that time, in charge as the Principal, Gandhi Medical College, then located in rented buildings in Humayun-Nagar and under his instructions, Dr. P. V. Ranga Reddy, Professor of Anatomy, Gandhi Medical College, who was in charge of the Office of the Principal, gave all co-operation and assistance in getting the unoccupied building cleaned up for occupation. The Gandhi Medical College also provided some furniture on loan and lent the services of a clerk and a Peon till the department recruited staff. The building had no lights and no water supply or sanitary fittings or fans and all these had to be improvised privately. There was no telephone in the department at Bashir Bagh and the only chance of contacting officers and discussing matters, was by motoring from office to office, during the office hours.

The departmental furniture and books arrived from Visakhapatnam by a wagon in a goods train in the third week of April. By the end of April, the furniture and other equipment were unpacked and arranged in the new home; book-cases opened and books also arranged, so that, on 3rd May when the Chief Minister, Mr. N. Sanjeeva Reddy, who had, meanwhile, taken charge of the Health portfolio paid a visit to this Government building, in connection with the schemes of the Gandhi Medical College, the Professor Subba Reddy was able to show the Chief Minister, the Health Secretary and the Director of Medical Services, how the nucleus of the department was already organised and also indicate the future plans for the development of the department.

The vacant posts in the department had to be filled up in Hyderabad and the raw staff had to be trained in the new type of work of this department. No money was available for the department in the budget of the Osmania Medical College. Therefore, no articles could be ordered or purchased during the first half of the year 1957-58, till orders were issued for budget provision for the Department, in the Osmania Medical College.

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*New Difficulties.*—Unfortunately for the department at this very critical stage, the Professor was posted as the Principal, Gandhi Medical College, which was started as a private medical college in 1954, and was later taken over, with all assets and liabilities, by the Government of Hyderabad State in 1956, on the eve of the formation of Andhra Pradesh. The college was located as already stated, in a building in Humayun Nagar on the Western outskirts of the city. The new Principal had to spend many hours in Humayun Nagar everyday and also visit frequently many offices scattered all over the city of Hyderabad and environs.

Fresh contacts had to be made with local firms for quotations etc. The various firms, booksellers all over India had to be intimated of the change of address and asked to send all communications intended for this department to its new address.

When the Steno-typist was appointed on 24-4-1957, there was no typewriter, till an old machine was secured on loan from the Office of the Director of Medical Services. This was replaced by a new one some months later. The department was in urgent need of a Duplicator. The Artist who had come from Vizag resigned and a new one was appointed. But the materials for drawing and painting etc., were not available for some months. The post of Personal Assistant to the Professor was sanctioned but was filled up only on 11th December 1957. The post of a Clerk was still under correspondence. The department fared like a small delicate plant transplanted from its original place to a new rocky soil and dry climate.

There was a silver lining in the dark cloudy sky. The Secretary, Health Department, Mr. L. N. Gupta, and the Director of Medical Services, Major K. N. Rao, the Principal of the Osmania Medical College, Dr. Bankat Chandra, were ever ready to listen to the difficulties and representations of the Department of History of Medicine and to help in the organisation and development of the Department.

*Co-operation of Local Public.*—The Professors of medical college and members of the medical profession were not aware of the background and the significance of the new department, which was opened in Visakhapatnam and transferred to Hyderabad. Dr. Subba Reddy was a stranger to the city, University and the local cultured people. The first and urgent need was to contact members of the medical profession and colleges. This was facilitated by some good friends. The Indian Medical Association, Hyderabad Branch, gave its willing co-operation and arranged two functions:

- (1) A Lecture in the Indian Medical Association Buildings on the "Life and Work of William Harvey" in commemoration of the Tercentenary of his birth,
- (2) A pilgrimage to Ross building where Ross's famous discovery was made to commemorate the centenary of his birth and the Golden Jubilee of his discovery.

Dr. M. Nizamuddin, Retired Professor of Persian in the Osmania University and Director of the Dairat-ul-Ma'arif, kindly helped in arranging an informal meeting of the Hakims and scholars in Arabic and Persian and doctors like Dr. Kursheed Hussain, Dr. Maqbul Ali and gave an opportunity to Dr. Reddy to explain to them the importance and scope and objects of the Department of History of Medicine and to request their hearty co-operation.

Dr. M. Visweswara Sastry, Director of Indian Systems of Medicine also gave me full co-operation.

An old friend, Dr. P. Srinivasachar, Director, of Archaeology, Hyderabad placed his knowledge and the facilities in his department at the disposal of the Professor and introduced many persons likely to be useful in the study of History of Medicine in Hyderabad. Prof. Abdul Majid Siddiqui, Principal of Evening College and a former Professor of Osmania University, has been very helpful not only giving loan of books or translating passages from Arabic, Persian and Urdu but also in taking and introducing Dr. Reddy to Nawab Maqsood Jung, Retired Director of Unani Hospitals, to Mr. S. A. Bilgrami, Retired Director of Archaeology and also accompanying him to Oriental Libraries and places of Archaeological interest, like Dar-us-Shifa and Golconda tombs etc. Prof. H. K. Shervani, a former Professor of Osmania University and Retired Principal of Nizam College and an authority on Deccan History gave some of his time and valuable suggestions, and lent full support to the new department. The local English daily newspaper, "Deccan Chronicle" readily and promptly published reports and news and articles dealing with History of Medicine and created and fostered an appreciation for historical studies in relation to medicine in Andhra Pradesh.

*Library.*—Since the Department has to study source books and secure information for the reconstruction of History of Medicine in India, three types of books are needed.

1. Medical classics of India—in Sanskrit and regional Languages. Also, medical classics of ancient Egypt, Assyria Greece, Rome, Arabian Medicine etc. for purposes of comparative study.
2. Books on History of Medicine, monographs on history of special subjects, Journals of History of Medicine.
3. Publications on History of Culture, History of Literature or Science old chronicles and histories, biographies etc.

*Museum.*—The museum is intended to give a clear idea of the development of Medicine, in time and space. Maps, charts and pictures from books on History of Medicine in world context have been enlarged and arranged. Similarly, maps, charts and other illustrations from books on History and culture of India and old sculptures and paintings have been suitably modified for the purpose of teaching History of Medicine in India. These charts and pictures have been utilised to arrange medico-historical exhibition in connection with the functions in the Gandhi Medical College, Hyderabad.

*Audio-Visual Equipment.*—From the charts, diagrams, maps, sketches and paintings in the museum and from the photographs of Historical buildings, manuscripts and other pictures, slides have been prepared and used for illustrating lectures on History of Medicine to students and to Medical Associations and to the Public.

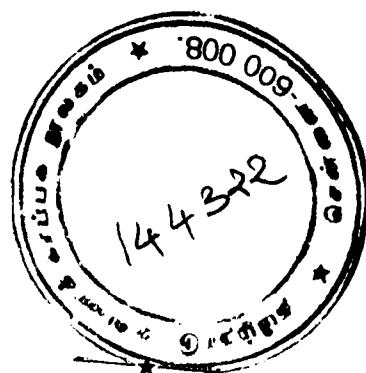
*Lectures and aid in the Preparation of Theses.*—For the first time in India a course of lectures in History of Medicine was delivered to the students of the Osmania Medical College, Hyderabad. These lectures were arranged separately for the first year students (Pre-clinical), for third year students (At the commencement of hospital work) and to final year students (at the end of the M.B.B.S. course).

In the Andhra Medical College, Visakhapatnam the post-graduates, writing theses for M.D., and M.S., were given facilities and guidance to prepare brief historical review, summarising older European as well as Indian medical literature, on the subject of their theses.

*Bibliographical Research.*—Side by side with the organisation of the Departmental Library and Museum, a beginning was made to build up a collection of catalogues, lists of books, articles and manuscripts, throwing light on History of Medicine in India. A bibliography of History of Medicine in India as well as a bibliography of Indo-European literature on Medicine is under preparation.

*Publication.*—There is a proposal to publish the results of search, studies and research, in a 'Bulletin' of the Department, which will serve both for exchange of publications and for exchange of information.

Thus, by March 1958, one and half year after the opening of the department and one year after shifting to Hyderabad, there was a perceptible change in the new environment, which augurs well for the normal growth and development of the department, into an upgraded Department envisaged by the Upgrading Committee.



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## INDIAN JOURNAL OF THE HISTORY OF MEDICINE

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The Journal will be devoted primarily to the promotion of the study and research in the History of Medicine, including philosophical, sociological, cultural and humanistic background, as well as the changing influences and new trends. It will endeavour to bring to the notice of the cultured public and the profession, various Archaeological, Epigraphical evidences, traditional lore, extracts from ancient literature, religious or secular or scientific, list of manuscripts, records of documents, old books and works of art, useful for the study of history of Medicine in India. It will collect and publish clues and traces of the influence of ancient Indian Medicine on other lands and people of ancient and mediaeval times. It will attempt to critically examine the influence of European Renaissance and European Medicine on the advent and growth of modern medicine in India, with far-reaching repercussions on the Indigenous systems and on the health of India. It also aims to bring Medical Science into closer relation with Humanities.

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