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LEPROSY IN ANCIENT INDIA.

BY

PANDIT N. BASHYA CHARYA.



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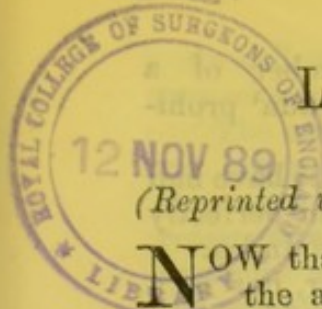
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LEPROSY IN ANCIENT INDIA.

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NOW that a great desire is felt by the Indians to know what the ancient Indian doctors wrote about leprosy thousands of years ago, and especially after the death from leprosy of that heroic philanthropist—Father Damien—whose self-sacrifice has produced universal admiration for him, we take this opportunity of contributing our mite to the progress of the knowledge of that disease. A great deal more from the ancient writings could be given, were it not for the fact that the technical terms in ancient Indian Medical works, can only be really understood by one who is initiated into that science by a proper guru. Ancient commentaries on these works are not easily procurable. Doubtless, some of them have been printed, but these are at present beyond our reach. These difficulties are greatly enhanced by the want of a Botanical Dictionary containing exact equivalents, in English, or in the language of European botanists, for Sanskrit botanical terms. Even while equivalents are given in some English works, they cannot be taken as authoritative, for no two English botanists are agreed as to the proper and exact equivalents for Sanskrit botanical terms. Under these circumstances our contribution must necessarily remain imperfect.

The first question to be considered—what eminent medical men are thinking about—is, 'Can leprosy be communicated from one person to another?' In other words 'Is leprosy a contagious disease?' The ancient law-givers and physicians of India had long ago arrived at a definite conclusion, viz., *that it can be communicated.*

Manu says, 'Let one avoid (for marriage ties) any family by which rites are neglected, which has no males, which possesses not the Vedas, (the members of which) are hairy or have piles; also families afflicted with consumption, dyspepsia, epilepsy, albinism, and leprosy.'

Again, 'One distraught, one who has scrofula also; so also a white leper, &c. &c., (should be avoided.)'²

Also:—'But if she transgresses because she hates (a husband when he is) crazy, degraded, castrated, impotent or afflicted with an *evil disease*, (that husband) has no right to set her aside or take away the gifts (he has given her.)'³ Here Kullúka and other commentators observe that 'evil disease' includes leprosy.

Yágnavalkya⁴ tells us that 'marriage should not be contracted with members of families in which there are contagious diseases, such as leprosy, epilepsy, &c.'

Further on⁵ he says that 'impotent people, and sufferers from incurable diseases, viz., consumption and leprosy, have no inheritance.'

1. Manu, chap. III, verse 7 (translated by Burnell and Hopkins).

2. Ibid, chap. III, v. 161.

3. Ibid, chap. IX, v. 79.

4. Mitákshara, chap. I, page 7 of Madras Edition.

5. Ibid, chap. II, v. 137 (page 147, Madras Edition).

So also, Yama¹ prohibits marriage with any member of a family in which there is leprosy, or white leprosy. Nārada² prohibits the marriage of a leper woman.

Apāla, an ancient Aryan lady, is said in the Rigveda, to have had an attack of leprosy, and to have been cured, and became perfectly healthy, by eating the Sōma plant, with the blessings of Indra.

Most of the Smrithies prohibit dining with a leper, nor is a leper fit to receive a gift or to officiate as a priest in sacrifices and ceremonies.

The Tantras, such as the Pāncharātra Āgamās, forbid a leper's approaching the shrine of an idol; and also the worship in the temples, by an Archaka (one who perform the worship of idols in temples) who is leprous. The ancient Indian medical authorities laid down that the following should be avoided in connection with one affected with leprosy, fever, sore-eye, etc:—

Catching the breath (of a leper, &c.), touching the body, conversation, eating (with a leper, &c.), taking a seat along with a leper, &c., lying on one and the same bed or seat, sleeping together, wearing flowers, clothes, &c., once worn by such people, rubbing sandal (over their body)³.

What are the ancient Indian medical works?

Nine treatises by eleven different authors are mentioned, viz., Athri, and Charaka Samhitas, Bhilatantra, Jātukarna Tantra, Parāsara, Bharadwāja, Hārīta, and Karpara Samhitas, and Sushruta, composed respectively by Athri, Charaka and Agnivēsa, Bhila, Jātukarna, Parāsara, Bharadwāja, Hārīta, Karpara, Dhanwantari and Sushruta. Of these six can be found at present, namely, Hārīta Samhita, Charaka, Sushruta, Bharadwāja, and Atri Samhitas; and the remaining three are supposed to be irrecoverable. Several commentaries are extant on the existing Samhitas, each of which has two or three commentaries⁴. Besides these ancient works, there are many modern treatises on medicine that can be found in India, as the Ashtāngahridaya Samhita of Vāgbhata, Sārṅgadhara Samhita, and various others. At any rate medicine in India is of a very great antiquity⁵.

1. Parāsara Mādhaviya, p. 111 (Madras Edition).

2. Varnāśramāchāra Kānda of Vaidyanātha, p. 94 (Madras Edition).

3. Charaka, Sūthrasthāna, chap. V; Chikitsāsthāna, chap. VII; Sushruta, Sūthrasthāna, chap. V; and Chikitsāsthāna, chap. IX; Hārīta Samhita, chap. XL; Vāgbhata's Ashtāngahridaya, Nidānasthāna, chap. XIV, and Chikitsāsthāna, chap. XXI; Bhāvaprakāśa, Part IV. These works and Dr. Wise's 'A Commentary on Hindu System of Medicine' have been mainly consulted in writing this paper; and even Dr. Wise's equivalents generally adopted in the course of this paper.

4. Sushruta has two, and Charaka has three, commentaries.

5. Without entering at present into any discussion as to dates, we may say that the Samhitas of Sushruta and Charaka, were translated into Arabic at the Court of Caliph Harun al-Raschid at the end of the eighth century. That this science was greatly cultivated will be apparent from the fact that Panini mentions several diseases in his Ashtādhyāyī (III. 3, 108, V. (C) 2, 129, &c.), and a tradition handed down from many centuries make Patanjali author of a work on Medicine. Going further on into the 'Vedic Period,' strictly so-called, we find that the votaries of this science must have been so great, and their operations, &c., so disgusting, that the Yajur Veda prohibits physicians from serving the purposes of a priest in a sacrifice. In the Tāndya Mahābrāhmaṇa of Sāmaveda, there are many mantras addressed to the various diseases. Again, in the Samhita of Atharvan, a number of songs are addressed to illnesses and healing herbs. Animal anatomy was evidently thoroughly understood, as each separate part had its own distinctive name. Taking the calculations of the Western Orientalists for the Vedic Period, we may say that medical science reached a high state towards perfection not less than 3,000 years ago.

In order to understand their ideas and theories, a few prefatory remarks may not be out of place here:

'The entire system is supported by three humours,' (or *dóshás*), viz., *váyu* (air), *pitta* (bile), and *sléshma* (phlegm). If deranged they are the cause of disease and death; and with the blood they retain and eventually destroy the body. Without these three humours and the blood the individual could not exist. With the essential parts of the body and the appendages, and impurities, they form the fabric of the body.'—(*Wise's Commentary on Hindu System of Medicine*, p. 43).

These three humours bear the same relation to the body as the pillars do to a house. They are called *Tristhúnas* (three pillars) on this account. Hence also *Tristhúna* came to mean the body. They are also called *Dhátus*, for by their good condition, the whole body is borne up as it were. They are called *Dóshas*, because if they are deranged they ruin the seven essential parts or *Dhatus* of the body, viz., *Twak* (skin), *Asrik* (blood), *Mámsa* (flesh), *Méda* (fat), *Asthi* (bone), *Majja* (marrow), and *Sukla* (semen).

1. (I) *Váyu* (spirit or air) is invisible, extremely light, of a cooling nature and of *Rajóguna* (active quality): flows more or less quickly through all the parts of the body; performs respiration, circulation of the fluids, all the action at the various outlets of the body, the activity of the senses of the understanding or intellect; the temperature of the body depends on its temperature, for it is liable to be affected by heat and cold; it prepares and separates the fluids. It is found in the small intestines (*pakvāsaya*), thighs, ears, eyes, senses, all the canals, testicles, and the anus. It is, as it were, the guide of the functions of the body and its organs, and the expression 'vital force' may be its nearest equivalent. It is of five kinds or manifestations.

a. *Prānaváyu* passes through the mouth and nose, and is situated in the chest: performs deglutition, gives movement to the blood, conveys food and drink to the stomach, and is the supporter of life (*Prāna*) and on its healthy condition depends the health of the individual also; when diseased it produces hiccough, diseases of the lungs, &c.

b. *Apānaváyu* is contained in rectum, buttocks, urethra, &c., and is situated under the small intestines (*pakvāsaya*) and separates urine, fæces, semen, menses, and expels the fœtus. If it is deranged the parts (of the body) in which it is contained become also diseased.

c. *Samānaváyu* is situated in the stomach and large intestines (*A'māsaya*); it digests the food, produces, by separating the impurities, blood, fat; separates urine, &c., if it is diseased, dyspepsia, diarrhœa, &c., are the result.

d. *Vyānaváyu* conveys fluids over the body, performs walking, jumping, opening of the eyes, raising or depressing things, and produces the flow of the blood. If diseased all the body becomes affected.

e. *Udānaváyu* is situated in the hollow of the neck above the sternum, produces speech and musical sounds and other functions of the voice. If diseased, it produces the diseases of the upper part of the neck.

Váyu may be deranged owing to too much exertion of body, or any part of it, or of mind, by the quality and quantity of the food, &c.

II. *Pitta* (bile) is a hot, bitter, oily fluid having a peculiar smell like that of raw flesh: is situated principally in *A'māsaya* (stomach), *Pakvāsaya* (small intestines); but also found in liver, spleen, heart, eye and skin, where it is mixed with blood and other fluids. It is of *Satwaguna*, and is of five kinds:—

(a). *Pāchaka* assists digestion, and is situated between the stomach and the small intestines. It digests the food, separates chyle, urine, and fæces: imparts its properties to the *Sléshma* (phlegm). The stomach is like a cooking pot containing water and food which is boiled by the heat of the bile underneath it. In this way is digestion performed, and while it is so performed, it (bile) dries up the thin part of the fluid, and is hence called fire. The bile also conveys its properties all over the body.

(b). *Ranjaka* is situated in the liver and spleen, and gives a red colour to the chyle.

(c). *Sádaka* is situated in the heart, and produces sense, memory and pride.

(d). *A'lóchaka* is in the eyes and produces sight (probably the humours of the eye.)

The generality of diseases are supposed to be the result of certain morbid changes in the humours, such as increase or decrease in quantity. The object of treatment is to promote the just balance of the humours and elements by a judicious choice of aliment, and such means as assist the Prána (vital principle) in the completion of the assimilation. The diet is the great means of accomplishing this end, and is hence regulated in point of quantity, quality, mode and time of its administration, by the nature and severity of the disease.

The general principles of pathology were based on alteration of the fluids, which only were considered active, while the solids of the body were considered passive with no indication of change beyond what the fluids seemed to produce upon them. The diseases of 'air', 'bile', and 'phlegm' may proceed from the semen of the father, from the menstrual blood (Sónita) of the mother, from the state of the mother's body during utero-gestation, from certain kinds of food acting in the same way, from the habits of exercise, &c., &c. These causes derange the humours, produce the individual's habit of body and the kind of disease to which he is subject. The derangement of these humours is the root of all the diseases and requires to be carefully examined by the physician. All maladies are considered to be produced (1) by the derangements of the humours of the part, and (2) by the peculiar diseases of that part. All diseases are divided into 11 classes, besides the diseases of women and children, which are described separately in midwifery. These different classes are:—I. Diseases of humours, II. General diseases or diseases affecting the general system, III. Diseases affecting the mind, IV. Diseases of the head and neck, which include those of mouth, ear, eye, &c., V. Diseases of chest, VI. Diseases of the abdomen, VII. Diseases of the urinary and generative organs, VIII. Diseases of the rectum and anus, IX. Diseases of the extremities, X. Diseases produced by poisons, as vegetable, mineral,

(e). Brájaka is in the skin; it absorbs the application to the skin, and gives the skin its shining, clear, and healthy colour.

When bile is deranged the internal fire or the heat of the body is diminished, as also its colour, and digestion; if any of these five kinds of bile are deranged, those parts of the body they are situated in become affected.

III. Sléshma (phlegm) is the impurity of the chyle, and is conveyed by the Prána-váyu along the domonic vessels and mixes with the rest of the phlegm in the body. It is cooling, moist and sweet, and when imperfectly prepared it is salt. It is white, heavy, oleaginous, and possesses Tamóguna. It is chiefly found in the stomach, breast, heart, root of the neck, head, eyes, throat, and tongue; also in joints, vessels, and moist parts. It is of five kinds.

(a). Klédaka is in the stomach, and softens the food and lubricates them together.

(b). Avalambana is in shoulder joints and neck: it strengthens these parts and the breast.

(c). Rasana is in the tongue and throat, and produces the various tastes.

(d). Sthréhana is in the head, and keeps the brain, the eyes, and other senses moist. It also retains their respective qualities.

(e). Sléshma is in the joints, and keeps them moist and ready to perform their actions. If Sléshma is deranged or diminished, the body dries, the joints move with difficulty, and there is too much of thirst, weakness, &c.

These humours belong quite exclusively to the Eastern medical systems, and the Western mind cannot grasp the Eastern ideas about them. For this purpose, and for a correct understanding of the morbid anatomy and pathology of any disease, they are described here. If these three humours are correctly identified and understood, the Indian system of medicine will be really appreciated. The terms air, bile and phlegm are no real English equivalents, but only tentatively adopted.

and animal poisons, including hydrophobia, and XI. Trivial diseases, as baldness, warts, &c.

Leprosy stands as the 10th of the 15 orders of diseases under class II.

Causes.—There are two kinds of causes, viz., moral and material. We shall now deal with them separately :—

(a.) *Moral.*—If one steals¹ he will get white leprosy. He who commits Athipáthaka,² infidelity,³ namely, disbelief in the existence of God, or steals God's property,⁴ (i. e., belonging to a temple) or kills a Brahmin,⁵ becomes a leper; also one who abuses great men, or kills women.⁶

(b.) *Material.*—Owing to several defects (dóshás) in the functions of the body, váyu (air), pitta (bile) and sléshma (phlegm) become deranged or lose their equilibrium, and the dhátus (or essential parts), namely, skin, flesh, blood, semen, and lasika (fat?) become deranged in their turn. Leprosy is the result of the combined action of all the defects (dóshás) and never of any one of them. The different kinds of leprosy are the result of the different manifestations of these defects. The causes of leprosy are alternate exposures to extreme heat and extreme cold; too much drinking of spirituous liquors; too much eating either of fish, or of certain roots as Mullangi (*Raphanus sativus*), too much use of fresh rice, rági, chólum, milk, curds, buttermilk, (when taken with foods, etc., which have antagonistic properties); sweetmeats, &c., boiled in mustard oil; too much of exercise, or of sexual intercourse, or of exposure to heat and sun: too much fear; eating certain kinds of food which increase the temperature of the body to a great extent: restraining vomiting and other excretions of the body, whether natural or induced; using too much oil or oleaginous food.

These causes derange the three humours 'air,' 'bile,' and 'phlegm.' Thereupon the skin, flesh, and fat (lasika) become diseased and worn (sithila). This result is called Kushta or leprosy. Among other causes of leprosy we may mention too much fasting, too much use of sesamum, and jaggery.

Varieties.—Leprosy is variously subdivided in 7 and 18 kinds. Of the latter, 7 are called 'greater varieties' (Mahákushta) and the rest, 'minor varieties' (Kshudrakushta). The 'greater varieties' are so called because they produce very serious effects, and extend their action to all the dhátus, and are very difficult to cure. The seven-fold classification is the one more generally adopted, for all the various varieties cannot easily be ascertained.

1. Yágnavalkya Smṛiti, chap. III, v. 214.

2. Vishnu Smṛiti, chap. XLV. Athipáthaka is a class of grave sins, such as carnal intercourse with one's own mother, sister, daughter, daughter-in-law, &c.

3. Garudapurána quoted in Parásaramádhaviya, p. 363, Madras Edition.

4. Sivadharmóttara (quoted in the above).

5. Yama Smṛiti (quoted in the above, p. 365, Madras Edition). Yama is upheld by Háríta.

6. Charaka, Sushruta, &c.

All the different kinds of leprosy are characterized by the presence of worms in the sores. The 'greater varieties' are given below :

| Sushruta. | | Charaka. | |
|------------------------------------|------------------------------|--------------------------------|------------------------------|
| Varieties. | Caused by the derangement of | Varieties. | Caused by the derangement of |
| 1. Kapálakushta ... | Bile. | 1. Kapálakushta ... | Air. |
| 2. Udumbarakushta ... | " | 2. Udumbarakushta ... | Bile. |
| 3. Mandalakushta (Rishyajihva) ... | " | 3. Parimandala-kushta ... | Phlegm. |
| 4. Árunakushta ... | Air. | 4. Rishyajiva (Rikshajiva) ... | Air and bile. |
| 5. Pundarika ... | Phlegm. | 5. Pundarika ... | Bile and phlegm. |
| 6. Dadrukushta ... | " | 6. Sidhma ... | Air and phlegm. |
| 7. Kákanaka (Kákana) .. | Bile. | 7. Kákavarna ... | Air, phlegm and bile. |

The 'minor varieties' are :

Charaka's classification.—Yékakushta, Charmakiti, Samvipádika Alasaka, Dadruma, Charmadala, Páma, Vispótaka, Satáru, and Vicharchika.

Sushruta's classification.—Yékakushta, Mahákushta, Sthúlá-rushka, Charmadala, Visarpa (Vispótaka), Parisarpa, Sidhma, Vicharchika, Kitima, Páma, Rakasa, (also Rasaka or Lasaka). Owing to change of symptoms, the varieties are also considered innumerable.

Sidhma is classed by Charaka among 'the greater varieties' for although it is strictly a 'minor variety' according to Sushruta, it spreads very quickly to several dhátus, and requires a more prolonged treatment. Dadru is also considered by Sushruta one of the 'greater varieties,' for it very soon develops itself over the body and gets deeper and deeper into the skin.

'White leprosy' is also considered a variety of leprosy: for it is also a skin disease, and is connected with leprosy (Vágbhata). It is either white or red in colour. It may be caused by functional derangements (dòsha) or it may be the result of sores, wounds, or fire or of marks left by these. It is distinguished from leprosy by not being accompanied by any discharge.

Symptoms.—General. No perspiration whatever, or too much perspiration; skin very hard to the touch, or too smooth, soft, tender, and discolored, accompanied by itchiness and pain; too much sleep; burning sensation in the bones, &c., horripillation; intolerable pain after a fall, or after coming in contact with hot things, or when any part of the body is burnt, or no sensation whatever; any small sore on the body will produce great pain, and such sores never become enlarged.

Kapálakushta (*Symptoms of*).—The skin is rough, hard, ruddy, uneven, and very hot; also a little raised and benumbed; sometimes itchiness and burning sensation; hair erect, the sores become inflamed, and at last burst out, and contain worms; colour of the sores black-red, and resembling an earthen vessel—hence called *Kapálakushta*.

Udumbarakushta, so-called from its colour resembling that of an Indian apple; it is red with whitish patches; the pus at one time watery and at other times thick; burning sensation; phlegm, blood, and fat (? *lasika*) discharged from the sores; itchiness; viscosity; sometimes a gangrene or an inflammation; at other times it will remain in its usual condition. The sores become gradually enlarged, and then burst out, presenting worms therein; and while bursting a very great burning sensation is experienced.

Parimandalakushta.—Sores, smooth, large, and elevated: sides of the sores, thick with pus and flowing impure blood: with great itchiness caused by the presence of the worms: sores small, and numerous.

Rishyajihva—Skin hard, reddish, inflamed inside and outside; and of either blue, yellow, or red colour; sores soon spinging up with very little itchiness and viscosity of the fluid; worms very small; burning or prickling sensation, and sometimes no sensation whatever; pain similar to that arising from the bite of an insect; central portion of the sore hollow, with small sores all round the edge of it; form of the sores oval; this variety of leprosy is called *Rishyajihva*, from the sores resembling the tongue of a species of deer,—or *Rikshajihva*, *i. e.*, resembling the tongue of bear.

Pundarika.—Sores white and reddish; the edges of sores shining and ruddy, and elevated; discharge of too much of blood, pus and fat (? *lasika*), from the sores with itchiness, and worms; sores enlarge and soon burst out; burning sensation; sores resembling a lotus flower (*pundarika*), and hence called by that name.

Sidhmakushta.—So called from the resemblance of the sores to the flower of long gourd (*Sorakkai* in Tamil or *Alábupushpa* in Sanskrit). Sores reddish, presenting a reddish appearance all round the centre of the sore, very soft with too much or too little pain; little itchiness, little burning sensation; pus and fat (? *lasika*) flowing down the sores; very few worms are found on the bursting of the sores.

Kákavarna.—So called from its color being like that of a crow; and in this *vāyu*, *pitta* and *sléshma* are deranged. The colour of the sores is at first that of a fruit of *Kákananthi* (*Abrus pericatorius*). It also contains the symptoms of all the other kinds of leprosy. Only very sinful people will have it.

To turn to the 11 minor varieties:—

(*Súshruta's classification.*)

Sthúlarushka.—Joints thick, very hot and hard, and sores painful.

Mahákushta.—Skin thick, hot and hard, limbs gradually fall off.

Yékakushta.—The whole body is more black than red. This is incurable.

Charmadala or *Gajacharma*. Itchiness, pain, fainting (? *Gosha*).

Visarpa.—Fainting and skin hot, blood, pus, and fat (? *lasika*) flowing down from the sores. The appearance of the sores is like that of a fish-scale.

Sidhma.—Sores white and itchy.

Vicharchika.—Sores white, long ; and blood, pus and fat (? *lasika*) flowing down.

Kitima.—Sores round and black, very itchy, and blood, pus and fat (?) flowing down.

Pāma.—Small sores (like itch) spreading all over the body ; very itchy, and with burning sensation.

Rakasa (or *Spoka*).—Small sores spreading over the external genital organs.

Dadru.—A cutaneous eruption, presenting the appearance of ringworm.

Prognosis.—Of these seven kinds, *Pundarika* and *Kákana* are incurable, some else are curable, while others are curable only in the beginning. With the exception of *Kákana*, all the others can be cured only if immediately treated, or if their severity increases they are incurable. If once they are neglected, the seven humours become diseased, and the skin inflamed, and the number of worms become greater and greater : they first eat the sore, and then the *vāyu* (air), *pitta* (bile), *sléshma* (phlegm) become diseased.

If *vāyu* (air) is deranged, the skin is swollen, harsh and with a darting pain ; also shivering and horripillation. If *pitta* (bile) is deranged, there is a burning sensation, copious perspiration, itchiness, and inflammation of the skin with pus flowing down the ulcer.

If *sléshma* (phlegm) is deranged, the lips will be of a white colour, too much cold in the body, itchiness, hardness, feeling of weight in the body, swelling and feeling of oiliness in the body, gradually the worms begin to eat away skin, blood, flesh, fat (? *lasika*), blood vessels, and tendons or muscles, and bone. In this case the pain is very great and the parts fall off. The symptoms are thirst, fever, diarrhoea, weakness, and want of taste. This is incurable. If leprosy is confined to the skin, it is discolored and hard. If it extends to the blood there is horripillation, perspiration, itchiness and want of pus : if to the flesh, the face becomes pale, and full of ulcers, attended by a darting pain. If to the fat, there is a bad smell, pus, worms, bursting of sores. If the bones and marrow become leprous, then the nose goes away, and the eyes become ruddy and there is loss of voice. If to the semen, inability to walk : and the disease can be propagated from father to son. If it extends to skin, flesh and blood, the disease is curable. If it extends to marrow, it can be cured only in its earlier stages.

Treatment and diet.—The disease should be cured in its earlier stages, or otherwise the chances of cure become less and less, for worms will increase, and gradually destroy every part of the body. These worms are subdivided into two kinds according to some, and 4, 7 and 20 kinds according to others. They are to be found in the blood, bowels, stomach, skin, and produce itchiness, emaciation of the body, cough, ozæma, &c. Hence, there should be good food,

good acts, and good treatment by good drugs; bad actions, sleep during the day, exercise, exposure to too much light or to sun, sexual intercourse, jaggery, curd, milk, arrack, flesh, fish, másha (a kind of grain), sugar-cane, oil seeds, tamarind, those vegetables that produce constipation or boils and those that increase the temperature of the body should be avoided.

As regards the administration of medicines, care should be taken to find out which of the humours is greatly disturbed. If váyu (air) is deranged, the symptoms of those kinds of leprosy which are produced by such a derangement, are hardness, roughness, unevenness of the skin, accompanied by weakness, horripilation, occasional contraction of the skin and the limbs, pain, poking sensations, discolorment of the teeth, &c. If pitta (bile) is deranged, there is burning sensations, redness of the skin, discharge of pus, accompanied by bad smell, and falling off of the extremities and limbs. If sléshma (phlegm) is deranged, the skin is itchy, thick, elevated, hard, cool, and the sores white, and eaten away by worms. If all the three humours are found deranged in a patient, he should not undergo any treatment, as his case is hopeless.

If váyu (air) is deranged, ghee should be taken internally, and oleaginous medicines should be taken in, and externally applied to the skin; if sléshma (phlegm) is deranged, emetics should be first taken. If pitta is deranged, then the physician should have recourse to blood letting, by the application of leeches and venesection, all of which vary according to the nature of the disease and are described fully by the Indian medical writers. But before commencing treatment, evacuants and emetics should be cautiously administered in the manner prescribed in Medical works.

If the disease belongs to the minor varieties of leprosy, the parts affected by the disease may be amputated, but this depends on the situation of the limb affected. If the disease belongs to the greater varieties, then an instrument called 'Sira' should be used and the sores punctured. If the upper parts of the body are affected by leprosy, emetics should be administered in the manner prescribed. For example, a decoction of

Kutajaphala, (fruit of *Wrightia antidysenterica*.)

Madana, (fruit of *Randia dumetorum*.)

Madhuka, (fruit of *Bassia latifolia*.)

Patola, (fruit of *Lagenaria vulgaris*.)

Nimbarasa, (juice of the leaves of *Melia azadirachta*.)

Triphala, (three fruits, viz., 1 *Terminalia chebuli*, 2 *Terminalia belerica*, 3 *Phyllanthus emblica*.)

Trivritta, (fruit of *Convolvulus turpethem*.)

Danti, (fruit of *Urostigma volubile*.)

The parts where there are numerous worms should be scarified by a sharp instrument, and the worms removed by a kind of instrument resembling the tongs, or the sores may be scarified and leeches applied: in certain cases cupping, venesection, may be performed. Surgery is generally useful in those varieties in which pitta (bile) is deranged. Regarding the parts devoid of sensation,

we should first have recourse to blood letting, and then certain caustics should be applied; also certain kinds of poisons should be applied.

If the skin is affected by leprosy, the parts should be cleansed by astringent decoctions, generally of catechu, and certain kinds of varnish applied.

If the blood is affected, there should be cleansing of the parts, certain kinds of varnish applied, the patient should be bled, and certain decoctions administered internally. If the flesh, we should have recourse to the treatment in case of the affection of the blood and a decoction of the seeds of *nux-vomica* should be internally administered. When the fat is affected, the disease is incurable, but certain tonics accompanied by cleanliness of the body, regular diet, &c., may be of use in checking the progress of the disease. If bones are affected, the patient should not be treated, as the disease becomes incurable. If marrow becomes diseased, the patient will soon die. In these severe forms, suppositories, glysters, and errhines may be used, and the medicine injected according to the nature of the circumstances. But if these are of no effect, the case may be considered hopeless. Various medicines are recommended for rubbing over the skin; a few may be given here by way of example:—

(1). The leaves of

Dhurvá,

Sindhava,

Chakramartha,

Kutéraká,

Somaráji, (*Panicum dactylen.*)

Zingibéra (ginger),

should be powdered, mixed with sweet oil and rubbed.

(2). The leaves of *Aragvadha* (*Cassia fistula* or *Cathartocarpus fistula*) should be ground and mixed with rice conjee; and then rubbed over the skin. This will cure *Dadru*, *Sidhma*, and *Kitima* varieties.

(3). Mix with butter-milk the powder of the leaves of *Kákamache* (*Solanum nigrum*), *Chaturangula* (*Ipomœa cerulea* or *Clitoria ternata*), and then rub this mixture on the body of the leper, first smearing it with sweet oil.

(4). Powder the root of *Kásamarda* (*Cassia sophora*), mix it with sour gruel and then rub it over the body. This will cure *Dadru* and *Kitima* varieties.

(5). Black pepper should be finely powdered, and the butter obtained from buffalo's milk mixed with it and applied to the skin. This will cure the *Páma* and *Kutch* (or *Kitima*) varieties.

(6). Rice with the husk removed should be put into a cocoanut and allowed to decompose; the decomposed matter should be applied to the skin in case of *Vipádiká* variety.

(7). Certain kinds of oil extracted from black pepper and mustard seeds are also considered effective in several varieties of leprosy.

Besides these, several medicines are to be internally administered ; for example :—

Take equal parts of the powder of unripe fruit of *Bhallátaka*, (*Semicarpus anacardium*), *Abhaya* (*Terminalia chebuli*) and of the plant *Birangas* (*Celastrus paniculata* ?), boil in water and ghee, and boil the mixture till the watery part is evaporated. This should be mixed with sweet oil and taken internally and also applied externally. This is considered very efficacious in all forms of leprosy.

White leprosy.—Diet the same as in the case of leprosy. The internal and external remedies are numerous. The following may be taken as an example :—

Powder, *Chitramûla* (root of *Plumbago Zeylanica*), *Zingibéra* (ginger), Black pepper, Long pepper.

Then take an earthen pot, pour into it cow's urine, and add a little of ghee and honey ; macerate the above-mentioned powder in it for a fortnight, then strain the mixture through cloth, and take a 8 *masha's* weight (or 1 tola) of the mixture.

Among the external applications may be given :—

Take equal parts of the leaves and flowers of *Putika* (*Cæsalpina bonducella*), *Akun* (*Calatropis gigantea*), *Sthahi Varuna* (*Tapia cratæva*), and the urine of the cow, and mix these to the consistency of a paste and apply it to the parts affected.

Several other mixtures and preparations, for external and internal use, are given in ancient Indian Medical works ; some of these are even considered as specifics in one form of leprosy or another. To give an idea of the various remedies and modes of treatment of the disease sufficient to experiment, and form an opinion as to their usefulness or otherwise, those portions in the old texts that describe them will have to be carefully translated.

In conclusion, it is hoped that this short essay will create an impression in the minds of our readers, that ancient India was not too slow to recognize the dreadful nature of the disease, and to try to cure it in the best way it could, and if better hands take up this subject, and deal with it exhaustively, European medical men will have an opportunity of trying the efficacy of the Indian drugs, and we are almost sure that the cause of Medical Science will be benefitted by it.

PANDIT N. BHASHYA CHARYA.

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Besides these, several medicines are to be internally administered ;
for example :—

Take equal parts of the powder of unripe fruit of *Blaukaka*,
(*Semecarpus anacardium*), *Abaga*, (*Tormentum chebuli*) and of the
plant *Birongas* (*Celastrus paniculata*), boil in water and ghee, and
boil the mixture till the watery part is evaporated. This should
be mixed with sweet oil and taken internally and also applied
externally. This is considered very efficacious in all forms of
leprosy.

Waste leprosy.—Diet the same as in the case of leprosy. The
internal and external remedies are numerous. The following may
be taken as an example :—

Powder, *Calimula* (root of *Plumbago Zeylanica*), *Singidra*
(ginger), black pepper, long pepper.
Then take an earthen pot pour into it cow's urine, and add a little
of ghee and honey; macerate the above-mentioned powder in it
for a fortnight, then strain the mixture through cloth, and take a
man's weight (or 1 tola) of the mixture.

Among the external applications may be given :—
Take equal parts of the leaves and flowers of *Pultia* (*Cassipou-
bonducella*), *Akwa* (*Calotropis gigantea*), *Sakhi* (*Vernonia*), *Tapi-*
centra, and the urine of the cow, and mix these to the consis-

tency of a paste and apply it to the parts affected.
Several other mixtures and preparations for external and internal
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