"Phirangi roga" or syphilis in India in 16th and 17th centuries : sketches of early Indo-European syphilographers with extracts from their writings / [D.V. Subba Reddy].

"PHIRANGI ROGA"

OR

SYPHILIS IN INDIA

in 16th and 17th Centuries

SKETCHES OF EARLY INDO-EUROPEAN SYPHILOGRAPHERS WITH EXTRACTS FROM THEIR WRITINGS

JOHN FRYER,
M. D. (Cambridge), F. R. S.
1650—1733
(See Page 3)

by
D. V. S. REDDY

Reprinted from :—
Indian Journal of Venereal Diseases & Dermatology
Bombay 4
(For private circulation only)

To the Readers

The reprints bound together in this volume were commenced as a series in Indian Journal of Venereal Diseases with the definite purpose of being later collected and published as a small book, under the title "Early Syphilography in India", dedicated to Karl Sudhoff and Henry Sigerist and with an introduction or preface from the Veteran British Historian of Medicine—Sir D'Arcy Power. The sudden death of Professor Sudhoff and Sir D'Arcy damped my enthusiasm for the proposed venture. On being informed of this project regarding the "Early Syphilography in India" and how it suffered a sort of set-back due to the death of the eminent British Surgeon and Medical Historian, Professor John Fulton, the brilliant Physiologist and Medical Historian of America, whose interest in and writings on, the early literature of Syphilis are well known, kindly offered to send a foreword, after perusing the series of articles. Though 2 different sets were sent from India on different occasions by surface route, the reprints did not reach him. All this correspondence and despatch of reprints and his reply took time. Hence, without any foreword or introduction, I am putting the bound reprints in the hands of those interested in medical history.

I am very grateful to Dr. U. B. Narayan Rao, the Editor of I. J. V. D, for his willing help and co-operation in my endeavours, or the promotions of the study of History of Medicine in India.

I wish to add that even the small and fragmentary contributions throwing sidelights on medical writers and on Syphilis of 16th and 17th centuries, were the fruits of long and laborious studies and research and like all pioneer efforts, likely to fall short of the best standards of the European and American writings. I shall be fully satisfied, if my weak efforts and even the defects and short comings in these fragments, stimulate more fortunate and more learned medical men to attempt and publish some valuable contributions.

VIZAG.
22-8-43

D. V. Subba Reddy

Observations on Syphilis in the Seventeenth Century in India and Persia.

JOHN Fryer, M. D., F. R. S., eldest son of William Fryer of London was born in that city probably about the year 1650 A. D. His relations seem to have been connected with the early fortunes of E. I. Coy. and this may have been instrumental in his obtaining an appointment in India. He himself is very reticent about his career or relations.

But from the entry in the Register of the Trinity College, Cambridge "1664. Julli 13 o. John Fryer, Pension" it is known that he was educated in this College. Nothing is known about his career there. On 22nd July, 1671, for some unknown reason, he was transferred to Pembroke College, as a Fellow Commoner and in the course of the year obtained the M. B. degree Later in life in 1683, he took the M. D. degree. In his obituary notice, he is said to have been a member of the Royal College of Physicians, though there is no basis for the statement. He was elected a fellow of the Royal Society in 1697, probably on account of his professional standing and scientific interests. He published his book "A New Account of East Indies" in 1698.

In september 1672, one year after he took his degree, he secured the post of the Surgeon at Surat in Company's service, on the recommendation of Mr. Cantam who wrote of Fryer as "a skillful and experienced artist in that profession". On 9th December he sailed from Graves-end in the ship ***Unity***, one of the annual fleet for the East and after many strange experiences and adventures on the way, round the Cape of Good Hope, reached the East Coast of India in June 1673. On 13th December 1672 the Company wrote to Surat "We have entertained Mr. John Fryer as Chirurgeon for Bombay at 50 P. per month to commence at his arrival and have furnished the Chirurgery chest now sent according to the directions of Mr. Ward."

As the ships were informed that the Dutch were blockading the coast from St. Thome to Fort St. George, they decided, instead of risking

as "*Plagae Veneris*" and proceeds to give the usual native remedies popular in those parts at the time. On the other hand, in his notes on Persia he describes it as the "fashionable malady of the country, scarce one in ten being free from it" and also as the "Frank Disease."—*Atechequе Fringi.* Another point of interest in his classic description is his clinical observation that the disease "seldom or never arrives to that height of cruelty as in Europe" on account of the pureness of the air in Persia.

° ° ° °

"The Diseases here (Carnatick-Country) are Epidemical, unless ***Plagae Veneris*** be more Endemial, for which at this Season they have a Noble and Familiar Remedy, the Mango (which they have improved in all its kinds to the utmost Perfection) being a Sovereign Medicine; they are the best and largest in India, most like a Pear-Plum, but three times as big, grow on a Tree nearest a Plum-Tree; the Fruit when Green scents like Turpentine, and pickled are the best Achars to provoke an Appetite; when Ripe, the Apples of Hesperides are but Fables to them; for Taste, the Nectarine, Peach, and Apricot fall short; they make them break out, and cleanse the Blood, and Salivate to the height of Mercurial Arcanaes; and afterwards fatten as much as Antimony, or Acorns do Hogs; these and Sarsa being their usual Diet."

(Vol. II. Page 84)

° ° ° °

"The Endemial Diseases of this Country, (Persia) are Phrensies, Plurisies, Peripneumonies, Empyemaes, Catarrhs, distempers of the Eyes: Red Gum, which besets our Children in Europe, is pernicious to Old Age here; St. Anthony's Fire, or more properly the Persian Fire, impressing on the adult Blood the nature of Atrabile: But the *fashionable Malady of the Country is a Clap*, scarce One in Ten being free from it; which the unbounded Liberty of Women, Cheapness of the Commodity, and the Encouragement of their filthy Law, are main Incentives to. And to back this Lewdness they bring the Example of their Prophet Haly, who lying down without a Female Companion, is reported to be Author of this doughty Dialogue between the Earth and him, wherein the Earth up-

braided him by saying, "whilst you lay on the Ground an unfruitful Log a burthen to my sides, I sweat and labour in producing Vegetables, Minerals and Animals for your use; why then do you not busy your self in getting Children, to transmit your off-spring to Posterity?" Which pleasing Reproof of the Venerable Prophet's recommending to his easy disciples, they embrace with both Arms, the Poyson creeps into the Marrow of their Bones, so that they are not come to Maturity, before they are rotten; though by reason of the Pureness of the Air, it seldom or never arrives to that height of Cruelty as in Europe; inasmuch as when any are so dealt by it, they reproach it with the Frank Disease, *Atecheque Fringi*, when it breaks out into Sores and Ulcers, after it has seized the whole Mass of Blood, and eats them up alive; while they wear theirs dormant almost to extreme Old Age, which makes them not much solicitous for Remedy, nor are there any who profess its Cure."

(Vol. III. Page 98)

Reference.

Fryer John:—A new account of East India and Persia being nine years travel 1671–1681, edited by William Crooke B. A. The Hakluyt Society, London. 3 Volumes.

Seventeenth Century Remedies for Syphilis.

JOHN Marshall, the author of the "Notes and Observations on East India," supplies valuable material to the student of history of medicine in India. John was the third son of Ralph Marshall and Abigail, living at Theddlethorpe, Lincolnshire, where the boy was baptised on the 1st March 1642. He was admitted Sizar at Christs College, Cambridge on 25th June 1660, matriculated on the 17th of December and finally took his B.A. in 1664. At the age of 25, due to the good offices of Lord Craven to whom John's brother, Ralph, was steward, he sought and secured a post of a factor in the service of the East India Company. On 8th January 1667-8, he sailed by the vessel ***Unicorn***, which anchored in Madras Road on 11th of September 1668. He only stayed 5 days at Fort St. George but found time to gather information about the locality. On 17th September 1668, the ship set sail and reached Masulipatam eight days later. Marshall stayed here for the next nine months, working under William Jearsey and making visits to the outlying places. He sailed from Masulipatam on 5th July 1669, reaching Balasore Road 4 days later. Here he remained for seven months. On 14th February 1670, Marshall set out for Hugli whence he started on 28th March 1670 to take up a post at Patna. He suffered from a fit of Tertian ague from 28th March to 7th April and was cured by means of "pills brought from England for that purpose." He reached Patna in April and began to work under Jack Charnock as his chief. In September, he had to accompany a fleet from Patna to Hugli and from there proceeded to Balasore He returned to Hugli on 5th January 1671, remained there till 3rd May, when he started on his return trip to Patna by land route. At Monghyr, he heard about the Dutch Surgeon Nikolaas de Graaf and his adventure. He reached Patna on 23rd May. In April 1672, Marshall reached Kasimbazar and remained there for the next 4 years, as second of the factory, occasionally visiting Hugli and Balasore. On 9th December 1676, Marshall took charge as chief of Balasore. Eight months after he assumed charge here, Marshall fell a victim to the raging distemper, an epidemic. He died on the midnight of 31st August 1677, after a short illness of five days.

During his travels and in his leisure moments, Marshall kept on making enquiries and writing notes on various topics, hoping perhaps, to arrange and amplify these notes later.

To the orientalist, Marshall's "Will" is an interesting document. He bequeathed to Mathias Vincent, chief at Kasimbazar, his Arabian and Persian printed books and the history of China in folio. His manuscript concerning India was bequeathed to Dr. Henry More and Mr. John Covell, fellows of Christs College, Cambridge, for their perusal, after which it was to be returned to his brother Ralph.

Four manuscripts in Marshall's own hand form part of the Harlean collection of the British Museum—Harl MSS 4253, 4254, 4255 and 4256. Professor S. A. Khan suggests that the manuscript reached Dr. Covell, whose manuscripts were later sold to Edward Harley, second Earl of Oxford. These contain, in addition to the Diaries of the journeys between Balasore and Patna, notes of information on all sorts of subjects gathered from heresay or from observation and also Shri Bhagavath Puran, translated into English by Marshall from a Persian version of the Sanskrit original. As Prof. S. A. Khan points out, Marshall was a keen observer, ever on the alert to acquire information. He was interested not only in religion and astrology but also in the habits, customs, folklore and medicine of the people around him.

"In medicine, as practised in the East in his day, Marshall also showed himself keenly interested, and he personally tested some of the strange remedies which were passed on to him. His remarks on this science show his usual acuteness, though in some cases it has proved difficult, if not impossible, to identify the disease he describes or the ingredients of the prescription for its cure."

As can be seen from his own statements, he derives his information from various sources, of whom pointed attention may be drawn to the number and names of the Hindu doctors, whom he quotes as his informants. In the following extracts, containing Recipes for Syphilis, mention is made of a famous doctor at Patna.

° ° ° °

The extracts reproduced below are copied from Professor Safaat Ahmed Khan's Book "John Marshall in India—Notes and Observations" (Oxford University Press, 1927.)

Remedies for French Pox (Syphilis).

Harl. MS. 4254, fol. 18 (1668—1672 A.D.)

(a) Sugebund (Surajband), a Doctor at Pattana, the most famous that hath beene in them parts for many years, gave to Mr. Charnock a Minerall called Rambaundrus (Ram Bhadra ras 'essence'), of his owne making, which hee said would cure any man of the French Pox, though almost eaten in peeces therewith. Tis to be taken 5 mornings together, each morning ½ Ruttee (*ratti*) in Beetle (*betel, pan*) or otherwise, not eating flesh or drinking wine in the said 5 days. Tis also good against fevers or to provoake lechery.

Memorandum. A Ruttee is about the 40th part of a shilling weight (175 grs. Troy), so ½ Ruttee the 80th part of a shilling weight.

Harl. MS. 4254, fol. 27a.

(b) For the French Pox Take the bark of Herforery (*harpharauri, Phyllanthus distichus*) tree, and pepper, of each 1 pice or 4/5 oz weight, and eat every morning, and it will cure the French Pox. You must eat it so long till cured. The bark must be dryed and the powder of it taken, and you must obstaine from Salt and strong drink.

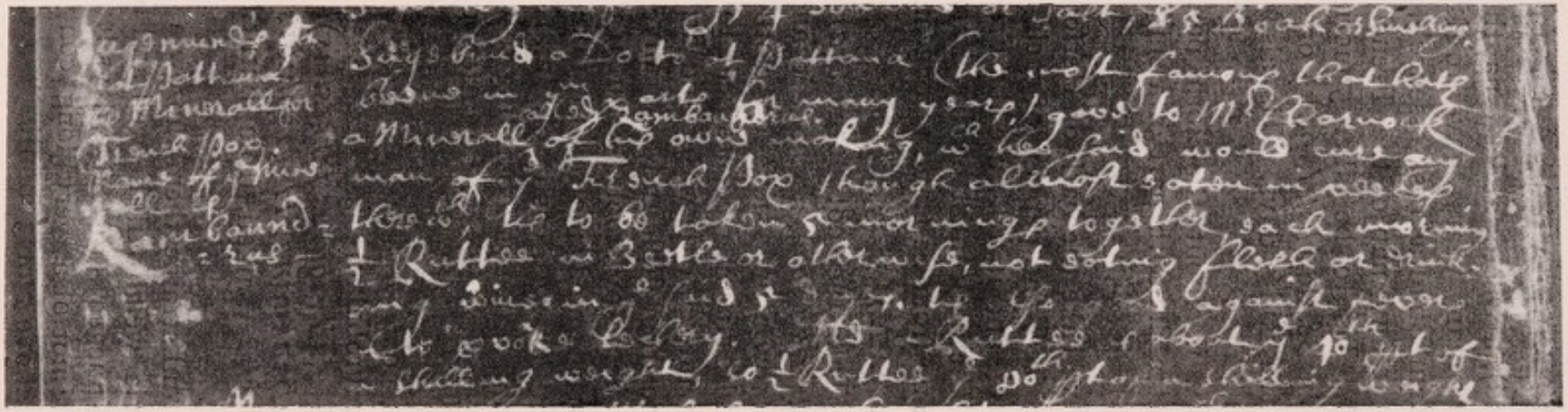
Harl. MS. 4255, Fol. 11. (1672 A.D)

(c) For French Pox. Take the root Burna (*barna, Crataeva religiosa*) or Burnakajer (*barana ka jar*), and pill it and dry it and beat it to powder, which sift thorow a fine sieve or cloth Take of it the weight of 4 pice or 3 oz., and 21 pepper cornes beat to powder very fine. Mix these together and put into a little water and drink 7 mornings together, abstaining all that time from flesh and also any thing that it soft, and it will drive out the venome by stooles. But if it be broke out into the body (after this inward medicine taken), take Rindeka paut (*rendi-ka-pat*) or the leafe Rind (*rendi*, castor-oil) and apply to the sores every morning and evening, always observing to wash the sores with cleane water before apply fresh leaves. And in few dayes the sores will be dried up.

(d) Receipt for french pox.

Owlah (*aonla*, myrobalan)	..	2 Tola
Gokeroo (*gokhuru, Tribulus terrestris*)	..	2 ,,
Talmachonna (*talmakhana, Hygrophila spinosa*)		2 ,,
Jowacor (*Jau khar*, alkali from burnt barley		2 ,,
Sugar candy	..	8 ,,

Bruise all these together and straine them thorow a cloth, and eat every morning fasting one Tola weight till be well and find no pain in bones or elsewhere, and continue so (to) eat 3 days longer, and will perfectly cure the French pox, if not of a very long continuance. But this powder will not keep good above 2 or 3 months.



(By the courtesy of the British Museum Authorities).

Explanation of the plate:—This is a photostat reproduction of the Harlein Manuscript No. 4254. It is in John Marshall's own hand and records the prescription given by a famous Doctor at Pattana (modern Patna). The actual prescription contained in this is printed in the body of the article.

Firangi Disease

The earliest observations on Syphilis in India.

By **Garcia Da Orta**

A Portuguese Physician who practised in India in the middle of 16th Century.

By

D, V. S. Reddy

Vizagapatam. (S. India).

GARCIA da Orta is probably the first of the European physicians that practised in India to refer to and write on the subject of syphilis. As his name is not usually familiar to the students of syphilography and as his work "The colloquies on the Simples and Drugs of India" is not available in most medical libraries of the East or West, readers interested in medical history will admit the necessity or the desirability of publishing Orta's observations, on the subject in an article.....

* * * *

Here is his first reference to the disease, which he calls the Neapolitan disease or the Castilian itch. He seems to consider this as a new disease.

"From the first I confessed to you that the Cardamomo of which the Greeks write is not the Cacolla of the Arabs; but I have never said that there is no use for it, for each day brings *new diseases such as the Neapolitan disease, which we catl Castilian itch*; and God is so merciful that in each land He gives us medicines to cure us. He who causes the illness provides the medicine for it. But as Temistio says, our knowledge is a very small part of what we are ignorant of. And as we do not know the medicines which cure all diseases, we bring the rhubarb from China, whence we get the root or stick to cure Castilian itch, the cana fistola we get from India, manna from Persia, guaiacum from the West Indies." (p. 105–106).

* * * *

The second reference in the book to syphilis occurs in connection with the derivation and significance of the name given to the disease by the Indians at the beginning of the 15th century. Ruano expresses his opinion about the origin of the word Frauguistam. "All this seems to me very good, except the word Franguistam. For I believed like many others who come from there, that they called the Portuguese Franges because Franges means bubos, and the name was given in contempt, as much as to say bubo-people, or leprous." To this Orta replies "Bubos are not called Frangue but Fringui, and they are not looked upon as infamous by the natives. For the disease originally came from Brazil and your so-called Indies. There are not wanting those among yours historians who say that the Castilians brought it from the West Indies in 1493, a year before they went to Naples, to help in the war of Dom Fernando of Naples, and that they gave it to many cortesan women, who gave it to the Italians, and for this reason it was called the Neapolitan disease, and seeing themselves made infamous by this name, they called it the French disease, and because there were many Castilians and Spaniards with it, our Portuguese called it the Castilian itch. There is nothing more to be said about it." Ruano still continues discussion "Why do they call the Portuguese in this country Frangues?" Orta replies: "They do not give that name only to the Portuguese, but to all Christians frow the West. The reason was that the first Christians known in Asia were French, so they called Christianity, Franguia." (p. 293-294.).

* * * *

The most important and the longest reference is in the 47th colloquy devoted entirely to the root of China. As this chapter is a very valuable contribution to the history of Medicine in general and of syphilis in particular, the whole chapter is now reprinted.

FORTY-SEVENTH COLLOQUY

Root of China.

RUANO

I want to take back with me to Portugal some of the root or stick of China, for it is not a forbidden drug. Will you describe to me

its appearance, and for what illnesses it is serviceable in your opinion and tell me all its signs and the mode of administering? If they use it in Portugal, being a colder climate, the medicine would be weaker. I also want the best way of preserving this root so that it may keep fresh; and which is the best --- this or the Guaiacum of our so-called Indies? Do not be annoyed if the reason that this medicine is more used by you is that it is nearer.

China Root

This is an illustration of the plant from Christoval Acosta's book on "The Drugs of India" published in Burgos in 1578. He is said to have copied wholesale from Da Orta, adding a few new plants and remarks.

(Reproduced from the English translation of Garcia Da Orta's book "Colloquies on the Simples and Drugs of India." With due acknowledgements to Henry Southeran and Co., 43, Piccadilly, London, W. & 140, Strand, London W. C. 1913)

ORTA

This stick or root grows in China, a very extensive country which is supposed to march with Muscovy. Laguna calls it the most eastern India, which may be excused, as all unknown lands are called

Indias. I will not here give the reasons why it is supposed to border on Muscovy, because it is a matter of little profit, and is unconnected with your questions. *As all these lands and China and Japan have this morbo napolitano,* it pleased a merciful God to provide this root as a remedy with which good doctors can cure it, although the majority fall into error. As it is cured with this medicine, the root was traced to the Chinese, when there was a cure with it in the year 1535.

RUANO

How did you know the use of the root, for the ships of China do not come nearer than Malacca, and the Portuguese who go to China do not converse there with the Chinese?

I came from Portugal in the year before, and brought little property (as happens with many). But amongst what I did bring were five quintals af guaiacum which, in the time it needed shelter, was not well lodged, and they would take it from me, or those who wanted it wished to take it. *Arriving in this land, I found that many perished of swellings and other sores of the sarna castellana,* and for many of them they did not apply the remedy of ointments. Arriving in this land, I was much welcomed for having brought this remedy, for *some persons had already been cured by it,* their treatment having been very successful, so they had looked forward to some arriving from Portugal, and I sold what I had brought for 1000 crusados. It pleased God (I having brought little merchandize, and besides this I gave away some, and much was stolen from me in embarking and disembarking) that with all who used it, the remedy succeeded very well. When my supply came to an end they bought the root, already boiled, at 5 crusados the arratel, and because it cost so much, it pleased God that it should be provided. At that time the people lived in the hope of the arrival of the ships from the kingdom, to see if they would bring much of the root, little, or none. At this time a very honourable and rich man was cured who, being in Diu, told my master Martin Affonso de Sousa, who was there taking possession of the fortress which Sultan Bahadur, the king of Cambay, had ceded to him how he had been *cured by the root of China,* which restored him to

complete health, not requiring any special diet except that he was not to eat beef, pork, fish, or green fruit. In China, fish is conceded, because they are great eaters of it. As this became well known people had a strong desire to have this root. For all men are inclined to eat and drink, and much more in this land owing to their laziness. Then they began to take the Guaiacum as part of their diet as they did in Spain, so that when the ships of Malacca came, a small quantity of the root which I saw on board was valued at 10 crusados the ganta (which is a weight of 24 oz.) In subsequent years it was cheaper, valued at 30 reis the ganta. From this time onwards the root of the Spanish Indies was condemned, like a Castilian who comes to kill by starvation the people who live here, so that the ships corresponding to that in which I came brought a quantity of the root from Portugal, expecting to make a good profit, but they could get no price for it, and little by little it was destroyed. Now, sir, I have reason to hold that this guaiacum is better than the root of China. It is certain that the other is efficacious given with reference first to the quality and character of the patient, then to the nature of the illness, the season, the country, the heat, the cold, the sex and age of the person who takes it. Be not surprised that I praise it, for I have heard no one else praise it, so many writers praising the guaiacum every day. Among them there is a German writer who composed a book on his labours in a very copious style and very pure Latin, which might all have been written on one sheet of paper. Of this other root of China, *Vesalio* and *Laguna* say many evil things, that it is rotten and without virtue and very dear. I do not care whether it costs much or little, whether it is dear or cheap, but I consider what Mateolo Sinense says to be good, that it is sufficient proof that this medicine is valuable that the Emperor Charles V. took it and benefited by it. It is certain that, given with the condition above mentioned, it is very profitable to all.

RUANO

What quantity of this root do they prepare for one person?

ORTA

If the illness is very bad they cook an ounce of this root in 4

canadas of water and use half the water. The rest is kept in glass or in a glazed jar. They take off the froth at the boiling, because it is good to put on any sores ; sometimes we put it on swellings when it is being boiled, and it is very good for allaying pain. At other times we make fomentations with this hot water to apply to swellings. At others we put wet cloths on the sore, which is a very good cleanser. The Chinese are accustomed to give larger doses of the root in their country, and some people here wanted to imitate the Chinese, cooking 2 oz. or 1½ oz. of the root, but it was found to do harm, for it is very heating. I took the same root, with sudorifics, for a sciatica I had, without suspicion of morbo gallico. But because I took sudorifics and drank hot water, as is usual at the beginning, when this root took effect I was filled with erysipelas and pains, from the great heat engendered in my liver. It became necessary to bleed me, and to give me barley water and sweetened rose water, and in that way I was restored to health. Many persons took example from me afterwards, and refrained from hot water and such a quantity of the root as they give in China. For that land is very cold while this is hot. Only in taking it here, when a sudorific is needed, apply heat in the morning, and something to cause perspiration morning and evening. If the weather is very hot, we do not give the root, but more soporifics. This is the largest quantity we are accustomed to give, namely 1 oz. boiled in 4 canadas of water, and boiled until half is gone. To others, they give less of the root with less boiling.

RUANO

And are there not rectifications with some medicines ?

ORTA

Yes, sir. For they order to rectify when the disease is slight or the compress less hot, by giving 1 oz. of root boiled in 4 canadas of water or 1 1/2 or sometimes 3, but to that quantity we seldom reach. We also take care that the root shall be good and of proper weight, and free from rottenness. For these conditions it should be white, or better if it is vermilion. With regard to rectification, the Chinese put celery into the boiling water, and I give it, there being reason in the Chinese practice, but I am not accustomed to give the

root without rectification. When the patient suffers from headache or neuralgia I give rosemary or roses, or celery if the liver is torpid. At other times for ulcers of the kidneys and bladder I give liquorice. Here is a ptisic which I give, mixed with the same quantity of barley as there is of root, with little boiling.

RUANO

What moved you to give the root in such a heated illness, em members esperituaces ?

ORTA

It moved me to see a patient covered with swellings on the head and other parts, discharging matter, and not to provide remedies, but let him go on suffering. So he was treated and it succeeded well, and afterwards many others were treated successfully. But now no one takes the root without being first rectified with some other medicine. Though I have a right to boast that I was the first that used this, others following my example.

RUANO

Tell me whether it is best first to purge the patient who takes this medicine, and whether any accidents have befallen those who take it, and whether the root does most good at the beginning of an illness, or in the course of it, also whether it is most efficacious in great or in slight illnesses.

ORTA

The general rule is to give syrup and purge the patients before they take it, and if the case is very bad, we make the syrups soluble. And as in most cases there is inflammation, we add turbit or agarico, and order the syrups to be watered with water of the root. After purging, the rule is to begin to administer the root, and, after fifteen days. if it is necessary, we give another slight purgative, and sometimes another at the and of thirty days. If in that time it does not cause looseness, we crystallize every day with water of the root, honey in rose water, oil, and cana fistula, and this according to the necessity of the case. These slight purgatives, which we give occasionally, are nothing more than manna and cana fistula, or rhubarb diluted in water of the root or of endive, or an infusion

of prunes or liquorice, or barley water. We then give water of the root in less quantity, or mixed with endive water and fumitory if it is to be had, or bugloss. If the patient is very feverish the root is given up and he is given other treatment more suitable to his case. Sometimes this root does good in twenty days, at others it takes a longer time, but usually the pain increases for fifteen days and ftom that time it goes down. But I saw the caae of a youth whose pains increased very much for twenty-five days, and on the thirtieth he was quite free from pain ; I therefore say that we should never despair. I have seen others who took it many times and at last got benefit from it, and others who did not. My advice to your honour is to give the root of China in Portugal, trusting to God for the root, increasing the quantity that we give here because the country is colder, doing as we do here, and when the need is great, administering a chicken cooked in water of the root, or bread mashed in it, according to the nature of the case.

RUANO

Do they drink it hot or cold and do they eat with salt or not ?

ORTA

It is seldom given hot as it was at first. In the morning feed with fowl or mutton seasoned with salt, saffron, and dry coriander, or sometimes it is given roasted, according to the need of the patient. Wine is always forbidden, only when the root is given for weakness of the stomach, for in that case the root with wine does much good for it takes away the loathing and secures good digestion.

RUANO

In using guaiacum we always give salt. because it is is an enemy to arid humours and inflammations. Many men have told me that they also give it, but I do not know they would use salt with this root.

ORTA.

Salt may be used moderately, for it is not necessary to be very exact in physic, leaving much to the good judgment or the physicians I think that the use of a little salt cannot do any harm to the arid humours, nor to salt inflammations, for I have always done well in

using it, and I trust in God that I may continue to do so. In taking this cure, the Chinese also use bread with honey.

RUANO

Have you seen any one who has taken it many times and in great quantities?

ORTA

I knew a friend of mine who took ointments and guaicam and this root also. and each time he got worse. He went to Malacca and got worse there, and thence to China, where they gave him root of China in a boiled fowl, which did him so much good that he never was taken ill of it again. For this root is better for chronic diseases than for new ones, and for great swellings and very bad sores. Marvel not that he should have found health at the end, for the tardiest cures are for the oldest griefs. This aphorism applies to the diet and also to the cure. Above all, hear well what is given and done for there are many who die consumed by high fevers.

RUANO

That is well said, but I should like to know whether there is any other way of taking this root.

ORTA

In Balagate I saw some people who took the root in the way I have described. They mixed it in warm water to take night and morning, each time one drachm and a half of root pounded. With this they benefited, and they did it by *advice of their physicians.* Others take it in the morning with a good slice of conserve made of powdered root with honey (or sugar if the fever is high), and on this they drink water of the stick or root. This conserve is taken with the powdered root, in quantity according to the advice of a good physician. It may be rectified according to the need of the patient, for you know better than I do how the treatment should be regulated. Now it may be seen how much root is required for this conserve. We usually require for a cure of thirty days 30 oz. I cured two persons who had the testicles much swollen for a long time. One was completely cured. The other got well with local remedies only. I would

advise you to vary the remedies, and I will tell you more if you are not tired.

RUANO

From this time for a thousand years I should rejoice to listen to you. I have said as much.

ORTA

In China they eat this root cooked with meat, as we eat turnips. For it is very tender when fresh, and it seems to me that it would be a very good thing to take distilled water from it. I do not know whether they will want me to distil and bring it; but now it has been ordered to be brought, and for this I ordered the alembic.

RUANO

This is based on reason, for the distilled water would be very good medicine. For what illness is it found efficacious?

ORTA

For any infirmity connected with morbo napolitano or for humours engendered by it. It is also good for paralysis, and for shivering fits, of which I cured Nizamoxa with it in a short time, for arthritis, exema, sciatica, gout, scrofula, indigestion, swellings produced by melancholy or by white tumours, old hurts, stone and ulcers of the bladder sometimes, for with this root the stone is got out which never could be removed before. What will surprise you most is that I knew a learned physician, well practised in curing others, who fell ill sixty leagues from this city, where he lived, and *where he cured people in the hospital of a city belonging to the King our Lord.* He fell ill of a lymphatic disease, and was down with it for four months. Finding that the fever would not leave him, and being more a friend to himself than to any one else, he took to drinking asses' milk. But he got no better; on the contrary he became worse, with inflammation of the stomach. He then came to me to be cured, and I had him in my house. I found some swellings on the liver and excrescences, and I was convinced that it was lymphatic, accompanied by some arid melancholy. He confessed to me that he desired that I would tell him as if the patient was any one else, and not deceive him, for those who care most for the patient always think

worst of him. I cured this man in a few days, and he was without fever but with a pain in his stomach. For this I gave him conserve of ginger which made him better. This doctor could never be quite cured without giving him root of China rectified with a little distilled cinnamon water, and so at last he was perfectly well.

RUANO

Certainly you have told me many things relating to the good practice, and I do not wish you to finish so soon. Tell me the name and appearance of the wood or root of China.

ORTA

I say that it is a shrub, three to four palmos above the ground with a root one palmo long, a little or less. It has a thick root and another thin, as here you see these roots which come from there. When the root is taken up it is very tender, and it is eaten in mouthfuls, raw or cooked. When they eat a moisture exudes like sugar cane. From the root three come out some small fibres, the size of writing pens, and as the root grows so the fibres shoot out, and from these shoots grow some leaves with the shape of young orange leaves. This shrub is called Lampatam by the Chinese. This is what I know about the shrub and root. I saw a small plant of it in Goa, but it withered before it could grow up. Before we finish the history of the root, I will tell you what happened to me in formet times. Before the root was ever seen in India, there was a merchant of Stones, a lapidary as we call him, or a jeweller to give a more honourable title. This man had universal paralysis in all his body, arms, legs, hands, and feet, so that he could not move a ring to look at it. He had been in this state for six months without getting any better. He asked me to advise him whether it would be a good thing to take guaiacum and I told him that at least it would do him no harm. I cured this man first giving syrup and purging, and also at the end when he was getting better. Having paid me very well, he finally gave me a ring and a diamond for which I got 50 crusados, also a watch as a remembrance. He also gave me some advice. He further said that when he felt very sad and thought he was about to die, it was only a feeling of having Sinned against God and against his health. The root you take to Portugal should be put in Martaban jars, for they are glazed inside and the root will not be injured."

Francois Bernier, M. D.

A French Physician of the XVII Century at the Moghul court.

A Brief Life Sketch and a few extracts from his Descriptions of Indian Diseases.

1620—1688

By

D. V. S. Reddy,

Vizagapatam.

A Brief Life Sketch of Francois Bernier

FRANCOIS Bernier was born at Joue near Gonnard in Anjou, France, in September, 1620. The baptism certificate found in the Archieves of Joue-Etiau signed by the Vicar Guytton states "this day 25th day of September 1620 was baptised by me, Vicar undersigned, Francois son of Honourable Pierre Bernier and of Andree Grimault. Francois Bernier Vicar of Chantzaux was the godfather."

He came of a peasant stock. His parents owned a farm in Anjou. He was the last of the three children in the family, the first two being girls. It is evident from the baptism certificate that he was named after his paternal uncle who acted as godfather. This gentleman seems to have exercised a great influence over his godson and shaped his destiny, for, at the early age of four, the child lost his father. Very little is known of the life of the boy at this stage. All that one can gather is that the uncle of the boy struck by his keen intelligence undertook the responsibility of giving him primary education and later encouraged his departure to Paris for further studies. It is likely that this was made possible by the help rendered by the Councillor, Luillier.

We know almost nothing of the years he spent at the College of Clermont in Paris. It may be noted, however, that when he was about 16, he had the support of two powerful men, Rochard de Champigny, Master of Requests and Councillor Luillier. He always regarded them as his benefactors. Another person who helped this youth was his classmate, Chapelle. It was he who introduced Bernier to Councillor Chapelle. Bernier's contact with philosopher Gassendi dates from this period and thenceforth this youth's life and thought were greatly influenced by this new friendship with one of the great intellects of Europe. But the actual circumstances of the first stages of this friendship are very obscure. According to one view, Bernier went to Aix and there quickly managed to get into touch with Gassendi who was professor there. Then the philosopher and his admiring pupil went to Deigne in 1623 and resided there till Gassendi was called to Paris as Professor of Mathematics. A more likely course of events may be that Gassendi, after resigning his professorship at Aix in 1623 went to Paris in 1624. He met Luillier there and probably got into touch with Rochard de Champigny. The philosopher came back to Paris in 1638 or 1641. Chapelle the Councillor confided the education of his son to Gassendi. Chapelle the junior introduced Bernier, his classmate to Gassendi. In his letter to Chapelle, Bernier expresses his gratitude for providing him with the opportunity of knowing Gassendi. Bernier became greatly attracted by the genius of Gassendi and attended the lectures of the professor. These classes seemed to have been popular as they were attended also by Moliere and many others who later became distinguished.

Subsequently, Bernier travelled across Europe. It is believed that he journeyed through Germany and Italy and that he spent some time in Rome, Venice and Switzerland. He went to Montpellier in 1652 and remained there for 4 months. The first three months were spent in preparing for the examination in Medicine. He also made many new friends at this place. Lens's monograph gives a detailed account of Bernier's progress and activity at the University. The brilliant youth was exempted from examinations in Physics and Medicine, and had to sit only for a test in physiology. He was awarded the degree of Doctor of Medicine on 3-8-1652. At the time the degree was conferred on him, Bernier made an excellent

speech praising Medicine in general and the Montpellier Faculty in particular, with great erudition and elegance. After this convocation the young physician spent another month at Montpellier and then returned to professor Gassendi, his master, at Paris.

His restless nature and his curiosity gave him no peace or pleasure in his native country. He travelled extensively, visiting Palestine, Syria and Egypt between 1655 and 1656. At Cairo he lived for more than a year and had an attack of plague at Rosetta. Embarking at Suez he touched at Zedda and Mokka and then set sail in an Indian vessel for Surat, which port he probably reached towards the end of 1658 or early 1659.

While Bernier was on the way from Surat to Agra, the then Moghul Capital, he met near Ahemadabad, Prince Dara and his army, soon after the latter's encounter in battle with Prince Aurangazeb in March 1659. Prince Dara took Bernier into service and was anxious to retain the physician but during the subsequent flight of Dara to Sind, Bernier remained behind. On the way Bernier was harassed by robbers but eventually escaped to Ahemadabad. There, he met a Moghul noble (Omrah) under whose protection he travelled to the Moghul capital, where, he seems to have spent many years, becoming popular and getting acquainted with many Omrahs of the Court. He moved with the Moghul army to Lahore and Kashmir. Later, he travelled eastward and was in Kasimbazar about the year 1666. Then, he commenced the long itinery from Bengal to Masulipatam and thence to Golkonda and finally to Surat where he left the Indian shores in 1667. He disembarked in Persia and after staying there for sometime, reached Marseilles in April 1669. Soon after his arrival in France, he was in Paris arranging for the publication of his book, now justly famous. The king's license for the printing and publishing of this book is dated 25th April 1670. After the publication of his book, Bernier gave himself up to philosophy, literature and science. He made friendships with Boileau, Racine and La Fontaine. It is likely that Bernier supplied La Fontaine with details for the poem on "Cinchone". Bernier also renewed his acquaintance, about the same time, with Moliere and he is thought to have furnished some material to Moliere for his gibes against Doctors in the Drama "The imaginary patient."

Gradually his health began to fail and necessitated medical attention, such as Blood–letting by the Surgeons. His death however was sudden and even dramatic. While getting up from the table at the conclusion of a dinner party, he had a stroke of Apoplexy and died on 22–9–1688. He was only 68 at the time of his death.

It is not possible to make a list of Bernier's contributions to medicine. Lens gives a list of works of Bernier in the catalogue, Bibliathca Nationale, Paris.

Bernier's Patrons in India

Of Bernier's patrons in India, Prince Dara was the first. Bernier speaks with great sympathy of the sorrows and sufferings of Dara and his family.

Danechmend–khan was for nearly decade, Bernier's patron and protector, with many privileges and exemptions from the Moghul court. "Besides, my Nawab, or Agah, Danech-mend-khan, expects my arrival with much impatience. He can no more dispense with his philosophical studies in the afternoon than avoid devoting the morning to his weighty duties as Secretary of State for Foreign Affairs and Grand Master of the Horse. Astronomy, geography, and anatomy are his favourite pursuits, and he reads with avidity the works of Gassendi and Descartes."

Bernier was also highly esteemed by Fazel-khan, the first Minister of the Great Empire "whom he taught the principal languages of Europe, after he had translated for him the philosophy of Gassendi in Latin, and whose leave he could not obtain to go home, till he had got for him a select number of the best European books, thereby to supply the loss he should suffer of his person."

Bernier does not state what he was drawing as pay or presents under his different patrons or circumstances. But in the service of Danechmend-khan, just before the movement of the Moghul army towards Kashmer or Kandhahar, Bernier was getting one hundred and fifty crowns per month. He was expected to keep two good Turkoman horses, and he also took with him a powerful Persian camel and driver, and groom for his horses, a cook and a servant to go before his horse with a flagon of water in his hand, according to the custom of the country.

A Portrait of Bernier

Martin's monograph states that no engraved portrait is available but a description had been handed down to posterity by St. Evermore, "the handsomest philosopher whom I have known." "Strong, robust of body, hardened to pain, and proof to all climates."

Francois Bernier, M.D. (1620—1688)

By a singular good fortune while pursuing the list of exhibits at the annual sessions of Indian Historical Records Commission, the writer of this essay noticed with a thrill of surprise that a portrait of Bernier done by a contemporary and in Moghul style was available with Sri. Ajit Ghose. M. A., B. L., a great lover of art and owner of a splendid collection, by whose courtesy and generosity it has been possible to procure and print his portrait. India and France will be equally happy to look at this portrait, so rare and unheard of. Certainly, the pleasure is all the greater to us, since the discovery of a portrait in India affords an opportunity to this country of repaying a debt to France, for the most fascinating book of travel, ever published in any language, on India.

Bernier on some common diseases

Bernier himself suffered from attacks of dysentery and plague and experienced the prostration produced by Indian Summer. Such

descriptions prompted by bitter personal suffering of a qualified physician are rather rare and hence worth reproducing.

Flux (Dysentery)

"When at Lahor I was siezed with a flux, accompanied by acute pains in my limbs, in consequence of having passed whole nights on a terrace in the open air, as is commonly done in Delhi without danger. My health was suffering; but since we have been on the march, the violent perspirations, whcih continued for eight or nine days, have dissipated my bad humours, and my parched and withered body is become a mere sieve, the quart of water, which I swallow at a draught, passing at the same moment through every one of of my pores, even to my fingers' ends. I am sure that to-day I have drunk more than ten pints. Amid all our sufferings, it is a great consolation to be able to drink as much water as we please with impunity, provided it be of a good quality."

Indian Summer

"My Indian servants, notwithstanding their black, dry and hard skin, are incapable of further exertion. The whole of my face, my feet, and my hands are flayed. My body too is entirely covered with small red blisters, which prick like needles. Yesterday, one of our poor troopers, who was without a tent, was found dead at the foot of a tree, whither he had crept for shelter. I feel as if I should myself expire before night. All my hopes are in four or five limes still remaining for lemonade, and in a little dry curd which I am about to drink diluted with water and with sugar. Heaven bless you! The ink dries at the end of my pen, and the pen itself drops from my hand."

He gives very interesting, and some of the earliest classical descriptions of two Tropical diseases — Guinea Worm at Delhi and Plague in Egypt.

The impure and contaminated water of Delhi causes "worms to be bred in the legs which produce violent inflammation, attended with much danger. If the patient leaves Delhi, the worm is generally soon expelled, although there have been instances where it has continued in the system for a year or more. They are commonly of the size and length of the treble string of a violin, and might be easily mistaken for a sinew. In extracting them great caution should be used lest they break; the best way is to draw them

out little by little, from day to day, gently winding them round a small twig of the size of a pin."

Plague in Egypt

"I allude, among other conceits, to the notion that there is a certain determinate day on which the Nile begins its increase; that a particular dew, called the Goute, falls on this first day of the increase, which puts an end to the plague, no person dying of that disease when the Goute has begun to descend; and that the overflowing of the Nile is owing to a particular and secret causes. .. .. I supped with M. de Bermon, our vice-consul at Rosetta, eight or ten days after the fall of the Goute. Three of the party were that same evening seized with the plague, of whom two died on the eighth day; and the other patient, who happened to be M. de Bermon himself, would perhaps have a fallen a victim to the disease if I had not ventured to prescribe a remedy, and lanced his abscess. I caught the infection, and but for the butter of antimony, to which I had immediate recourse, it might have been seen in my case also that men die of the plague after the decent of the Goute. The emetic, taken at the commencement of the disorder, performed wonders and I was not confined to the house more than three or four days. A Bedouin servant attended me; he endeavoured to keep up my spirits by swallowing, without a moment's hesitation, what remained of the soup I was taking; and being a predestinarian, he laughed at the idea of danger from the plague. I am far from denying that this distemper is generally attended with less danger after the fall of the Goute. All I maintain is, that the decrease of danger should not be attributed to the Goute. In my opinion the mitigation of the disease is owing to the heat of the weather, then become intense, which opens the pores and expels the pestiferous and malignant humours that remained confined in the body."

Venereal Diseases

Two brief references to two venereal diseases may now be quoted before bringing this section to close. The first one alludes to the illness of Shah Jahan when he was more than 64 years of age. "He was seized with a disorder, the nature of which it were unbecoming to describe. Suffice it to state that it was disgraceful to a

man of his age, who, instead of wasting, ought to have been careful to preserve the remaining vigour of his constitution.

The second passage comments on the mildness of venereal diseases.

"I have no doubt that the happy ignorance which prevails of many distempers is fairly ascribable to the general habits of sobriety among the people and to the profuse perspiration to which they are perpetually subject. The gout the stone, complaints in the kidney cattarrhs and quartan agues are nearly unknown; and persons who arrive in this country afflicted with any of these disorders, as was the case with me, soon exp rience a complete cure. **Even the Venereal Disease, Common as it is in Hindusthan, is not of so virulent a character or attended with such injurious consequence as in other parts of the world.**"

Nichoas Manucci

An Italian Physician of Moghul Times

By
D. V. S. Reddy, M. B. B. S.
Vizagapatam

NICHOLAS MANUCCI

This portrait is from the collection sent by Manucci himself to Venice in 1705. Zanneti avers that this portrait is in the highest degree like him as is asserted by more than one person who had personal knowledge of the Italian physician. He is clothed in the Moghul attire. The act of feeling the pulse of an Indian patient indicates in this way, a sign of his profession. Irvine describes the portrait in the following words:

> "A stout white-faced, entirely shaven man in Indian costume looking to the left and holding the pulse of a very dark man."

The portrait is certainly suggestive of self-confidence and success in life.

MANUCCI was born exactly 300 years ago i.e. in 1639, according to the computations of Irvine based on the data furnished by the Italian himself. When he was a lad of 14, he ran from home to the beautiful city of Venice and hid on board a vessel bound for Smyrna. Bellemont, an English nobleman travelling to India took the lad into

his service. Passing through Asia Minor and Prussia, through Isaphen and Bunderabbas, Bellemont and his party reached Surat, then the chief port on the West Coast, in 1656. The party then started on their journey through Burhunpur and Gwalior to Agra. On this journey, the English nobleman expired at a place near Mathura. The youthful Italian continued his journey to Delhi, where, soon after his arrival he was lucky to get an introduction to Prince Dara, the eldest son of Emperor Shajahan. Manucci was entertained as an artillery man on Rs. 80/– per month. He was also provided on the first day itself with Rs. 30/–, a horse and a Sarapa (a set of vestments). After Dara's defeat, the Italian fled to Agra and thence travelled to Lahore disguised as a holy mendicant in the army of Aurangazeb. At Lahore, Dara appreciated the loyalty of a foreign adventurer and increased his pay to Rs. 150/– per month, and added a present of Rs. 2,500/–. Later on, at the seige of Bhakkar, Manucci was made the Captain of the artillery. Dara was so pleased with the services, loyalty and devotion of this Italian that he ordered the pay to be doubled again (from Rs. 150/– to Rs. 300/–). After the surrender of Bhakkar, he returned to Lahore where he narrowly escaped death from enemy's hands by fleeing naked through the streets of Lahore. He then made an expedition eastward to Patna, Rajamahal, and Decca and returned to Agra. It was about this time that he first began to gradually adopt medicine as a profession. But, he soon got again another offer of the post of the Captain of artillery in the Army of Raja Jai Singh, on a pay of ten rupees a day. When the Rajaput General was appointed Governor of Deccan, Manucci marched with him to the South and was moving with the Moghul army till 1666, when, tiring of his position, he resigned and retired, in the lent of 1667, to Bassein near Bombay. He is said to have narrowly escaped the Inquisition. Reaching Goa in May 1687, he remained there for 15 months. Finally, he left Goa disguised as a Carmalite monk and returned to Agra and Delhi. He was for a year or so attached to Kirat Singh. When the latter was ordered to Kabul, Manucci resolved to move to Lahore and start practice there as a physician. This was about the end of 1670 or early in 1671. Manucci practised successfully for about 6 or 7 years and having realised a small competence removed himself to the West Coast near Bombay, in 1676. But he was not destined to be in retirement for

long. He soon lost his little savings in speculation and had to try his fortune once more at the Moghul Court. He returned to Delhi and again got into Court favour very soon by curing one of the wives of Shah Alam, the Heir apparent to the Moghul Throne. He was made one of the physicians of this Prince and followed him to Deccan in 1678. Manucci again soon tired of his position and tried to escape from the Moghul service. He was detained for sometime but finally fled, from the army of Shah Alam, stationed near Golkonda, to the English settlements at Narspur and Masulipatam. He was once more arrested but before being delivered to Shah Alam, he managed, through the help of an Augustan friar, to get away and took refuge in the English settlement at Madras in the latter half of 1626.

There is no reason to disbelieve or doubt the veracity of his statements and stories relating to his popularity and success as a physician in the Moghul country. On one occasion, a rival physician was forced to seek Manucci's aid. This Moghul physician had a daughter who became pregnant and "at full term she failed to be delivered and was in danger of death." Manucci suggested a very easy treatment, viz : annointing her navel. This brought on her accouchement at once. "He afterwards asked me the secret, and I taught it to him, telling him at the same time that my religion commanded me to do good to everyone, even to my enemies ; how much more, then, to him (this by way of a compliment), to whom I was under an obligation ? It was by this application that he conducted the accouchement of Prince Kam Baksh's wife, whereat the said prince and his father, Aurangazeb, were so grateful to him that they made him many presents of great value, without, however his acknowledging in the very least the benefit I had secured to him. Instead of being thankful to me for it, he sought means to take my life."

Stranger than this was the request of an enemy of Shah Alam, Manucci's patron, for the services of the foreign physician. Diler Khan fell ill. Though Manucci was in Shah Alam's employ, the Khan sent for him to prescribe. As the clever Venetian knew the custom of the Court and the tricks of the enemy, Manucci informed Prince Shah Alam about this strange proposal and thus escaped from incurring his patron's displeasure.

Manucci was highly esteemed and honoured by Prince Shah Alam and his relations and followers. On one occasion, the mother of Shah Alam, the king's wife, was graciously pleased to give a testimony of her goodwill in recognition of his having accompanied the prince from Goa to the Court. "This princess showed me great affection because I had attended her and bled her several times, in addition to which she had often to send for me, as she suffered much from gout. As it was I who prescribed for her, she often sent me some dainty, as it is the fashion of these ladies to do to those they esteem. When I bled her, she put her arm out from the curtain, but wrapped up, leaving only one little spot uncovered, but as wide as two fingers, close to the veins. For that attendance, I got from her four hundred rupees and a SARAPA (set of robes) as a present, and I bled her regularly twice a year."

The wife of Prince Shah Alam and the Prince gave many proofs of kindness and friendship towards Manucci. They even enquired why Manucci did not take a wife. The Prince and Princess were very keen to get their physician married so as to retain him in their service. They offered to send for all the daughters of the Christians, European, American, from whom he had only to choose the one he liked best. The Princess offered to give this girl away in marriage herself and provide all the expenses on such an occasion. When he showed some reluctance to accept such a bride, she even suggested that he could select anybody from among her maids of honour. The Prince even suggested a "*Farangi girl*" in the Zanana. He kindly promised to give the girl, if Manucci liked her, and added that she could serve to carry his medicines to the Mahal. Manucci however answered that medicines adminstered by woman's hands produce no effect. This prince held his physician in such affection that he granted him the permission to enter *Ghusul-Khanah* which is a secret place, into which only principal lords and officers of the Court enter. Shah Alam even offered to make Manucci a noble of the Court, if he became Muhammadan.

After he settled down at Madras, he conducted many negotiations with the Moghul Court and the local Chiefs of the Deccan, on behalf of the English of the Fort St. George. In the first decade of the 18th Century, the Council of Fort St. George granted him, in consideration of his diplomatic services, a lease of a house and garden

near the southern end of Broadway. During the first half of the 18th Century "Manucci's house and garden" were familiar landmarks of old Madras.

Manucci married the widow of Thomas Clarke of Madras on 28th October 1686 and resumed practice as a physician. He seems to have freely prescribed a cordial, of which he alone had the secret. A preparation called "Manucci's stone," in imitation of the famous Goa Stone, was much in vogue in Madras of the 17th and 18th Centuries.

He lost his wife in 1706 and sometime before 1712, he moved to Pondicherry. He was proposing to go to the Moghul Court at Lahore in 1712, at the request of Emperor Shah Alam, but the sudden death of the Emperor put an end to these plans.

His career cannot be traced at Madras or Pondicherry after 1712 as no records are available. But it is believed, on the authority of an Italian chronicle, published in the middle of 18th Century, that he died in India, in 1717, as an octogenarian.

Manucci's book is as unique as its author. It is at once the most voluminous and yet the most picturesque of all the accounts and memoirs written by Europeans, who came out to India as adventurers in the latter half of the 17th Century. Though the book is called "Storia Do Magor," (Moghul India), a fairly large part of it deals with his medical adventures and memoirs and records stories of the current medical practices and beliefs of the previous and contemporary reigns, gathered from old courtiers and courtgossip. The book is therefore a prototype of the modern "Reminiscences" of Physicians, something in the manner of Conan Doyle's "Round the Red Lamp." The value of the book is enhanced by his descriptions of diseases, doctors and drugs, of Hospitals and Witchcraft, information unavailable from any other contemporary source foreign or Indian, entitling the work to be ranked as a Source book for the History of Medicine in the 17th Century.

This book, printed and read in many European Countries under some name or other during the last two centuries, may be said to be almost unknown to the medical public of India. Parts I, II and III were written in 1699, 1700 in the City of Madras—and were carried to France by Monsier Deslandes in 1700. It is probale

that Father Catrou came into possession of Manucci's Manuscript in 1701, and utilised the material for his book "History of the Moghul Empire." Parts IV and V were completed in the first decade of the 18th Century.

The book was begun at the instigation of Francois Martin and Houreau Deslands. After stating that others have published their travels in India and that he considered it vain labour to write his experiences, Manucci proceeds " But I could not resist the importunity of my friends who have a great belief in my knowledge of this country. Therefore, although very old, I have resolved, with the encouragement of those who know me to give the reader true information as to what passed there in my time and before it, emphasizing several particulars, which could not have come to the knowledge of others. I shall tell of all that happened to me and of all that I saw without exaggerating anyone thing, for that is abhorrent to me." While contradicting thes tatement of a Portuguese traveller who wrote false accounts, Manucci clearly points out the defects of the common writer of traveller's books and the real merit of his own work. " But he was not well informed and wrote what the common people told him. He did not know that the common inhabitants or India are very loquacious, taking no care whether they are speaking truth or falsehood. Many authors write down what they hear without making the enquiries they ought to make. It would be much better if, before they write, they dwelt for some time in the Moghul realm and learnt the language of the Country and consorted with the officials of the Court ; in that way, they could easily get hold of the truth, I had long converse with them. In addition to what I have seen in the chronicles, it was no little profit to me in writing these pages that I dwelt within the Moghul realm for 24 years and that I was physician to Shah Alam, the eldest son of Aurangazeb." Again, in the introduction to book III, he declares that what he writes is " nothing but the truth " and however strange it may be to Europe, it is none the less true.

Catrou who drew largely on Manucci manuscript, fully appreciated even in 1705, the value of the writer " who was not a simple traveller or merchant (hurring hither and thither or confined to cities) but was a medical man, whose profession had detained him at

the Court for a period of 40 or more years, whereby was thrown open to him access to particular information, concealed from every other European and the means of transcribing the original chronicles themselves."

Zannetti, the Italian bibliographer, who prepared a catalogue, in 1741, of the famous collection of manuscripts at San Marco, was the first to notice the importance of this codex, as a valuable record of the state of medicine in India and alluded to Manucci's "Notes on medical practice, where plants, animals, and other rare products are spoken of".

William Irvine, who translated and edited this book in the Indian Text Series, thinks that Manucci is a writer whose statements cannot be ignored, particularly for the 50 years of Aurangazeb's reign. He thinks that the stories are true to the spirit of the time and country and therefore probable. With rare exceptions, Manucci's statements, where they can be verified, are historically accurate and a fair inference is that, where there is no such corroboration, he may be accepted as trustworthy." The above editor also compares the books of Bernier and Manucci and adds "Bernier was a trained physician and a man of superior education. Manucci was an equally acute observer and had an advantage in his very much longer experience of the Country."

Manucci's medical knowledge could not have been either profound or even systematised. One is inclined to agree with Irvine in his wise and fair estimate or Manucci's scientific and professional merits and demerits.

Strangely enough, he entirely disapproves or ridicules astrology; yet he is always ready to swallow anything in the nature of witchcraft or sooth–saying. Another of his peculiarities is his readiness to attribute poisoning as the cause of any great man's sudden death. He is constantly making such accusations against Aurangazeb. Possibly there are some grains of truth hidden in this wholesale denunciation; and Manucci's readiness to see poison everywhere may be attributed, perhaps to his Italian origin, and his knowledge of what had been the cause in his own country."

"His medical knowledge must have been limited; and it was evidently sufficient to secure him some professional reputation,

perhaps due to the fact that 'among the blind the one-eyed man is king.' His practice evidently consisted chiefly in bleeding, purging, and the actual cautery. He is very proud of the last remedy as a cure for cholera; he refers to it more than once, and, as can be seen in the "Letters Edifiantes", he strongly recommended it to Father Martin of the Madura Mission. He also says he introduced the use of the enema, which was unknown to native practice. In selling imitations of the Goa stones, he was following an example already set by the Jesuit Fathers; and another source of income was some preparation he calls a 'cordial', probably intended as an aphrodisiac. But, knowing what we do of the healing art in Italy and France in the seventeenth Century, he does not seem to have been so very much behind the European contemporaries."

* * *

Manucci has left in his book some graphic descriptions of diseases and highly interesting accounts of treatments in vogue at that time. But strangely enough, he is almost silent on venereal diseases, disorders which must have been fairly frequently both in Goa and in the army. Even a close study of a few suspicious passages did not yield many interesting references. In one passage there is allusion to the "Goa disease" and another there is a phrase describing a disease as "the misery of the times." One short passage refers to the licencious living in Goa and paints a moving picture which compels our commiseration.

"Having exhausted both their bodily strength and their scantily-stored purses in the infamous dens allowed to exist there, misery and feebleness overtake them so completely that they are forced to enter the hospital. That is a place from which they hardly ever come forth alive, the number of men dying there being astonishing, every day five to twenty-five dead bodies being carried out, sometimes more, sometimes less, a fact that I have myself observed several times. By this means that island becomes the cemetery of all those newly arrived from Europe, and I honestly believe that at the end of a year not an eighth part survives out of those who landed.'

In another passage alluding to professional jealousy and rivalry of the Chief Physician of Goa who ordered Manucci to be thrown into prison for treating the poor without permission, the Italian

writes that the Secretary of State had heard that Manucci has "some little pills with which he made an easy cure of wounds and buboes."

A few other references to cases known to him may be added. An Augustinian friar fell ill of pains in the testicle combined with swelling. "The pain he suffered was insupportable and he had arrived almost at the point of death. The chief physician and other proficients were unable to cure him. An old woman close to the Convent offered to cure it. "She applied some stewed leaves to the painful place and took away the pain together with the swelling. The good friar was completely restored to health." But the woman had to suffer at the hands of the indignant chief physician.

Another case was that of a girl, the only daughter of a rich Portuguese merchant of Goa. This girl suffered from a sore on the leg which no physician had been able to heal. " Desponding at the state of his daughter's health, the father had recourse to a sturdy young Frenchman who was an able Surgeon. This man, he told, that if he could cure his daughter he would give her to him to wife along with an excellent dowry. The young man pledged himself and accepted the terms. In the short space of two months she was perfectly well. The girl, being now in good health, desired to marry the young man, both out of affection and for the obligation she was under him."

There is record of a case where the Portuguese physicians tried all possible remedies to cure a young man who was said to be impotent, but failed. At the request of some priests Manucci examined him and suggested certain treatment with the permission of Lord Archbishop. He diagnosed it as a case of "obstruction of the spleen causing swelling of the body" and set to work to get rid of the obstruction and gave sustaining and fortifying medicines. When the young man was almost normal, the Archbishop called for the chief physician and chief surgeon to examine the case. They certified that he was cured of his impotence and entitled to be married.

Manucci confirms the therapeutic effects of a prescription in the "Chronicles of Taimur-i-lang." He tested it several times and always noted good results. Composed of all ingredients, the prescription was advised for people who had no children and were desirous of having issues.

Early Description of Syphilis (Phirangi Roga) In Sanskrit Texts

By

D. V. S. Reddy, M. B. B. S.,

Andhra Medical College, Vizagapatam

IF, as is generally asserted, syphilis had existed in Antiquity, undeniable proofs have not yet been unearthed or published. Vedic literature contains no reference or description, which tallies with the picture of syphilis, recognised during the last four centuries. Bloomfield thinks that the word *Jayanya* (meaning congenital or venereal) refers to a disease akin to syphilis but the mediæval commentators, Kesava and Sayana, identify the disease as Rajayakshma. The Sanskrit medical classics of ancient India also do not help one to definitely state whether the disease existed in India in the period just prior to and immediately after, the commencement of the Christian Era. The medical historian is faced with a complexity of questions and some of the most insurmountable difficulties. Firstly, the passages in these classics were not pathological observations giving us detailed descriptions of the disease. The older writers did not care to note the different and successive stages (i. e. secondary, tertiary etc.). Most of the doubtful or suggestive passages begin and end with the genital sore or ulcers (upadamsa). No link is established between the early local manifestation and the later systemic symptoms and complications.

Inspite of the paucity of unimpeachable proofs from the ancient grave-yards or from classical literature of the West or East, some

believe that syphilis, in some form or other, existed in the Eastern Hemisphere, before the discovery of America by Columbus, whose crew is generally accused of having brought the pestilence from the New World. As far as India is concerned, most of the historians and medical men, European or Indian, state that syphilis was imported into India by the Portuguese in the middle of the 16th century. Chakravarty, however, seems to take a contrary view.

> "The Old Testament, the ancient Chinese medical works, and especially Charaka and Susruta have left incontestable testimonials of the pathogenesis, evolution and the malignant course of this fateful disease. The initial lesion with chancre, cutaneous manifestation, laryngeal symptoms, caving in of the nasal bridge, condylomata, gummata in the nose, ears, and eyes, exostoses of the bones (apachi), all these made a complete picture of syphilis (Susruta II.II, 15). But it may be said that if "lingarsa or upadamsa" were really syphilis, there would have been no need of writing a chapter on "phiranga" malady (morbus gallicus) with clear and systematic clinical picture of syphilis, by Bhava Misra in his well known 'Bhava–Prakasa' after the Portuguese had introduced it in India, in addition to that of "upadamsa", thus artificially adding a disease without reason, if both were indeed identical. Strangely, "Madhavana–Nidana" a work on pathology, composed between the seventh and eighth centuries, gives its seventy–seventh chapter to Phiranga roga and the language of both Madhava Nidana and Bhava Prakasa is the same. It seems clear that this must have been a later interpolation, for in Madhavakara's time, the word Phiranga was not known. Whatever may be the case, whether the passages are spurious or Madhava Nidana is a much later work than it is generally believed, it must not be forgotten that the pathogenic micro–organisms do not possess the same virulence under all circumstances".

Bhava–Prakasa is therefore the earliest and the most authoritative work containing an unmistakable and undeniable description of syphilis. The name by which the disease is specified removes all doubts. In the later part of the 15th century and in the early part of the 16th century, when the disease appeared in virulent and almost epidemic form all over Europe, different nations gave various names to the disease. To the Asiatics, the disease was known as *Frank's disease.* It may be noted here that the word *Frank* was a general term for all Europeans, and that the Indians therefore dubbed the disease as the Frank's disease or Phirangi Roga. This is, in brief, the origin and significance of the name *Phirangi Roga* by which appellation the disease was first known to and described by the great

Sanskrit Pandit and Professor of Medicine, Bhava Misra. He is reputed to have been a most distinguished scholar and medical teacher of the 16th century, in the upper Gangetic basin (United Provinces of India).

As I pointed out elsewhere, there are two unsolved problems with reference to this writer. Though the great classic, Bhava-Prakasa is widely known as a masterly treatise on medicine including the essentials of the theory and practice of medicine of the ancient and mediæval times, very little information is available regarding the times and the life of this author. The enquiries I have been making for the last four or five years, have not yielded any additional information till now. I am, however, almost sure that a scholar-physician of that eminence must have been known to contemporary writers on medical and other literature and must have left some impressions on his disciples and patients. A search for any references to him or to his work in the state records of the province or in the Archives of the various libraries in the United Provinces, may suddenly throw some light on the life and work of the last of the race of giants, the great masters of Ayurveda.

The next question that naturally arises is whether Bhava Misra incorporated a description of this new disease from the knowledge he gleaned from the talk of the Europeans and from European works; or whether he actually saw some cases of syphilis and wrote from personal knowledge of the disease. His object in writing the book was to produce an Encyclopedia of Medicine. He culled from various sources, ancient and mediaeval. Textbook writers of the last century did not fail to hear and to record the ravages of cholera and plague in countries far away from them. Were not the medical practitioners of this century reminded of the existence and the fury of influenza epidemic? We have, therefore, to remember the extensive prevalence of syphilis all over Europe in the 16th century and also the virulent manifestations of that disease at that time. Not only medical men but also lay men wrote on syphilis. Artists like Durer portrayed syphilis. The talk of the princes and people of that age was often filled with the ravages or reminiscences or experiences of syphilis. At least, a few bits of this conversation, a little smattering of the medical gossip, must have diffused into India along with the

Portuguese armies and adventurers, in India in the 16th century. The same knowledge of the disease may possibly also have come into India by the land route. The disease was recognised in the early part of the 16th century, in Turkey and Persia. The word *Phirangi* as well as the disease might have entered India through Khyber pass along with the Moghul armies of Babur. In any case, it is easy to understand and believe that the intelligent Indians had heard of the disease, its symptoms and its ravages in Europe. A scholar and a Physician of the type of Bhava Misra, with ambition to write an up-to-date text-book would have naturally made a few more enquiries from all available sources and then included a brief description which would bring distinction and name to his work. We do not exactly know the date of the composition of the book. Professor Jolly assigns the work to the middle of the 16th century. This statement is, however, based on the date of Tubingen manuscript. I do not agree with Professor Garbe who fixed the date of that manuscript as 1615. The photo of the last page of the manuscript shows the figures 16115. Other manuscripts of Bhava Prakasa indicate to us that the book existed by the beginning of the 17th century. If Bhava Misra collected his materials in North India in the beginning of the 15th century, he had very little scope of writing this description. North India came into contact with Portuguese after 1530 A. D.; during the campaigns of Humayun in Gujaret and Western India. But that was only a transient phase. It was only during the last two decades of the century that there was occassional intercourse in commerce and thought between the Moghul Dominions and the Portuguese settlements. It was then, that there was a contact of cultures and civilizations. A north Indian scholar-physician could have then easily got the information from any European in the Moghul army. A European surgeon of the Moghul army of Akbar or Jehangir could certainly contribute more information. Akbar and his learned courtiers sought and collected books from various countries. Even the early European treatises on syphilis would have been available in the libraries of the Princes of India. Some of the Portuguese physicians must have carried such books with them. Bhava Misra could have got the information from any of these sources. He might himself have gone in search of knowledge to Goa and Bassein and obtained all the

information required. There, he would have seen some cases of syphilis too or heard from people and physicians with personal experiences. The description of the disease, as one occurring in *Phirangi* country or among European peoples, makes one suspect that Bhava Misra did not see any cases around him in North India and among Indians. The passage dividing the disease into three types is reminiscent of some of the crude and early descriptions of syphilis in the European literature of the first few days after the appearance of the disease in Europe. When we come to consider the lines of treatment, there are some striking resemblances between these and the methods of treatment adopted in Europe in the middle of the 16th century. There are, however, a few minor differences, or modifications. Whether these were due to improvements made in India by the European physicians or by the Indian physicians treating either European or Indian patients, it is difficult to say. We know that by the middle of 17th century, syphilis was noticed in all the corners of India, as shown by the writings of Bernier, Fryer and Marshall. Is it possible that Bhava Misra lived and wrote during the early part of the 17th century, when there was free and extensive intercourse with European nations all over India, particularly in the ports and in the great cities of Delhi, Agra, Patna, Benares, Lucknow and Hugli?

I now give a full extract from Bhava-Prakasa and trust that some Western scholars interested in syphilography will be able to detect the source from which Bhava Misra copied.

DEFINITION: This disease is called Phirangi roga, because of its common prevalence in the Phirangi country.

This is a contagious disease and occurs by contact with the organs of the Phirangi people (Males and females, especially females). This is therefore purely a disease brought in from other places.

This Phirangi disease is of three types, viz: (1) external (2) internal (3) combined external and internal. The first manifestation is papulo-vesicular rash with little pain. This afterwards breaks down and becomes an ulcer. Treatment is easy. The second type causes (1) pain in the joints like Amavata and (2) Sodha. This variety is difficult to treat.

*Bhava Prakasa B.K. IV

COMPLICATIONS:—Emaciation, weakness, deformities of the nose, loss of appetite and digestive power, deformities and bending of the bones.

PROGNOSIS:—An early external variety is easy to treat and is not dangerous. The internal variety can be treated with difficulty. The mixed one cannot be cured as the disease has permeated the tissues; especially is this the case in emaciated people.

TREATMENT:—(1) Rasakarpura taken internally is said to cure this effectively. The drug is taken in the following manner, to avoid a toxic effect, Sodha. 4 *gunjas* of *rasakarpura* are placed inside a shell made of moistened wheat flour. This ball is rolled in a powder of cloves. These pills are taken with wat r, care being taken not to touch the teeth. Betel and nut are to be chewn, immediately after these pills.

Regimen:—During this treatment, one should avoid eating vegetables, sour and salt articles. He should also avoid exertion, excess of sunshine, too much of walking and excessive indulgence in sexual union.

(2) The following substances in quantities noted are powdered in a mortar.

Mercury:	1 tonca
Khadira:	1 ,,
Akarakarabha:	2 toncas
Kshowdra:	3 toncas

The powder is made into 7 pills and the patient should take one pill every morning. Avoid sour and salt substances during treatment.

(3) Fumigation: An ointment is prepared with the following substances.

Mercury:	1 Karsha
Sulphur:	1 ,,
Rice:	Sufficient quantity.

The mass is made into 7 pills. One pill is used for fumigating the patient every day for seven days.

(4) Inunction: Mercury is rubbed by both hands on the body of the patient with the juice of the leaves of *Pita pushpa bala*,

until the mercury becomes invisible or disappears. This is repeated seven times. Sour and salt articles are to be avoided.

(5) Powder of neem leaves: 1 unit.

Padhya:	1/8	,,
Dhatri:	1/8	,,
Ratri:	1/16	,,

These things are mixed and the powder is taken in with water. This cures the internal and external varieties.

(6) The powder of Chopachini is mixed with Makshika. This is taken in, orally and the patient should avoid salt or if he cannot get on, he should substitute rock salt for ordinary salt.

(7) An ointment is made of the following:—

(a)

Mercury:	1 Karsha
Sulphur:	1 ,,
Khadira:	1 ,,

The following ingredients are ground together into a powder.

(b)

Rajani:	1/2 Karsha
Kesara:	1/2 ,,
Throti:	1/2 ,,
2 Jiras:	Each 1/2 Karsha
Yevanika:	1/2 Karsha
2 Chandanas:	Each 1/2 Karsha
Pippal:	1/2 Karsha
Vasi & Masi leaves:	Each 1/2 Karsha.

This powder is mixed with the above ointment. The resulting mass is then mixed with 2 palas each of honey and ghee and is rubbed well. This is taken internally, 1/2 Karsha every time. Even long-standing disease yields to this method which has another advantage, that it does not give rise to the toxic manifestation called Sodha.

During this treatment, salt is prohibited for the patient for 21 days.

Phirangi roga is also mentioned in some other Sanskrit medical works composed nearly 300 years ago. RASAPADHATI by Bindu is a treatise dealing with the preparation and uses of various mercurial compounds. Mr. Gode discusses the date of this work in a learned article in the Poona Orientalist (October 1936. p. 47-49) and

comes to the conclusion that it was composed between 1375 and 1650 A.D. This book contains a verse describing treatment of syphilis with mercury, sulphur and other drugs. (Folio No. 38 of Manuscript No. 372 in Bhandarkar Oriental Research Institute, Poona).

Rasapadhati is quoted in a later work Aurveyada Prakasa of Madhava Upadhyaya. Mr. Gode assigns the latter work, on the basis of internal evidence, to the middle of the 17th century. This work also extols the curative properties of Rasakarpura as sovereign remedy for syphilis. (Rasakarpura is a mixture of Mercurous chloride and Mercuric chloride).

Phiranga kari kesari
Sakala kustakalavala
Aghilavrana vinasakrit vrana
jagartha purti prada
Suvarna sama varna krit
valahutasa tejaskara
Samastha gada thaskaro
rasapathi sa karpuraka

It will be highly interesting to know if there are similar descriptions of syphilis in other Sanskrit works of the 16th and 17th centuries. I trust that learned Sanskrit scholars familiar with the large collections of manuscripts in the various parts of India may erelong be able to discover and publish descriptions of syphilis in the 16th and 17th centuries, in India.

Printed by B. Subbarao at Prabha Printery, 6 Benham Hall Lane, Girgaum, Bombay 4 and Published by him at 1, Damodar Mansions, Opera House Tram Terminus, Girgaum, Bombay 4.

Reprinted from INDIAN JOURNAL OF PEDIATRICS
Vol. III. No. 12. October, 1936.

PEDIATRICS IN ANCIENT INDIAN ARCHÆOLOGY*

D. V. S. REDDY,
Vizagapatam

HARITI the protector of children from epidemic diseases. One of the most delicately modelled sculptures of the Gandhara school of early date (1st. and 2nd. century A.D.) is the figure of HARITI nursing a baby and surrounded by others. She is here seated on a throne as the consort of KUBERA, the god of wealth. This statue was found in the course of excavation at Sahri-Bahlol in the district of Peshwar and now in the Peshwar museum (No. 241). Students of art will not fail to observe a touch of human pathos in this sculpture. BARNET points out, it depicts the goddess very much in the style of Madonna with babies playing about her arms and shoulders. Many images and paintings representing this deity belonging to the 6th—10th centuries have been identified in Greater India and China where this cult of Hariti spread with Budhism.

In the Budhist literature HARITI is described as "demon mother of children"—a *Yakshini*—one of the malignant spirits which is also mentioned in connection with diseases of childhood in *Ayurvedic* works. Legendary stories are current about how the great Budha converted her —a heathen cannibal—to the religion of *Ahimsa*.

ITCHING, the Chinese scholar, made a study tour of India in the latter half of the seventh century A.D. He mentioned, the image of Hariti was found either in a porch or in a corner of dining hall of all Indian monasteries of the day. It was believed that Buddha enjoined his disciples to make offerings to this goddess on a scale adequate to feed her 500 children. In the sculpture she is depicted as holding one baby in her arms and 3-5 others round her knees.

HARITI was believed to be very powerful for good or for bad and worshipped for many boons both by the Budhist and non-Budhist population of Asia during early centuries of the Christian era. In the words of BARNET she was an important figure in the worship of nursery. ITCHING observed "If those who are childless on account of their bodily weakness pray to her for children with offerings of food, their wish is always fulfilled". HARITI, in one of her aspects, was regarded as the protector of children from the dangers of epidemics. It is also recorded that she was sometimes associated particularly with smallpox.

---

*From the King George's Medical College, Vizagapatam.
Submitted for publication, September 10, 1936.

Fig. 1. *"Hariti" as exhibited in Peshawar Museum (No. 241.)*

Reprint from Feb. '37 issue of the ANTISEPTIC.

Historical Aspects of Tropical Diseases

BY

D. V. S. REDDY, M.B., B.S.

Medical Registrar, Medical College, Vizagapatam.

THE writer of this article accepted the invitation of the Editor of the Antiseptic with the hope of presenting a short historical note on some of the tropical diseases with one or two early classical descriptions of each disease on the same lines as the two recent excellent publications—"A Short History of Common Diseases" and "Classic Descriptions of Disease". As the references and quotations collected, increased beyond all expectations, that scheme had to be abandoned in favour of a less ambitious and very short summary, clearing the way for a later attempt.

A comprehensive history of tropical medicine has not yet been attempted so far. The authors of text books on tropical medicine, generally begin their contribution on each disease with a sketchy historical preface. Castellani and Chalmers, in their Manual on Tropical Medicine, have gone a step further and in addition to the historical notes under each disease, have provided, in the first part of their book, a history of tropical medicine They begin with the primitive medicine, refer to the characteristics of ancient Egyptian, Hebrew and Indian medicine and finally describe the Grecian, Alexandrian, Roman and Arabic medical literature, thought and practice. Their remarks, based on a study of Charaka, Susruta, Vagbhatta, Madhava and Bhavamisra, indicate how much scope there is for further investigation. "There is no doubt that the Indian Doctors were well versed not merely in medicine and surgery but the prevention of disease and in operative midwifery. They apparently knew diabetes mellitus, dysentery, phthisis and diseases due to worms". Another observation of these writers is an additional argument for the study of the history of tropical medicine. "Native peoples have very good knowledge of medical and poisonous plants growing in their vicinity and it is well for the medical man, living in the tropics, to remember that cinchona bark was originally the native

Ecuador remedy and that it is not advisable to entirely dispense the popular drugs."

The beginnings of Tropical Medicine.—The beginnings of tropical medicine were the observations and clinical data in the Vedas, Bible, Talmud and the Egyptian Papyrii. Eber's papyrus (1500 B. C.) is said to contain a prescription against worms and directions to get rid of fleas and lice, while the Berlin papyrus (1400 B. C.) has recipes for the treatment of leprosy. Bible contains references to many interesting tropical diseases. The fiery serpents in the Book of Numbers may possibly refer to a description of the guinea worm. Paul of Aegina (end of 7th century) devoted considerable space to malarial fevers, gave a description of Cholera, Dysentery, Leprosy, Round-worms, Snakes, Scorpions etc. The Arabian writers like Rhazes and Avicenna converted parts of their books into veritable manuals on Tropical Diseases. Hindu and Mohammadan Physicians of the 15th and 16th centuries have given excellent descriptions of the common diseases of the Tropics. Among the early European travellers, and settlers in India, Garcia da Orta, Francis Bernier, John Fryer, and Nicholas Manucci were successful medical men with good powers of observation and a wide range of experience, of diseases and men. Their writings form excellent sources for the history of Tropical Diseases. Garrison has the following passage on tropical medicine: "Tropical medicine vaguely rooted in antiquity came into being largely through the exploration of the globe by navigators and the settlements made in tropical and torrid regions by Spain, England, Holland and France. It owes its scientific status to the development of bacteriology, parasitology, protozoology, medical entomology and medical mycology. It had its authentic start with the organisation of Indian Medical Service in 1764 and some of the best works done in early period clusters round the names of Lind, Wade, Russel, Fayrer, Macnamara, Malcomson, Waring, Vandyke Carter, Ronald Ross and Leonard Rogers".

Early tropical medicine consists of the records of ship-surgeons and other keen observers, who made notes of their experiences during their voyages or during their stay at factories. A compact note by Castellani and Chalmers may be quoted in this connection :—"Clinical researches into the diseases affecting Europeans and natives in the tropics began with the earliest modern travellers, non-medical as well as medical and the earliest

references to tropical diseases are to be found in these early works on travel. Thus, as Singer has pointed out, De Oviedo in 1526 gives a reference to a disease bubas, which we now know to include Framboesia tropica, a form of Leishmaniasis, and probably a form of Blastomycosis. In 1558 Thevet described the jigger as a little worm called 'Tom' which entered into the feet, and wrote descriptions of Framboesia tropica under the term 'Pians'. In 1598 G. W. wrote an account of Calenture (heat-stroke), and Tabardillo, which is derived from the Spanish word Tabardo, a cloak, and was applied to the typhus fever epidemic in 1557 and therefore G. W. may have meant typhus by this term, though it is possible that he also included yellow fever under the same name. He also describes Espinals, possibly due to the bite or sting of some venomous animal : Cemeas de Sangre, or dysentery; erysipelas, which probably included filariasis; and Tinoso, or scurvy. In 1642 Bontious wrote his work, 'de Medicina Indorum'. Chalmers and Archibald have drawn attention to the description of dracontiasis, dermatophilias, epidemic gangrenous rectitis in South America; simple continuous fever, malarial fevers, dysenteries, smallpox, climatic bubo in India, malaria, endemic yellow fever, dengue, smallpox, filariasis diarrhoeas, dysentery, and yaws in West Africa, as indicated by D. L. F. in 1726 and by Aulsey in 1729."

As the European settlements increased in number and size, more medical men settled down and recorded their observations in a number of works which formed the earliest literature on tropical medicine. Chalmers and Castellani call these early medical men, "Pioneer founders of modern tropical medicine". Their works are scattered and difficult to obtain but deserve to be stocked in every medical college library. The evolution and perfection of the compound microscope gave a great impetus to the development of modern tropical medicine by enabling Leveran to discover the malarial parasite, and Manson to establish the periodicity of micro-filariae nocturna. Ross's discovery of the spread of malaria by mosquito bites aroused world wide interest in tropical diseases. Castellani and Chalmers believe that modern tropical medicine began with these great discoveries which opened up the possibility of finding the cause, the method of spread, the treatment and the prevention of periodical diseases, the history of some of which is briefly sketched in the next few pages.

Malaria.—The name 'Malaria' was given to the disease by

an Italian writer in 1753. "The word 'malaria' is derived", write Rogers and Megaw, "from two Italian words 'Mal' (Bad) 'aria' (air). This name was applied because of the old belief that the disease was due to the inhalation of poisonous emanation which rises from the ground especially in marshy places.

"The disease in some of its most recognisable forms was known thousands of years ago. Periodical attacks of fever coming on with chills and passing with sweat were naturally regarded as indicating the presence of a special disease" (Rogers and Megaw). All text books of tropical medicine usually begin the history of this disease with the description by Hippocrates of quotodian, tertian and quartan fevers. He noted their occurrence in autumn and near stagnant water. Celsus is next given credit for differentiating "two types of tertian fever, one, benign similar to quartan fever, the other far more dangerous with fever occupying 36 out of the 48 hours." Galen also described tertian and quartan fevers. In 116 B C., Varro suggested relationship between marshes and malaria. Castellani and Chalmers however admit that it is possible, that directly or indirectly, Hippocrates owed much to India and Egypt and trace the history of the disease with the following remark: "It is suggested that the reference in the Charaka Samhita to fevers spread by mosquito refers to malaria and that this fever was recognised at the time of Homer." Susruta refers to quotodian (anyedyuska), tertian (tritiyaka), quartan (chathurdhaka) fevers. Chakravarthy (1923) points out that Susruta indicates a vague relationship of malaria with mosquito bites, swampy localities where mosquitoes were developed and that a particular kind of mosquito was incriminated. "There are five types of mosquitoes (masaka) namely, (1) Samudra or coastal mosquitoes (2) Parimandala (3) Hasthimasaka (4) Krishna (5) Parvatheeya or mountainous mosquito. The bite of the mountainous mosquito (anophele) produces an effect like that of deadly insects" (Susruta V. 8-18). "Charaka mentions a bitter (Tikta) juice of leaves or bark or concoctions of dry bark in the treatment of malarial fevers" (Chakravarty). Can it be the bark of local varieties of Rubiacea, to which family cinchona tree belongs?

Malaria had played a villainous part in wiping out ancient civilisations. McCulloch (1872) traced its influence in causing race degeneration in various parts of the world. W. H. S. Jones in his book (1909) on "Malaria and Greek History" concluded that the disease played a large part in bringing about the deca-

dence of Greece. Some one else has added a book conjecturing that the downfall of the great Holy Roman Empire was due to Malaria. Some of the epidemics in Bengal and South India in the mediaeval times were undoubtedly malaria. The disease also finds a place in " belle letters". The plays of Shakespeare, the diaries of Pepsy, and Evelyn refer to it. Some of the outstanding events connected with the modern development of our knowledge of malaria are given by Rogers and Megaw and also by Stitt.

" In 1638, La Contessa del Chinchon, wife of a Spanish Viceroy of Peru, is said to have been cured of an intermittent fever by the bark of an indigenous tree of Peru. The bark was introduced to Europe shortly after this occurrence and the name Cinchona was given to it in honour of the Countess. Critical historians have thrown grave doubts on the accuracy of this story but it will keep its place in the history of malaria just as the tale of King Alfred on the cakes will always retain its hold on the imagination of the schoolboy. Anyhow it was about the year 1640 that cinchona bark or Peruvian bark was first introduced to Europe". Morton and Sydenham in 1666 noted the specific action of cinchona on certain fevers. It was Torti, however, who in 1712 differentiated clinically those fevers which are cured by cinchona and those which failed to yield to this specifiic, laying the foundations of our knowledge of therapeutics of cinchona. He gave the drug in large doses for the first three days, then in smaller doses for a week and later in still smaller doses for two or three weeks. Quinine was isolated from cinchona bark in 1820 by two French Chemists, Pellivier and Caventow and soon came into general use. As Rogers and Megaw observe: "It is interesting that our knowledge of satisfactory treatment was acquired long before the cause of the disease was discovered."

The early European traders in India and their families, seem to have suffered from ague during the 16th century. The Board of Revenue in Madras referred to the ravages of this 'putrid fever' as far back as 1797. In 1869—70, elaborate enquiries were made in South India as to the prevalence and cause of this disease. The conclusions of Sanitary Commissioner for Madras on the report of Assistant Surgeon Dr. Wright, written in 1869—70 in connection with the prevalence of malaria in Godavary Agency are interesting. " My conviction is that the periodical accessions of fever in Godavary district are due to the geographical position of that district in respect to malarial wind to the north

and west and that the fever is due to the northern winds of the north-east monsoon sweeping over malarial jungles of the hill tracts of Northern Circars before they reach Godavary district." (Godavary District, descriptive and historical account, London, 1878). But, Quinine was in fashion already in 1876—78, as recorded by W. G. King, Civil Surgeon, Trichy. "Quinine is largely used by Native Vaidyans and indeed is one of the two English preparations in which they possess implicit faith—the other being chlorodyne."

The narrative of the discovery of the parasite is in itself an epic or a romance. On November 6,1880 Laveran at Constantine first saw the parasite of malaria while carrying on investigations as to the origin of the pigmented bodies and malaniferous leucocytes observed by Kelsch in 1875. He not only noted these pigmented bodies but also crescents and flagellates of the male gaemete. On 23rd November the same year, Laveran, made the epoch making announcement of the discovery of the malarial parasite in the blood of malarial patients describing amoeboid, crescentic and flagellate forms of the parasite. The reception of the news is described by Rogers and Megaw as follows : "The announcement was received with almost universal scepticism. Even Laveran's associates did not at first believe in the discovery while the Italians who had accepted 'bacillus of malaria' of Klebs and Crudelli, held that the bodies seen by Laveran were mere cell degenerations." It was still several years later that the full significance of the discovery was realised. In 1883 Marchiafava employed dried films stained with methylene blue and noted ring forms which later increased in size up to the sporulating stage. Golgi in 1885 traced the stages of the growth of the quartan parasite in blood corpuscles, asserted the difference between the rosettes of tertian and quartan forms, and pointed out that the malarial paroxysm coincides with the period when sporulating forms reach maturity.

About 1883, King adduced a number of good reasons in justification of the belief, popularly held in several parts of the world, that mosquitoes were responsible for malaria. In 1894, Manson formulated the hypothesis that mosquitoes might be the causative factors of Malaria. His idea was that the flagellating bodies which were set free in the stomachs of the mosquitoes might find their way into drinking water and convey the disease to persons who drink the water in which the infected mosquitoes had been drowned. Several others including Lvaeran, Koch

Pfeiffeur, Bignami, Grassi also believed that mosquitoes were connected with the conveyance of Malaria. It must be pointed out at this stage that the conveyance of the parasite by the bite of the mosquito was not part of the hypothesis suggested by Manson, who however must be given large share of the credit for the great discovery of Ross, who was his pupil.

Ronald Ross, who was in England on leave, heard this suggestion from Manson, was impressed with the possibilities and started his brilliant work on returning to India in 1884, keeping in constant touch with Manson at every stage of his investigation. Bad luck for long months baffled Ross's research, as he was investigating the wrong mosquito. It was also Manson's suggestion that Ross should work out the life history of corresponding parasites in birds. Ross established in 1896 that the malarial parasite from the blood of sparrows are abstracted by blood sucking fly.

The great discovery in medicine, the only one in India rewarded by a Nobel Prize in medicine cannot better be described than in the words of Rogers and Megaw :

> 'In 1897 (August 20) Surgeon Major Ronald Ross of the Indian Medical Service found pigmented bodies (now known as oocysts) in the stomach wall of two 'dapple-winged' (now known as anopheles) mosquitoes which he had bred from larvae and caused to feed on persons suffering from malaria ".
>
> "In 1898 Ross working in Calcutta failed to obtain suitable cases of human malaria and decided to use a parasite (a proteosoma). He found that this parasite underwent remarkable development in the stomach wall of culex mosquitoes which he fed on infected sparrows. The first change observed in the parasite was its development into the same kind of pigmented bodies as he had seen in 1897; in a few days, these became greatly enlarged and finally burst discharging shred-like bodies (now known as sporozoites) into the body cavity of the mosquito; these bodies then penetrated the salivary glands of the mosquito.
>
> "He next demonstrated that the proteosoma infection was conveyed from infected to non-infected sparrows by the bites of mosquitoes and also that control sparrows remained free from disease if protected from mosquitoes. These observations combined with his significant discovery of the previous year, fully justified him in announcing that human malaria

was conveyed in a similar way by the bite of infected mosquitoes; he also advocated the organisation of measures for the control of mosquitoes".

Ross was prevented from carrying out the final stages of his experiment demonstrating the conveyance of human malaria by his ill-health. In 1898-99, Bignami and Grassi and Bastianelli who had been kept well informed of the discoveries of Ross succeeded in demonstrating that the same cycle of events take place in anophele mosquitoes which had been fed on human beings with infected malaria and worked out the mosquito phase of the parasite. The connection between infected mosquitoes and malaria had yet to be demonstrated. "Experimental proof of the truth of this carriage was afforded by Manson producing typical attacks of malaria, with parasites in the blood in persons who bad never left England by the bite of anophelene mosquitoes infected with parasites in Italy. Sambon and Low lived in the most malarial months of 1900 in one of the most malarious sections of the Roman Campagna with no other protection than good anti-mosquito measures but they did not contract malaria. That is how malaria came to be conquered.

Black Water Fever.—"The disease appears to have been overlooked in many places where it must have existed for a long time," state Rogers and Megaw. "Probably it was included in bilious remittent fevers, and the dark colour of the urine was regarded as being due to bile pigment". Stitt also thinks that the late recognition of this disease was due to the confusion between bilious remittent fever and yellow fever. It is generally acknowledged that the first description available for us is the information given by the French Naval surgeons Lebeau, Daulle and Le Roy de Mericourt in 1850-53 who drew attention to the disease in Madagascar. Stitt believes "black water fever must have been the condition referred in medical literature of the period 1850-1870 in the names "Fievre bilieuse hematurique", "haemorrhagic malarial fever" and "febrio remittens haemorrhagica". Castellani and Chalmers give a brief historical summary of the important discoveries and descriptions of this disease subsequent to its recognition in 1850.

The name black water fever, now universally adopted, was first used by Easmon. The interesting question for us Indians seems to be whether it had existed in India prior, from ancient or mediaeval times. Manson comments that it is strange that it should not have been recognised in India if the disease had existed here

for centuries. Chakravarthy in his book, "Interpretation of Ancient Hindu medicine", names or translates Pitta fever described by Susruta as bilious remittent fever or black water fever. A close study of the text of Susruta with the necessary commenttaries may help to elucidate the point and confirm or controvert the above assertion. I have sent questionairre to the Agency tracts of the Vizagapatam district to gather information from the natives of those areas where black water fever has been reported, with a view to enquiring whether there is any popular tradition or local records or common treatments handed down by hereditary physicians in connection with this disease. The matter deserves close study.

Cholera.—The name cholera is of Greek origin derived from the word *cholera* meaning spout, thus describing the violent purging in this disease. Castellani and Chalmers state that cholera appears to have been known in India from the most ancient times, for Charaka and Susruta describe symptoms which most probably refer to this disease. "If in Cholera Asiatica (visuchika) and tympanites (alasaka), the teeth (the gum), lips and nails become cyanotic, there is a comatose state, active vomiting, orbits of the eyes are sunk in the sockets, the voice becomes weak and the joints become relaxed, then the prognosis is very unfavourable". (Susruta VI. 56-8) (Chakravarti 238). Rogers and Megaw add that cholera was probably endemic in China for thousands of years. Others consider that cholera was carried to China in 1669 from India. Hippocrates did not seem to be acquainted with this disease. It is interesting that Koch doubted the antiquity of Cholera. During the middle ages the earliest record of the disease is found in 1438 in Ahmed Shah's army, said to have been decimated by this disease.

At the beginning of the European intercourse with India, the disease seems to have been common. It was mentioned by Vasco De Gama in 1490. It broke out in Goa in 1543. The wars in the Deccan,during the 17th and 18th centuries, when the English and French were carrying on their conquests, naturally spread the disease all over India.

The following note from the District Gazetteer of Madura (pp. 168) is interesting :—

"Cholera is an ancient enemy of the country. A letter from the Jesuit missionary Robert de' Nobili, dated as far back as April 1609, speaks of the ravages of a virulent epidemic

disease which he calls 'mordechin' and Father Martin, writing in 1701, gives an account of this, which makes it clear that it was none other than cholera. Yule and Burnell say 'mordechin' is a fanciful French corruption of 'modachi', the Konkani and Marathi name of the disease. The remedy favoured by the Jesuit Fathers for the cure of choleric attacks was the application of a red hot spike to the soles of the patients' feet. If he did not move when this was applied, they naively observe, his case was hopeless."

There was an epidemic in Pondicherry in 1768 and in Madras in 1782 and in the West Coast in 1792-94. According to Macnamara, no less than 66 separate observers mentioned the disease between the years 1438 and 1817.

The first extensive epidemic recorded outside India began about 1817 and lasted till 1823. The first Pandemic commenced in 1826, spread throughout India, passed by 2 routes to Russia, thence to Germany, Sweeden and England. The whole of Europe was infected by 1833 and the epidemic spread to, The United States, Mexico and Australia. By a third route from India, the disease spread to Turkey and Egypt and to North Africa by 1834. Rogers and Megaw point out that this disease took 5 years to travel from Bengal to Europe and in the absence of rapid means of communication by rail and sea. John Snow of New York, first stated in an essay in 1849 that cholera is a water borne disease taken into the system by mouth. The 2nd edition of his work 'Cholera' printed in 1852, contains remarkable statements of the germ theory. It was he, who also predicted successfully in 1854 that the severe London epidemic would cease if the hands of the Broad Street pump were removed. Up-to the year 1900 seven extensive epidemics have been recorded and are described by Castellani and Chalmers. It was during the fifth epidemic which began in 1879 that Koch at the head of the Cholera Commission, visted Egypt and India and discovered the cholera vibrio in Egypt in 1883. A serious outbreak of cholera, originating in 1881, in pilgrims in the Delta of the Ganges and reaching Europe in 1882, gave opportunity for the careful studies as to the transmission of the disease by a study of the outbreak at Hamburg and in the neighbourhood of the Broad Street well in London in 1892. The story of the two well known incidents has been told and retold. It was also during the Hamburg epidemic that Dunbar noted the transmission of the disease by healthy carriers. Ferran in 1885 and Haffkine in 1893 used vaccines in prophylaxis.

Kala-Azar.—The name Kala-Azar was in use in Bengal and Assam before the nature of the disease was known. Ross points out that the correct name is Kala-Jwar or mortal sickness. It is possible that the natives named it Kala-azar on account of the black appearance of the victims. Rogers and Megaw are of opinion that the disease had existed in India for centuries. Chakravarthi translates Satata fever described by Susruta as "double quotodian" and calls it as Kala-azar. It was only in the last century that the disease came to be recognised as a separate entity. "In 1869, when the district of Garo hills in Assam was first occupied by the British,a disease believed to be a very severe form of malarial cachexia was found to be endemic". In 1875, it spread and the epidemic was characterised by high death rate. In 1882 the first account of the disease was published by Clarke from notes of 120 cases compiled by McNaught. It was regarded as a chronic malarial fever. It was soon found spreading along the main line of human inter-communications. Giles, as a result of a year's investigation, came to the conclusion that "Kala-azar is ankylostomiasis" as he found hook-worm ova in the stools of the majority of cases. In 1894, Stephens reported that the disease was distinct from malaria, while Rogers in 1896 and Ross in 1898 regarded the disease as of malarial origin. On the other hand, Bently in 1902, misled by the similarity of temperature charts and agglutination tests of the serum, claimed that Kala-azar was a malignant form of Malta fever. And yet a third hypothesis was put forward by Manson in 1903 that the disease might be caused by a trypanasome. In 1903 the mystery of the disease was solved. Sir William Leishman had found, in 1900, the peculiar bodies in a film taken postmortem from the spleen of a soldier who died in Netley, from fever contracted at Dumdum. He was at a loss to explain their significance and did not publish this discovery till 1903. In the same year, Col. Donovan of the Madras Medical College observed the same parasite in blood obtained by splenic puncture performed during life on patients suffering from "malarial cachexia". This proved that these bodies were the living parasites of the particular disease. There was much discussion as to the nature of these bodies whether they were piroplasms or trypanasomes. Rogers in 1904 cultivated the parasites and noted flagellate forms. In 1919, Gasper Vianna introduced the intravenous injections of Tartar Emetic for the treatment of the American Leishmaniasis. Castellani in Ceylon and Rogers in India experimented with the antimony treatment for Kala-azar and published extensive reports popularising the only available defence

against kala-azar. Sir U. N. Brahmachari of Calcutta, later synthesized his "Urea Stibamine."

Dysentery.—Stitt states: "Although Hippocrates was the first to accurately describe the disease which is now known as dysentery, yet there is good ground for believing that the disease existed in Egypt and in India for centuries before Christ."

The disease is mentioned in the Ebers Papyrus (1600 B. C.). Herodotus (5th century B. C.) refers to an epidemic of dysentery in the Persian army. The disease has been known in India since remote times. Castellani and Chalmers observe: "the occurrence of a bowel disease, in which blood appeared in the motions was well known to the ancients, for, descriptions of such a condition can be found in the works of the old authors, Charaka and Susruta, in which, dysentery was called 'Atissar' and acute dysentery 'Amapaka' while the chronic variety was called "Pakitsar" The term dysentery is derived from a Greek word signifying a bowel trouble and was first used by Hippocrates, who differentiated between frequent motions and motions containing blood. At first the term dysentery meant discharge of blood per anus: later, Aretaens, Celsus and Galen differentiated the disease by insisting on the presence of mucus as well as blood in the motion. The disease was believed to be due to an ulcerated condition of the bowels. The contagious nature of the disease was also recognised very early.

In the early days of the East India Company, dysentery was a troublesome and common disease. William Finch says he was himself ill (in 1608) of a 'bloody fluxie', whereof Master Dorchester died. In 1612 all the English at Surat suffered from 'Fluxie.' Coryat died of it in 1617. It was only in 1859 that Lambel noted the presence of Amoebae, in the stools of a child, affected with diarrhœa. The real advance came in 1875 when Rosch in Russia described for the first time the parasite which he found in the intestinal ulcerations as well as in the stools of the patient with dysentery and produced dysenteric ulcerations in the dog by injecting amœbae containing stools into the dog's rectum. The opinion current in India in 1876 is expressed by Surgeon Major King, writing on bowel diseases thus: "The greater part of the mortality is due to diarrhoea and dysentery, more common at the outset of cold season probably as a result of undue exposure, but, in ordinary times, these diseases are also due to inferior food and impure water".

Grassi in 1879 noted the encysted forms of amoebae, but denied their pathogenic importance.

Garuda Puranam (182 Ch.) P.570.

Dhanvantri's discurse on Shlipadam

" A swelling attended with fever which frst occurs in either of the inguinal regions and ultmatelyx extends tothe legs is called Shlipadam. Similarly swellings may occur in the ears hands nose lips and genitals.In the vataja form of Shlipadam the skin of the affected part becomes rough and assumes a black colour.The skin of the affected part breaks and a diverse kind of pain is felt in the affected regions w ithout any apparent exiting cause. In the Pittaja form the swelling becomes soft attended with burning sensation in its inside and the skin of the of the swelling assumes a yellowish colour. In the Kaphaja type the swelling becomes cold compact white and glossy or gray. Acase of elephantiasis which is of more than one years growth and is grown over with nodular excresences in the manner of an anthill should be given up as incurable.All these three forms of elephantiasis should be understood as marked by a predominant action of the deranged kaphah inasmuch as heaviness and swelling cannot originate through the agency of any other morbific principle than the deranged kaphah.

It is also worth noting that in the descr
of the Vriddhi roga (Enlargement of the Sc
of the seven types is the Kaphaja type"The
felt hard and becomes cold glossy white or
cmd coloured and slightly painful In the
vriddhi roga which has its origin in the dis
condition of bodily fat symptoms peculiar t
Kaphaja type are exhibited and the tumour
and brown like a ripe Tala fruit."

Koch in 1883 considered that amœba was pathogenic. Two pupils of Osler, Councilman and Lafleur, described in 1891 the lesions in the bowels and called the disease amœbic dysentery, and indicated two species of amoebae, one harmless and the other pathogenic. In 1902, Rogers recognised that Ipecac was effective against amoebic dysentery. In 1903 Schauddinn reported the existence of two species of amoebae, one harmless (entamoeba coli) and the other pathogenic, named E, histolytica.

It was not until 1888 that Shiga the famous Japanese worker, isolated the causative organism of bacillary dysentery and opened up the possibilities of treatment by anti-dysenteric serum.

Filariasis (Elephantiasis) :—Asia is the endemic home of filariasis. Castellani and Chalmers make the following comment on the descriptions given by ancient Indian writers :—

> " The appearance of the huge leg of elephantiasis is so striking that it was early noticed by ancient Indian writers, who give descriptions of diseases which clearly refer to elephantiasis of the leg and of the scrotum, and also less clearly to lymph scrotum. Further, they appear to have known that elephantiasis could affect the hands and other parts of the body."
>
> " The word 'elephantiasis' was first popularised by Celsus who described leprosy under this term and in this he was followed by most writers until Galen, who included true elephantiasis under the same term, an error which became firmly established as time passed. In the 9th and 10th centuries, Rhazes and Avicenna, and other Arabian physicians described true elephantiasis of the leg under the term 'da-fil' or 'danool-fil ' or elephantine disease, which however only served to make the confusion between the two diseases more complete."

Bhaskara Menon, in his Curzon lectures for 1935 on filariasis, refers to the mention or description of the disease by the older ancient Hindu medical writers, Charaka, Susruta and Madhava. I was surprised to find no reference made to descriptions of the disease by the early European travellers, some of whom must have been struck with the ugly manifestations of the disease. Marco Polo, in his travels in South India at the end of the 13th century, seems to have heard the legend that the murderers of St. Thomas suffered from one leg of immense size. In the latter half of the 16th century, Ralph Finch commented on

the bad water of Quilon, "which caused many people to be like lepers. Many of them have their legs swollen as big as man in the waist and many of them scant able to go".

In the 17th century Leonicenis and Veramdaes pointed out the distinction between the diseases, leprosy and true elephantiasis. Clarke in 1709 described elephantiasis on the Malabar coast under the term Cochin leg. Hillary in 1750 gave an accurate account of the progress of elephantiasis connected with elephantoid fever and lymphangitis which gradually became permanent, producing the well known condition. Handy in 1799 gave the first account of the elephantiasis of the scrotum. Allard in 1809, Chapoten, Salase and others reported on the various aspects of the disease particularly haemotochyluria. Of particular interest to Indian medical men is probably the first contribution by an Indian in 1854 when Jamshedji described lymph scrotum. From 1712 when Kempfer described a large swelling of the leg, the disease now known as "Madura foot" began to be confused with elephantiasis. Van-dyke Carter ended this confusion in 1868 by his 'treatises on mycetoma and on elephantiasis'

Demarquay, in Paris, discovered in 1863 a microfilaria in the fluid from a hydrocele from a person in Havana. Lewis, in Calcutta, carried out a series of investigations in which he found filarial embryos in the urine of patients with chyluria and in blood and urine of persons suffering from elephantiasis of the leg. It was Lewis who called the parasite "filaria sanguinis hominis". In 1876, Bancroft in Australia discoversd filarial worm in lympha tic abscess. Hence the name 'filaria bancrofti' given by Cobbald. Meanwhile in 1872 Lewis had published his classics containing the results of all his work. In 1878, Manson in China demonstrated the mosquito transmission of the disease but thought that the fully developed embryos escape from mosquito at its death into water, which, when drunk, produced the disease. The real historical significance of this discovery is that it led to the great discovery of Ross. Some of the physicians of Madras General Hospital, published reports and books on the disease, particularly Sibthorpe and Maitland in the last quarter of the last century. The final stage in the elucidation of the method of transmission was reached only after 1900, when Low, Fulleborn and Bhar supplied the information that the filarial embryos escape from the mosquito through the proboscis and enter man during the act of biting.

Reprinted from The Indian Physician Vol II No. 20 August 1943 page 271

THE PHYSICIAN IN THE MOURYAN EMPIRE

4TH CENTURY B. C.

By

D. V. S. REDDY

Andhra Medical College

VIZAG

THE MEDICAL PROFESSION

The presiding deity of the Medical Art and Science :—One additional proof that the Dhanvantari cult is a later development of the Puranic Age is evident from the Arthasāstra. Describing the location of the apartments for the worship of Gods in the very centre of the city, the book mentions that among others Siva and Aswins (the Celestial Physicians) had shrines. (Bk. I ch. 4.). Dhavantari is not even referred to, anywhere in the treatise. One may argue that Dhanvantari may not be the deity popular and famous in the Mouryan Empire at the time of the composition of the work. The cult may have come into vogue in other centres of Hindu Culture, particularly Kashi (Benares), associated with the name of Dhanvantari and his school.

Physicians and their wages :—In the section dealing with rules regarding slaves and labourers, the question of the remuneration to the physicians is considered. And the clubbing together of " artisans, musicians, physicians, buffoons, cooks and other workmen " serving of their own accord, indicates that the medical men were treated as workers. They were to get wages and the scale and the penalty for non-payment are stated in the following words :—" As much wages as similar persons employed elsewhere usually get or as much as experts shall fix " ; " Failure to pay wages shall be punished with a fine of 10 times the wages or 6 panams " (Bk. III ch. 13).

The state or the King, endowed lands to Physicians. "Superintendents, Accountants, Gopas, Sthanikas, Veterinary surgeons, Physicians, horsetrainers, and messengers shall also be endowed with lands which they shall have no right to alienate by sale or mortgage" (Bk. II ch. 1). In this context, the reference may be to the Royal Physicians, State Physicians, etc.

There was a separate category—"the physicians of the army." They were paid 2,000 panams per annum. It is interesting to compare the scales of pay and allowances of different state officials.

Minister: commander of the army	48,000	panams	per annum
Collectorgeneral: Chamberlain: Chief Constable: Superintendent for Harem	24,000	,,	,,
Chief of military corporations; of elephants; of infantry	8,000	,,	,,
Superintendent of infantry; of cavalry	4,000	,,	,,
Chariot driver; trainer of horses; physicians of the army	2,000	,,	,,
Soldiers, accountants, writers	500	,,	,,

Duties, responsibilities and privileges:—The Royal physicians had very heavy burdens and rare privileges. Before the king came to the Court, soon after getting up and receiving benedictions from priests and teachers, he had to see his physicians in his private rooms. Even in the court, or having seated himself in the room where sacred fire has been kept, the king "shall attend to the business of physicians and ascetics practising austerities and of those who are experts in witchcraft and yoga" (Bk. I ch. 19). After narrating how kings were poisoned by their kith and kin and describing in detail how to detect poisons in food and poisoners, Kautilya cautions as follows, "Hence, Physicians and experts capable of detecting poisons shall ever attend upon the King." Even with regard to the taking of medicines, the following rule had to be observed, "Having taken out from the store-room of medicines that medicine, the purity of which has been proved by experiment and having himself together with the decoctioner and purveyor tasted it, the physician shall hand over the medicine to the king." The same wholesome rule applied to liquor and other beverages given to the king (Bk. II ch. 21). The ordinary physicians, too, had their professional responsibilities. It would surprise the modern reader to note that a form of compulsory notification (as under the latest Public Health Code) was insisted even in that age. "Any physician who undertakes to treat in secret a patient suffering from ulcer or excessive unwholesome food or drink,

as well as the master of the house (wherein such treatment is attempted) shall be innocent only when they (the physician and the master of the house) make a report of the same to either Gopa or Sthanika; otherwise both of them shall be equally guilty with the sufferer" (Bk. II ch. 36).

Another equally modern conception relating to the professional liability for damages is reflected in the section on "Medical Practice." Students of medical history may see its resemblance to the code of Hummurabi of the ancient Babylonians. "Physicians undertaking medical treatment without intimating to the Government the dangerous nature of the disease, shall, if the patient dies, be punished with the first amercement. If the death of the patient under treatment is due to carelessness in the treatment, the physician shall be punished with the middlemost amercement. Growth of disease, due to negligence or indifference of a physician, shall be regarded as assault or violence" (Bk. IV ch. 1).

Those who go out at night in order to attend to the work of midwifery or medical treatment, were allowed to go about their work whereas others without special type of urgent work or passes, were not permitted to move about in the middle of the night and were liable to be arrested. The medical profession was a privileged class. In the section on the preparation for the battle, the work of the army doctors is outlined. "Physicians with surgical instruments, machines, remedial potions and beverages should stand behind uttering encouraging words to fighting men" (Bk. X ch. 3).

Guise of a Physician seems to have been very frequently employed, and permitted for certain methods of statecraft. This is another indication that the physician was respected, believed and was eagerly welcomed as a benefactor. "A spy under the guise of a physician may make a seditious minister believe that he is suffering from a fatal or incurable disease and continue to poison him while prescribing medicines and diet to him!" (Bk. V ch. 1).

"A spy under the garb of a physician may declare a healthy person of seditious character to be unhealthy and administer poison (Bk. V ch. 2). The Prince, hiding from his father or driven out by his father, may present himself when opportunity occurs, disguised as a physician or a courtbard and appeal to him (Bk. I ch. 18). Spies under the disguise of physicians acted

as agents for the envoy in foreign kingdoms to ascertain the nature of intrigue prevalent among the parties and the loyalty or disloyalty of the people in the kingdom in which he was staying" (Bk. I ch. 16).

Privileges of the sick and afflicted :—The king was personally "to attend to the business of gods, of brahmans learned in the veda, of the young, the aged and the afflicted and helpless" (Bk. 1 ch. 19). Law judges dealing with criminal offences should not inflict fines and punishments of the same kind or degree on all people alike ; among the people who should be shown mercy were included not only pilgrims and ascetics but also persons suffering from hunger, thirst and fatigue and diseased persons. Similarly, though there may be no actual complaints from the victims, the judges themselves had to settle transactions which pertain to gods, brahmans, minors, aged persons and diseased persons" (Bk. III ch. 20). Labourers suffering from disease were also to be shown concession or allowed to have the work done by a substitute (Bk. III ch. 14). The afflicted, the children and aged were provided with free passes to cross rivers. "On the days to which birth star of the king was assigned, etc., such prisoners as are young, old or diseased, helpless, shall be let out from jail" (Bk. II ch. 36). Though torture to elicit confession was officially approved, a sensible restriction was added, "The aged, the afflicted, persons under intoxication, lunatics, persons suffering from hunger, thirst or fatigue, persons who have taken more than enough meal, or persons who were very weak—none of these shall be subjected to torture" (Bk. IV ch. 8).

Witchcraft :—Steps were taken against persons engaged in such witchcraft as is hurtful to others. These wicked men living by foul means were treated as criminals. The belief in witchcraft was very common till recently even in Europe. It dominated the thought and actions of the nations and societies to varying extent. "Whatever a man attempts to do to others by witchcraft shall be practically applied to the doer himself." Witchcraft to arouse love in an indifferent wife or in a maiden was not considered an offence but when it is injurious to others, the doer was punished; for example, a man performing witchcraft to win the sister of his own father or mother or the wife of a preceptor or his own daughter-in-law, then his limb was to be cut off and he was to be put to death (Bk. IV ch. 13). "Whoever is believed to secure for others the love of women

by means of magical charms, drugs, ceremonials, performed on cremation grounds, may be approached by a spy with a request that the wife or daughter of someone whom the spy pretends to love may be made to return the love. If he consents to it, he shall be proclaimed as one, engaged in witchcraft and banished" (Bk. IV ch. 4).

Hospitals and their location :—Another interesting record preserved in this book is the allusion to the Hospitals in India in the 4th century B.C. Primers on the history of India never tire of telling that it was Asoka, the Great, that first provided facilities for the treatment of men and cattle. Kautilya's statement should be sufficient to prove the existence of hospitals in India before the time of Asoka. Hospitals must have been more than curiosities or novel innovations, if a book on Arthasāstra mentions the usual allocation of site in the Fort for the building of a hospital. "To the northwest, shops and hospitals". It would be interesting if one could conjecture the reason for this special site. But, one cannot help admiring the town planning experts, who went into such details, when even the 20th century cities have no such clearcut plans.

MATERIA MEDICA AND PHARMACY

Herbariums :—It was a common practice to encourage the cultivation and storage of plants of medicinal value." Such medicinal herbs as grow in marshy grounds are to be grown not only in grounds suitable for them but also in pots ; marginal furrows between any two rows of crops were utilised for planting medicinal herbs. Vegetables and roots were grown in the vicinity of wells. In the discussion on the two watery tracts, one of limited area suitable for grains and another of vast area but productive of crops other than grains, the author adds that the latter of the two is better, "inasmuch as it affords vast area to grow not only the spices and other medicinal crops but also to construct forts" (Bk. VII ch. 11).

Customs duty or toll on medicinal articles :–

Roots and bulbs (generally useful as medicines) ...	1/6 part
Articles like Arsenic sulphide (Heritala) ...	1/10
Red Arsenic (Mansila) Vermillion (Hingula) and Metals (loha) Pungents (Katuka)	1/15
Scents, Medicines, Oils, Sugar, Liquor ...	1/20 to 1/25 part (Bk. II ch. 22)

Commodities intended for confinement of women were let off free of toll (Bk. II ch. 21)

Adulteration punished :—Adulteration of scents and medicinal articles with similar articles of no quality shall be punished with a fine of 12 panams (Bk. IV ch. 2).

Variety of drugs :—Since the book is not a treatise on Medicine, no direct references occur to the actual preparation of medicines from the various ingredients. But indirect evidence is abundant to suggest that the people had a large variety of drugs and also had knowledge of many interesting pharmaceutical processes and procedures. The section on mining operations and manufactures indicates the state of knowledge not only in mining, identifying ores, refining metals but also in softening metals, distillation, and condensation of mercury, formation of various types of alloys and many other metallurgical processes, that would surprise the reader. All this work was under the direction of a superintendent of mines. In addition, there was a superintendent of Goldsmiths to test the purity of the metals (Bk. II ch. 12, 13, 14). The superintendent of forest produce collected not only timber but also many useful articles especially medicines and poisons. "Bulbous roots and fruits are in the group of medicines." The following vegetable poisons were collected : "Kalakuta, vatsanabha, halahala, meshasring, musta, kustha, mahavisha, vellitaka, guarardra, balaka, markata haimavata, kalingaka, daradaka, kolasaraka, ustraka, etc., Likewise, snakes and worms kept in pots formed another group of poisons." The forest produce included metals, like iron, copper, lead, tin. etc., and animal substances like bones, bile, teeth, horns, hoofs of various animals, beasts, birds and reptiles (Bk. II ch. 17). Among the articles to be stored in the fort in such quantities as can be enjoyed for years together without feeling any want are mentioned "Medicinal articles and poisons." Of such collections, old things shall be replaced by new ones when received (Bk. II ch. 4).

There was a superintendent of storehouse to store articles brought in by other departments such as the agricultural department. "Of the store thus collected half shall be kept in reserve toward off calamities of people and only the other half used. Old collections shall be replaced by new supplies. An idea of the type of articles stored is given by the long lists. The phraseology *classification of the articles* is reminiscent of the Ayurvedic.

(1) Oils (Sneha)—including serum of flesh, pith of plants, etc.

(2) Sugar (Kshra)—including sugarcandy, jaggery and decoction of sugar.

(3) Salt (Lavana) { Saindhava (rock salt), Yavakshara (nitre), Saurachal, Udhedaja, samudra, etc.

(4) Madhu (Honey)—grape juice.

(5) Acid fruits—Myrobalam, etc.

(6) Pungent substances (Tikkavarga) long pepper, black pepper, ginger, kiratatikta, damanaka, maruvaka, sigru, etc., with their roots.

(7) Edibles (Sakavarga)—Dried fish, bulbous roots, fruits, vegetables.

(8) Astringents (Suktavarga)—Mixtures of juice of sugarcane, honey, etc., and of essences of fruits, jambu, myrobalam, etc.,

(Bk. II ch. 15).

Preparation of spiritous medicines :—Families were allowed to manufacture "Arista" for use in diseases and the superintendent of liquor collected licence fees from these people. The preparation of various kinds of "Aristas" for various diseases had to be learned from physicians. It is stated that one hundred palas of kapitha, 500 palas of phanita and one prastha of honey form "Asava." Many interesting instructions are given to prepare a variety of medicinal drinks as well as intoxicating drinks (Bk. II ch. 25).

References to certain diseases and medicines :—Apart from the scattered references in the book to medicines and diseases, a whole chapter (Bk. XIV ch. 6) is devoted to "remedies against the injuries of one's own army." Herein, Kautilya deals with various preparations (with their ingredients) used as remedies against poisons and poisonous compounds, applied by an enemy against one's army and people. The following are mentioned :

(1) Decoctions which are applied for washing off bad effects of poisons.

(2) Mixtures for removing the bad effects of poisoning by the madana plant.

(3) Mixtures to remove madness.

(4) Mixtures applied through the nose as "nosedrops" to remove leprosy.

(5) Mixtures to remove consumption.

(6) Nosedrops to remove headache and other diseases of the head.

(7) Mixtures (with doses) to resuscitate persons who fall down senseless, when beaten or by drowning or poisoning.

(8) Strange and miraculous medicines are also mentioned such as a powder for enabling one to see clearly in darkness and a powder enabling persons to fast for a month.

In addition to drugs, mantras and other magical procedures were frequently used for protecting oneself and for hurting the enemy.