The Library Royal Coll. of Surgeons.
with the Author's compliments

AN

ANALYSIS OF 118 CASES OF LEPROSY IN THE TARNTARAN ASYLUM (PUNJAB),

(21)

AND ON

THE ARREST AND CURE OF LEPROSY BY THE EXTERNAL AND INTERNAL USE OF THE GURJUN AND CHAULMOOGRA OILS. By the Hon. J. C. Phillippo, M.D.

Communicated to the Epidemiological Society of London, *January* 8, 1890,

BY

PHINEAS S. ABRAHAM, M.A., M.D., B.Sc., F.R.C.S.I.

LONDON.

1890.

AN

ANALYSIS OF 118 CASES OF LEPROSY IN THE TARNTARAN ASYLUM (PUNJAB),

AND ON

THE ARREST AND CURE OF LEPROSY BY THE EXTERNAL AND INTERNAL USE OF THE GURJUN AND CHAULMOOGRA OILS. By the Hon. J. C. Phillippo, M.D.

Communicated to the Epidemiological Society of London, *January* 8, 1890,

BY

PHINEAS S. ABRAHAM, M.A., M.D., B.Sc., F.R.C.S.I.

LONDON.
—
1890.

CONTENTS.

ANALYSIS OF 118 CASES OF LEPROSY IN THE TARNTARAN ASYLUM (PUNJAB).

REPORTED BY GULAM MUSTAFA, ASSISTANT SURGEON.

BY PHINEAS S. ABRAHAM, M.A., M.D., B.Sc., F.R.C.S.I.

(*Read: January 8th*, 1890)

IN the discussion on my paper on Leprosy, read before this Society in May 1889, it will be remembered that the Rev. E. Guilford, who had lately returned from India, made some interesting remarks upon the disease as he had seen it among the patients at the Tarntaran Leper Asylum (Punjab), of which he had been superintendent for some time. That gentleman then promised to obtain, for the information of the Society, further particulars and histories of the cases. This he has done, and a volume of MS. notes which he wrote for, has been handed to me, through the kindness of our member, Brigade-Surgeon Scriven, M.D.

The notes have been compiled by Mr. Gulam Mustafa, and although incomplete in some respects, they appear to me to be of very great interest, and quite worthy of the consideration of the members of the Society. They consist of short histories of some 120 adult cases, now, or recently, inmates of the asylum; and, on the whole, they illustrate several points of etiological significance. The language may sometimes appear a little quaint—at any rate, to an unimaginative European mind; but, with the exception of a few obvious inaccuracies, particularly in reference to dates, the accounts bear evidence of considerable care and knowledge of the subject on the part of the compiler.

I have tabulated the cases, giving particulars as to sex, age, variety of the disease, its duration, number of relations affected, number of progeny, evidence as to a fish diet, the first symptoms observed, and some other details.

Two of the cases (Nos. 77 and 81) are evidently purely syphilitic, although one, it is stated, "thinks himself a leper"; two are incipient (Nos. 83 and 84); and a third (No. 38) is said by the doctor to have "no symptoms of leprosy on her body, though she pretends to say that she has got the disease".

Of the 118, seventy-five are males and forty-three females (*i.e.*, in the proportion of 1.7 to 1)—a much higher proportion of the latter than we should expect from the census returns of the lepers of India in 1881. Fifty of the inmates are Mussulmans (twenty-six males and twenty-four females); the rest are mostly Hindoos. The highest age recorded is eighty years for two males and one female; the lowest eighteen. The very young lepers, of whom there are evidently several in the asylum, are not included in the Report.

The comparative ages are as follows:

Number of Cases.

Age 18	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 80	
Males...1	10	15	12	23	11	3	= 75
Females	4	5	11	5	16	2	= 43
Total...	14	20	23	28	27	5	118

The average age being about forty-eight years.

These ages are manifestly only approximate; it struck me as curious, that of the whole number of cases recorded, only five ages are not put down as multiples of five. I have seen it stated that on the matter of their ages the statements of Indian natives are generally more or less unreliable. The figures above given, therefore, and those relating to the duration of the disease and time of onset, cannot be regarded as absolutely correct.

In sixteen of the cases the symptoms of the disease seem to have appeared in childhood or early youth; in sixty-six between puberty and thirty-five years of age (thirty-six of these being between twenty and thirty years of age); in twenty-one cases the onset has apparently been between the ages of thirty-five and fifty-five; and in two cases the disease manifested itself in old age, one being a woman of seventy, affected only three years; the other a man of eighty, who had been a leper for six years. The mean age of onset in 105 cases is about twenty-two years.

As regards the duration of the disease in the asylum cases—

11	had been affected for	5 years or under	
25	,,	,,	6 to 10 years
45	,,	,,	11 to 20 ,,
17	,,	,,	21 to 30 ,,
4	,,	,,	31 to 40 ,,
3	,,	,,	41 to 50 ,,
2	,,	,,	55 ,,

Average duration for 107 cases = 16.25 years.

Concerning the relative number of cases of the chief varieties of leprosy, the data given are not quite sufficient to arrive at a certain conclusion. As far as can be made out, however, the form of the disease in which the atrophic and anæsthetic symptoms are most marked is represented in seventy-six cases (or 64.4 per cent.), forty-eight being males and twenty-eight females, while the variety characterised by nodular dermal growths is exhibited particularly in fourteen cases, nine males and five females. Twenty-five cases appear to be "mixed", sixteen males and nine females.

These numerical averages may be contrasted with those calculated by various observers in some other parts of India, as in the following table, which is necessarily incomplete:—

	Almora.	Sidlkok.	Rungpur.	Bombay.	Western India.	Madras.	Central Provinces.
Proportion of Males to Females	1.5 to 1	4 to 1	2 to 1	4.38 to 1	3.3 to 1	...	...
Average age of Patients	37.2 yrs.	...	...	30 to 35	30 to 35	32.4	...
Average age of attack	23.7 yrs.	...	...	...	25	26	20 to 25
Average duration at time of observation	13.7 yrs.	...	...	5 to 10	...	6.4	...

Relations affected.—The reporter seems to have made very careful inquiries as to the antecedents and family history of nearly every case in the asylum. In most instances he gives particulars concerning the parents, and the brothers and sisters; their deaths, marriages, and offspring; and often details regarding the uncles and aunts, and other relations. It is quite evident that he is a believer in the heredity of the disease, and that in every case he seeks for this as an etiological factor.

In seventy-one cases it is definitely affirmed that no trace of the disease existed in the locality. Thirty-eight patients—*i.e.*, 32.2 per cent. of the whole number—admit that one or more of their blood relations are, or were, lepers; and four state that the disease was present only in distant relations. In five instances, connections by marriage alone were affected. Both parents were diseased in three cases; the father in twelve; the mother in five; a grandmother in one; uncles in eight; brothers in eleven; sisters in four; "mothers'" relations in three; cousins in three; other distant relations in one; sons

(first affected) in three; husbands in two; husbands' relations in four; an uncle's wife in one.

In some cases several of the relatives were leprous; *e.g.*, in case 108, as many as fourteen.

Progeny of the Lepers.—Seventy-three of the total number appear to have been married before the onset of the disease, viz., forty-three males and thirty females; and whilst still in the healthy condition, the males are credited with seventy-one children, now or lately living, and in most cases free from the disease, and the females with sixty-five; total, 136. Four only, all females, are stated to have given birth to offspring, five in all, after the disease had declared itself.

Until recently, it was the custom in this asylum to allow the patients to intermarry. Thirty-nine of those whose histories are here recorded—viz., sixteen males and twenty-three females—availed themselves of the privilege, and some of them married more than once; thus, one man united himself with no less than five leper wives one after the other, and several other patients were married two or three times. Altogether, the number of marriages contracted by the men in the list amounts to twenty-six, and those of the females to twenty-nine. Only five of the men proved prolific, with a result of ten children, and eight of the women with a result of fifteen children. Four of the children are dead, so that we have left twenty-one as the progeny of fifty-five marriages. As the notes give no information as to the names of the leper or lepers which each man or woman married, it is impossible to say whether the children and the marriages are not counted twice in the above calculation. It is probable that the actual sterility is even greater than these figures indicate.

The desire for matrimony does not seem, however, to be quite universal among the inmates of the asylum, for we read of one woman who "did not marry with any lepers, though she was excited by lepers to marry".

Particulars as to a Fish Diet.—The reporter seems to have had his mind open as to the possibility of a fish diet being a cause for leprosy; for in the majority of the cases he specifically alludes to the former habits of the patients in this respect. In thirty-one instances he makes some such remark as this: "Never tasted fish in his life;" five of the patients are stated to have "seldom" or "rarely" partaken of fish; forty-two to have "sometimes" eaten it; and only four of the 118 to have indulged in a fish diet "in excess" or "in plenty", or "often". In thirty-six of the histories fish is not alluded to, but in several of these the words "no special diet"

occur, and there is reason to believe that by this expression it is meant that fish was not eaten. In others, again, it is simply stated that the patient lived on the usual food of his class—" dal, bread, vegetables, etc."

First Symptoms Observed.—The attention of the patients seems to have been first directed to their malady by the occurrence of a "whitish eruption" in forty-seven cases, "blisters" on the joints in twenty-three, a reddish eruption in ten, swelling of the face, hands, etc., in nine, and weakness and anæsthesia of hands and feet in eight. A sensation of heat in the skin, general weakness, fissures on the soles of the feet and toes, a pricking sensation in the throat, and the atrophy of a digit, are variously put down as the first symptoms observed in other cases. Prodromata, if any, appear to have been for the most part overlooked, but previous attacks of fever are mentioned in a few cases. Some three or four of the patients ascribe the origin of their complaint to some traumatic injury, such as a snake-bite; and one man is said to have been pricked on the buttock by a pointed piece of stone, the part inflamed, a large ulcer remained, not healing for four years, and leaving an anæsthetic surface.

In nineteen cases it is reported that chaulmoogra and gurjun oils have been used, but only in two is there stated to have been any benefit. Few or no details are given as to the persistency or thoroughness of their application. With reference to one of the successful cases (No. 98), we are told, "She is taking chaulmoogra oil from Oct. 1877; she says she is stronger than before; the disease is stopped in future"; but in the corner of the page is to be seen the ominous word, "Died", no doubt subsequently written. As an etiological factor, the reporter seems to attach some importance to the existence of syphilitic taint, for he has evidently inquired into the matter in nearly every case. Of one case (No. 71) he writes, "There is history of syphilis in his family and in him, which easily describe the cause of the disease." He could find evidence of syphilis only in four others.

In one case (43), "the disease has subsided since twenty years"; and in three others it is said to have stopped its course. In some eight cases it is stated that only the extremities are or have been affected. (I mention this because, in the case of a patient shown at this Society last May, some doubt was expressed as to whether he was really a leper, partly, I believe, on the ground that it was supposed that there were no very obvious symptoms of the disease on other parts of the man's body besides the extremities.)

Although it cannot be said that we learn very much that is novel with regard to leprosy from these notes, the facts detailed should be useful in corroborating, or otherwise, the information obtained by observers in other parts of India and elsewhere. I should have liked, indeed, on this occasion, to contrast, in a comprehensive way, these details with the similar data of the various other asylums of India, but unfortunately the reports available are so few and incomplete (with one or two exceptions, notably the excellent account of the Almora Asylum by Drs. Lewis and Cunningham in 1876), and compiled so many years ago (chiefly 1874-77), that not many general conclusions of value up to date could be arrived at. There can be no doubt that our knowledge of the disease would be greatly enhanced if full and systematic reports of every asylum were annually, or at definite intervals, published on a uniform plan. The present lack of reliable data well illustrates the need of a thorough and systematic investigation, such as is likely to be shortly set in motion through the initiation and support of the Damien Committee and of the Colleges.

Case No.	Name.	Sex.	Caste.	Age.	Variety of Disease.	Duration of Disease.	Relations Affected.
1	Gaza ...	m.	Hindoo jat...	32	Mixed ...	10 years	None ... ...
2	Ohdo ...	m.	Brahmin ...	30	Do. ...	5 ,,	None ... ...
3	Ram Tall ..	m.	Ditto ...	30	Anæsthetic, ? mixed	10 ,,	Father ...
4	Bannan ...	m.	Ditto ..	18	Anæsthetic	7 ,,	Mother and an uncle
5	Sardanis ...	m.	Hindoo ...	47	Do.	?	None ... ...
6	Chhaboo ...	m.	Ditto ...	22	Do.	3 ,,	Father and 3 brothers
7	Mihal Das ...	m.	Chamar ...	55	Do.	7 ,,	None ... ...
8	Boola ...	m.	Mussulman	25	Mixed	7 ,,	None ... ...
9	Natho ..	m.	Ditto	25	Do.	10 ,,	Mother ... ...
10	Shadee ...	m.	Sweeper ...	35	Anæsthetic	12 ,,	Maternal relatives ...
11	Jamala ...	m.	Hindoo ...	30	Do.	6 ,,	Father ... ...
12	Makhan ...	m.	Mussulman	50	Do.	12 ,,	None ... ...
13	Bolund Shah	m.	Ditto	50	Mixed ...	? 20 ,,	None ... ...
14	Khewan ...	m.	Ditto	25	Tuberc. ...	5 ,,	None ... ...
15	Gurdetta ...	m.	Chamar ...	30	Anæsthetic	? 5 ,,	Maternal uncle ...
15a	Bariptoo ...	m.	Jheur ...	25	Do.	7 ,,	None ... ...
16	Bhairon ...	m.	Kohle ...	50	Do.	20 ,,	None ... ...
17	Sodaga ..	m.	Brahmin ...	50	Do.	20 ,,	None ... ...
18	Hera ...	m.	Hindoo ...	60	Do.	7 ,,	None ... ...
19	Jawala Singh	m.	Jat ...	35	Do.	15 ,,	None ... ...
20	Jaute ...	f.	Mussulman	60	Do.	50 ,,	None ... ...
21	Hari Singh ...	m.	Jat ...	60	Do.	20 ,,	None ... ...
22	Nabya ...	m.	Rajpoot ...	50	Do.	25 ,,	None ... ...
23	Dani ...	f.	Mussulman	80	Tuberc. ...	55 ,,	Husband was affected; none of other relations
24	Gansee ...	f.	Ditto ...	60	Anæsthetic	30 ,,	None; 6 children were affected
25	Nathoo ...	m.	Jat ...	50	Do.	30 ,,	None ... ...
26	Ghasita ...	m.	Chamar ...	40	Do.	28 ,,	Mother ... ...

No. of Children.	How Commenced.	Fish Diet.	REMARKS.
Not mar.	Bullæ on legs and arms	Never	
Not mar.	Whitish patches on body and extremities	Never	
Not mar.	Whitish patch on thigh	Never ...	History of Syphilis.
None	Ditto	Never	
2 (youngest 12) ...	Whitish patches on body	?	
None	Numb spots on thigh ...	?	
Not mar.	Ditto	?	
Not mar.	Whitish spots on body, etc.	?	
Mar. ? none	Whitish spots on back and buttock	Sometimes	
1 son (died at 1 year) ...	Blisters on fingers and feet	Seldom ...	Rest of body quite healthy; only hands and feet affected.
None	Anæsth. of leg ...	?	
	Numb patches on thigh	None	
Was mar.; 1 child died at 2 years	Queer sensation of heat and had anæsthesic patches on body	? ...	Wife free from disease.
2 sons, 20 years ...	Weakness in limbs and afterwards redness and swollen face	Sometimes	Had syphilis.
1 son and 1 daughter (born when he was healthy)			
Was married and had 3 children	Numbness of right foot	Sometimes	Syphilis 15 years ago; only hands and feet affected.
Not mar.	Whitish spots on body	Sometimes	Derived benefit from chaulmoogra oil.
Not mar.	Anæsth. of right hand (fingers)	Sometimes	Extremities only affected, and eyes, and some teeth dropped out (ascribes it to taking milk and fish together).
Mar. a leper (? no children)	Anæsth. of right index finger	Sometimes	
Was mar.; 4 children ...	A fissure at root of right great toe	Rarely	
Mar. twice; had children, but died	Whitish erupt. on left arm	Sometimes	
Not mar.	Red erupt. like tertian over body	? ...	No ulceration or loss of sight; praises oil of Tara meera.
Was mar.; no children ...	Reddish erupt. over body and swelling of face	Never	
Mar. a leper; no children	Whitish patch on back	Never	
2 daughters before she was affected; one was leprous	Tubercles on chest ...	Seldom ...	There is now anæsthesia of extremities.
6 children born before she was affected, healthy	Pricking on thumb ...	? ...	Was told she was bitten by a snake.
Not mar.	Blisters in joints of fingers	? ...	Has tried chaulmoogra and gurjun.
2 daughters and 1 son who is becoming leprous	Red erupt. on back, and blisters in joints	? ...	Has children by a leper woman born in the Asylum.

Case No.	Name.	Sex.	Caste.	Age.	Variety of Disease.	Duration of Disease.	Relations Affected.
27	Bhagan ...	f.	Mussulman	60	Anæsthetic	20 years	None ... ...
28	Rabdi ...	f.	Hindoo ...	40	Do.	33 ,,	? ... ...
29	Bhagan ...	f.	Mussulman	60	Do.	35 ,,	None ... ...
30	Sultani ...	m.	Jat ...	40	Do.	14 ,,	One half-brother ...
31	Rulya ...	m.	Musician (beggar)	25	Do.	20 ,,	Father and mother, both died in Asylum
32	Sundari ...	f.	Chamar ...	40	Do.	28 ,,	Father and a cousin
33	Panon ...	f.	Jat ...	30	Do.	12 ,,	2 brothers ...
34	Gayanon ...	f.	Chamar ...	60	Do. ? mixed	25 ,,	None ... ...
35	Jeemee ...	f.	Sweeper ...	60	Anæsthetic	After birth of the children	None ... ...
36	Maula ...	m.	Mussulman	50	Do.	?	None ... ...
37	Rajee ...	f.	Do. potter	25	Do.	18 years	None ... ...
38	Budhee ...	f.	Do. Teli	25	No symptom of the disease	Has been in the Asylum since 12 years old	Both parents died of the disease
39	Sulheta ...	m.	Hindoo ...	50	Anæsthetic	17 years	None ... ...
40	Chetoo ...	m.	Mussulman, water-bearer	65	Do.	40 ,,	None ... ...
41	Amira ...	m.	Hindoo Sien	55	Do.	25 ,,	2 younger brothers ...
42	Gangee ...	f.	Bahte ...	60	Mixed ...	16 ,,	None ... ...
43	Tachmer ...	f.	Sweeper ...	60	Anæsthetic	From childhood	Father and 1 brother
44	Rajan ...	f.	Mussulman	50	Do.	18 years	Paternal uncle ...
45	Varyam ...	m.	Do. potter	60	Do.	12 ,,	Father ... ...
46	Mam Din ...	m.	Mussulman	30	Do.	10 ,,	Maternal relation ...

No. of Children.	How Commenced.	Fish Diet.	REMARKS.
9 children born before and 2 after she became leprous; none affected	Atrophy of little finger	Never ...	After entering Asylum, married a leper
4 children, 2 lepers; three of them with symptoms	Erupt. on body and blisters on fingers, etc.	?	
Mar. before she was affected; 3 children. Mar. a leper in Asylum; no children	Pain in right side of chest.	Often	
2 sons and 1 daughter before he was affected	Whitish erupt. on thigh	Sometimes	Has tried chaulmoogra and gurjun.
2 children, 1 a leper; 1 died	Erupt. on body ..	? ...	Has tried chaulmoogra and gurjun.
4 children, 3 lepers; 1 died	Ditto	?	
Mar. to a leper for 10 yrs.; no children	Blisters on body ...	?	
8 children before she was affected, and 1 shortly after she married a leper; no issue	Face red and swollen and blisters on joints	?	
9 children before disease appeared. Mar. in Asylum 2 lepers; no children	Burning sensation of body and whitish erupt.	?	
Mar. 3 lepers, by one 3 children; 1 died	Erupt. on body ...	?	
2 children by a leper; 1 died	Ditto	Sometimes	
Mar. a leper and has 3 children	... ...	?	
Was mar.; 1 son and a daughter 3 years old; both healthy. Mar. a leper; have no children	Swelling and redness of whole body	Sometimes	
Mar. 2 or 3 lepers; have no children	Anæsth. of left hand and foot	? ...	Thinks himself a born leper because fingers of left hand are contracted on palm at birth.
Was mar.; 3 children and full grown and healthy	Whitish patch on forearm	Sometimes	
Was mar.; 2 children, 1 girl now 10 years, born after she was affected, and now with incipient leprosy	Blister on ankle ...	? ...	
Mar.; no children ..	... ...	? ...	Father was buried alive "on account of the suffering". The disease has subsided since 20 years.
Was mar.; 5 children before she was affected. Mar. a leper; no children	Red and swollen face, then vesicle in joints	Sometimes	
?	Fever	Never ...	
Mar. 5 lepers; no children	Whitish erupt. on body	Sometimes	

Case No.	Name.	Sex.	Caste.	Age.	Variety of Disease.	Duration of Disease.	Relations Affected.
47	Bahadur ...	m.	Sweeper ...	60	Anæsthetic, ? mixed	15 years	None ... ...
48	Chanda Singh	m.	Jat ...	50	Anæsthetic, ? mixed	30 ,,	None ... ...
49	Geewa ...	m.	Mussulman	50	Anæsthetic	17 ,,	Maternal grandmother
50	Mohamada ...	m.	Ditto	35	Do.	10 ,,	None ... ...
51	Jamita ...	m.	Ditto ...	60	Do.	18 ,,	None ... ...
52	Mangtoo ...	m.	Hindoo ...	50	Do.	12 ,,	None ... ...
53	Jawahar ...	m.	Chamar ...	50	Do.	18 ,,	None ... ...
54	Choohar ...	m.	Ditto ...	50	Do.	18 ,,	An uncle's wife ...
55	Kesi .	f.	Ditto ...	60	Do.	50 ,,	None ... ...
56	Jewani ...	f.	Mussulman	40	Do.	28 ,,	The husband's family
57	Manon ...	f.	Sweeper ...	30	Tuberc. ...	9 ,,	2 uncles ... ...
58	Ilahi Bakhish	m.	Mussulm. jat	20	Do.	14 ,,	Father, uncle, and step-uncle
59	Bahto ...	f.	Brahmin ...	50	Anæsthetic	25 ,,	Mother - in - law's family
60	Pargash ...	m.	Hindoo ...	40	Do.	30 ,,	None ... ...
61	Jewan ...	m.	Mussulman	60	Do.	16 ,,	A brother ...
62	Bira ...	m.	Ditto	60	Do. ? mixed	12 ,,	None ... ...
63	Budhuo ...	m.	Ditto	55	Anæsthetic	21 ,,	Maternal uncle's son
64	Dauli ...	f.	Ditto	35	Do. ? mixed	20 ,,	None ... ...
65	Manon ...	f.	Ditto	35	Anæsthetic	20 ,,	An uncle ...
66	Punnoon ...	m.	Ditto	50	Do.	16 ,,	None ... ...

No. of Children.	How Commenced.	Fish Diet.	REMARKS.
Was mar.; 4 children ...	Red and swollen hands	Sometimes	
Mar. a leper; no children	Front of knee ...	Never ...	
2 children by a leper; 1 died	Whitish patch on joints. After "anæmia"	Sometimes	
Was mar.; no children Mar. a leper; no children	Blister on finger ...	Sometimes	Only extremities affected; rest of body healthy. "The disease is stopped."
Was mar., and had 4 children	Anæsth. patches on breast and thigh	Sometimes	The disease has stopped its course.
Was mar.; 5 children ...	Blister on ankle ..	Sometimes	"No eruption of any kind on the body."
Was mar.; 6 children. Mar. 2 lepers; no children	Blister on elbow ...	Sometimes	
Was mar.; 3 children. Mar. a leper; 1 daughter with incipient symptoms	Blister on joints ...	Sometimes	"No sort of eruption on any part of the body" (but general anæsthesia).
Mar. a leper; no children	Blisters on legs and feet	Sometimes	Extremities only affected.
Was mar.; 2 children, 1 died. Mar. 2 lepers; now pregnant	Whitish erupt. on forearm	Sometimes	
Was mar.; 1 son born before disease commenced, but suckled aferwards	Red and swollen face ...	? ...	Derives benefit from "Mundi Booti".
Not mar.	Blisters on hands and feet	?	
None	Burning heat—head, hands, and feet	None ...	"Did not marry with any leper, though she was excited by lepers to marry. No eruption on any part of the body."
Was mar.; none ...	Whitish erupt. on leg ..	Sometimes	Treated with gurjun oil without benefit.
Was mar.; none, and mar. a leper; no issue	Blisters on fingers and feet	Sometimes	
... ...	Blisters and swelling after snake bite	Never	
Was mar.; 2 children. Mar. again at Asylum; no issue	Pains in legs after a chill	Sometimes	
Mar. 2 lepers... ...	Whitish erupt. of body	Sometimes	
Mar. a leper; no issue ...	Whitish erupt. on body	Never	
Mar. a leper; 2 sons ...	Whitish erupt. on ankle after a chill	Sometimes	

Case No.	Name.	Sex.	Caste.	Age.	Variety of Disease.	Duration of Disease.	Relations Affected.
65a	Dittesha ...	m.	Mussulman	70	Anæsthetic ? mixed	55 years	None ... ...
66a	Bhagan ...	f.	Ditto	45	Anæsthetic	18 ,,	Father, a sister ...
67	Walate ...	f.	Ditto	60	Do.	10 ,,	None ... ...
68	Rehmal ...	m.	Ditto	45?	Do.	30 ,, (at 12 yrs.)	None ... ...
69	Karem hibi ..	f.	Ditto	45	Do.	? since youth	None ... ...
70	Gokal ...	m.	Hindoo ...	50	Do.	10 years	None ... ...
71	Jassa ...	m.	Brahmin ...	40	Do. ? mixed	10 ,,	None ... ...
72	Dana ...	m.	Hindoo ...	50	Anæsthetic	10 ,,	None ... ...
73	Ushnag ...	m.	Ditto ...	32	Do. ? mixed	18 ,,	None ... ...
74	Baldeo ...	m.	Ditto ...	50	Anæsthetic	1 ,,	A maternal uncle ...
75	Ganga Ram...	m.	Brahmin ...	50	Do.	18 ,,	In distant relatives
76	Dayala	m.	Hindoo ...	50	Tuberc., ? mixed	27 ,,	Father and 1 brother
77	...	...	...	...	...	...	... ...
78	Reora ...	m.	Sweeper ...	30	Anæsthetic	3 ,,	None ... ...
79	Kahan Singh.	m.	Hindoo ...	60	Tuberc.	5 ,,	None ... ...
80	Chatoo ...	m.	Brahmin ..	50	Anæsthetic	10 ,,	None ... ...
81	...	...	...	...	...	...	... ...
82	Jeeta ...	m.	Sweeper ...	40	Mixed ...	10 ,,	None ... ...
83	Jhandno ...	m.	Chamar ...	25	? incipient	2 ,,	Paternal uncle ...
84	Rukko ...	f.	Sweeper ...	20	Incipient...	?	Mother and 2 brothers
85	Shamas Din ..	m.	Mussulman	45	Tuberc. ...	10 ,,	None ... ...
86	Sharif Khan ..	m.	Ditto	60	Mixed ...	?	None ... ...
87	Umra ...	m.	Ditto	25	Tuberc., ? mixed	12 ,,	None ... ...

No. of Children.	How Commenced.	Fish Diet.	REMARKS.
Was mar.; 1 daughter, and mar. a leper; no issue	Anæsth. patches .	Sometimes	
Was mar.; 3 children, and mar. a leper; 2 sons	Whitish patches ...	Never	
Was mar.; 6 children. Mar. a leper; no issue	Reddish patches on buttock	Never	
Mar. a leper who had a child	Whitish erupt. on body	Very often	
Was mar.; 3 children, youngest 14 years old with incipient leprosy	Ditto	Sometimes	
Was mar.; 3 children ...	Ditto	Never	
Was mar.; 1 daughter ...	"Œdema" of left leg ...	Never ...	"There is history of syphilis in his family and in him, which easily describe the cause of the disease."
Was mar.; no children ...	Sensation of heat in the body	None	
Was mar.; 1 daughter died	Itching and watery pimples over body	? ...	Syphilis in the family.
... ...	Hands became weak and anæsth. grad. to elbows and knees	Sometimes	
Was mar.; 3 children ...	A pointed stone pricked his buttock, causing ulcer, healing after 4 years with anæsth. surface	Sometimes	Ulcers only on extremities. "No history of whitish erupt. on body."
... ...	Anæsth. patch on knee	Never	
... ...	... ...	...	This is a pure case of syphilis.
Was mar.; 2 sons, youngest 6 years.	Whitish erupt. on body	?	
Was mar.; 3 sons ...	Red erupt. on body ...	Never ...	Takes chaulmoogra (produces nausea) and gurjun.
Was mar.; 3 sons ...	Loss of sensation in leg after fracture of patella	Never	
... ...	.. ...	...	No symptoms of leprosy, but thinks himself a leper.
Was mar.; no children ...	Whitish erupt. on body	?	
Was mar.; no children ...	Gen. weakness. Swelling and redness of feet and hands	? ...	No marked symptoms of leprosy; chiefly suffers from weakness of extremities.
Mar. a leper; no children	Large anæsth. whitish patch on buttocks and thighs	?	
Was mar.; 2 children ...	Whitish patches on arms and hands	?* ...	Died from dysentery after three years in Asylum.
Was mar.; 4 children ...	Attack of fever followed by insensibility of hands and feet	"In excess"	Chaulmoogra and gurjun without relief.
Mar.; 2 children ...	Blisters on feet after a chill	Never ...	Chaulmoogra and gurjun without effect.

Case No.	Name.	Sex.	Caste.	Age.	Variety of Disease.	Duration of Disease.	Relations Affected.
88	Tahee ...	f.	Mussulman	50	Anæsthetic, ? mixed	10 years	In father - in - law's family
89	Sin Dhor ...	m.	Hindoo ...	35	Tuberc., ? mixed	15 ,,	1 cousin ... ...
90	Imam Din ...	m.	Mussulman	35	Anæsthetic	3 ,,	None ... ...
91	Budh Das ...	m.	Hindoo ...	25	Tuberc. ...	5 ,,	None ... ...
92	Bhumba I. ...	m.	Mussulman	80	Anæsthetic	6 ,,	None ... ...
93	Bhumba II....	m.	Ditto	30	Tuberc.	7 ,,	None ... ...
94	Nanakoo ...	m.	Hindoo ...	35	Anæsthetic	14 ,,	None ... ...
95	Chumbo ...	f.	Ditto ...	40	Do. ? mixed	22 ,,	An elder sister ...
96	Tara Singh ...	m.	Ditto ...	60	Anæsthetic	10 ,,	None ... ...
97	Rali ...	f.	Ditto ...	30	Muscular, ? tuberc.	Since very young	Father and 5 uncles
98	Ramee ...	f.	Ditto ...	35	? mixed ...	15 years	None ... ...
99	Dayan ...	f.	Ditto ...	45	Anæsthetic	12 ,,	None ... ...
100	Tikho ...	m.	Ditto ...	45	Do.	15 ,,	In mother's relations
101	Jawalee ...	f.	Ditto ...	40	? mixed ...	15 ,,	Husband's uncle and aunt
102	Matte ...	f.	Ditto ...	60	Anæsthetic	35 ,,	A son first affected; no other relation
103	Bahto ...	f.	Ditto ...	60	Tuberc. ...	10 ,,	A member of the same caste, but not closely related, and a son
104	Bhagan ...	f.	Ditto ...	60	Anæsthetic	20 ,,	Mother ... ...
105	Bisnandai ...	f.	Brahmin ...	50	Do.	17 ,,	None ... ...
106	Budhoo ...	m.	Hindoo ...	80	? mixed ...	? 45 ,,	None ... ...
107	Amseree ...	f.	Mussulman	40	Anæsthetic	12 ,,	Father, 2 sisters, and 1 brother
108	Mannan ...	f.	? ...	60	Do.	30 ,,	Both parents, 3 brothers, 1 sister, 1 son, uncles, etc.
109	Mamoon ...	m.	Mussulman	40	Do.	8 ,,	None ... ...

No. of Children.	How Commenced.	Fish Diet.	REMARKS.
Was mar.; 6 children ...	Whitish erupt. after fever	?*	
Was mar.; 1 son 7 years old	Fissures on soles of feet, epistaxis, and patch on forearm	?*	
Was mar.; 2 children, died	Patches on back ...	? ...	Chaulmoogra and gurjun; no effect.
... ...	Whitish erupt. on body	?* ...	Chaulmoogra and gurjun; no effect. Died of phthisis.
Was mar.; 3 sons ...	Numbness of hands ...	Sometimes	Chaulmoogra and gurjun; no effect.
Was mar.; had children, all died	Pricking sensation over body	None ...	Ditto.
Was mar.; 2 daughters...	Blister on little finger	Sometimes	Died from phthisis.
Was mar.; no children. Mar. a leper; no children	Whitish erupt. on thigh	Rarely	
Was mar.; 6 children ...	Reddish erupt. on body, and subsequently bullæ	Never	
Was mar.; and with a leper	Whitish erupt. on body	Never	
Was mar.; 1 son of 15 ...	Reddish erupt. ...	Never ...	"She is taking chaulmoogra oil from Oct. 1887.
Was mar.; 4 children grown up, and mar. a leper	Weakness of hands ...	Never ...	She says she is stronger than before; the disease is stopped in future. Died."
... ...	Whitish erupt. in abdomen	?* ...	Vegetable diet and milk.
... ...	Pimples on nose, and red erupt. on forehead	Sometimes	
Was mar.; 1 son ...	Whitish erupt. on shoulder	Sometimes	
Was mar.; 11 children ...	Redness and swelling of face	Rarely ...	Husband had syphilis. Her third son first became affected; she lived with him, and was diseased 2 years after his death.
Was mar.; 2 children ...	Whitish erupt. on body	? ...	Her mother *æt.* 80, still in Asylum.
Was mar.; 2 sons ...	Swelling of hands and feet	Sometimes	
... ...	Œdema of whole body...	Sometimes	"The disease has abated in him." Lived in the Asylum 25 years.
Was mar.; 4 children ...	Whitish erupt. on arms and legs	Sometimes	
Was mar.; 2 daughters, 1 living, 1 son died of leprosy	Whitish erupt. on forearm	Never	
... ...	Whitish erupt. on ankle	Sometimes	Only extremities affected.

Case No.	Name.	Sex.	Caste.	Age	Variety of Disease.	Duration of Disease.	Relations Affected.
110	Bihee ...	f.	Mussulman	70	Anæsthetic	3 years	6 maternal relations, husband, and son
111	Chundee ...	f.	Sweeper ..	25?	Do.	10 ,,	No history ...
112	Karmbhari ...	f.	Mussulman	40	Do.	20 ,,	2 brothers ...
113	Mohamad Bakhsh	m.	Ditto ...	40	? mixed ...	30 ,,	None ... ...
114	Mihra ...	m.	Ditto ...	40	Mixed ...	20 ,,	Father ... ...
115	Bibo ...	f.	Ditto ...	60	? mixed ...	12 ,,	None ... ...
116	Kariman ...	f.	Ditto ...	60	Tuberc. ...	20 ,,	None ... ...
117	Bannon ...	f.	Ditto ...	45	Mixed ...	12 ,,	A brother and a son
118							

No. of Children.	How Commenced.	Fish Diet.	REMARKS.
Was mar.; 1 son now a leper. Her husband 5 years ago died of leprosy, son then affected	Blister on joints, leaving ulcers	Sometimes	
Mar. a leper; no children	Whitish erupt. on body	?	
Mar. 2 lepers... ...	Ditto	Sometimes	
Mar. a leper	Epistaxis and blisters on joints	Plenty	
... ...	Whitish patch on thigh	Sometimes	His father bitten by a snake.
Was mar.; 3 children, all healthy. Mar. a leper; no children	Fever and red swollen face	Never	
Was mar.; no children. Mar. 2 lepers	Red elevated erupt. over body	Never	
Was mar.; 1 son, died young. Mar. a leper; 1 son 12, 1 daughter 5 years old	Blisters on joints ...	Never	

ON THE ARREST AND CURE OF LEPROSY BY THE EXTERNAL AND INTERNAL USE OF THE GURJUN AND CHAULMOOGRA OILS.

By the HON. J. C. PHILLIPPO, M.D., OF JAMAICA.

WITH INTRODUCTORY REMARKS, AND ABSTRACT OF PATIENT'S ACCOUNT,

By P. S. ABRAHAM, M.A., M.D., B.Sc., F.R.C.S.I.

(*Read : January 8th*, 1890).

Dr. Phillippo has requested me to bring this case under the notice of the Epidemiological Society. It is hardly necessary for me to allude to that gentleman's high position as one of the chief medical practitioners in the West Indies, and to his extensive experience of the endemic diseases of that part of the world ; but I may mention that so long ago as 1873 he was quoted by Dr. Gavin Milroy* as an authority on this very disease. His observations, therefore, must be regarded as of especial value, and his conclusions received with attentive consideration by all who are interested in the subject of leprosy.

In a private letter to me, Dr. Phillippo calls the case " a unique one—for it is written by the patient himself"; and I think it will be admitted that a more graphic and well-written account, both as regards expression and calligraphy, has seldom been penned by a non-medical convalescent, and never before by one who is a cured leper. As the notes are rather detailed, I append an abstract.

The young man's father was an Englishman, long resident in Jamaica, whom I happen to have known, as well as several other members of the family, on the paternal side, both in England and in Jamaica. They are all healthy people, and, as far as one can on such a point, I can testify to their freedom from any trace of the disease. The mother, a creole, is, according to Dr. Phillippo, " a very fair woman, whose mother, grandmother, and other relations" he knows, " and there has never been any disease of the kind in them." It will be difficult, therefore, for those who believe in the heredity of leprosy to assign family taint as the cause in this instance.

The appearances in the case were evidently typical of the

* Report on Leprosy in the West Indies.

"nodular dermal" or "hypertrophic" form of the disease; and one point of interest to me is the apparent connection between the initial traumatic lesion and the onset of the symptoms. In looking over reports of cases occurring in various parts of the world, we find several instances in which accidental wounds of the skin are described as refusing to heal, ulcerating, etc., and in a shorter or longer time the signs of leprosy becoming manifest.

With regard to the treatment, one is struck by the thoroughness and perseverance with which it was carried out. As the patient remarks, for some five and a half years he practically lived "in grease". How many lepers are there who have so pertinaciously continued to use such irksome remedial measures, and how many of their physicians and friends would not have given up hope in a year or two at the utmost? Dr. Phillippo's remarks on the difficulty of following up a treatment of this kind in private practice deserve attention; as a rule, it must be only in properly appointed special hospitals and asylums that the necessary conditions can possibly obtain. A lengthened disquisition on the treatment of leprosy would hardly be in place in this Society; but I may be allowed to observe that there is reason to think, on perusing the conflicting accounts, that many of the reported failures with the gurjun and chaulmoogra oils may be due to their improper and insufficient use, both as regards time and quantity.

Dr. Phillippo writes as follows:—

"Leprosy has been so much and so thoroughly discussed of late that there remains little to be said on the subject, and my only excuse for prolonging the discussion lies in the fact that I have something to say as to its arrest and cure. Before doing so, however, I must state, as one who has had considerable practical acquaintance with the disease, that I am thoroughly opposed to the fish-diet theory. I know numbers of people who have eaten fish almost daily for many years who have shown no symptoms of this disease. The peasantry of this country are, as a rule, practically vegetarians, their principal animal food, but in very sparing quantity, being salted mackerel, shad, and cod, imported from Halifax, which sometimes reaches them in a state of decay, and yet leprosy in proportion to number is much less common amongst them than among other classes who are in a better position in life, and able to afford a more mixed and generous diet.

"Moreover, this disease generally makes its first appearance amongst adolescents, who have not gone through so long a

period of fish eating as others who show no symptom of the disease.

"It is true that more leprosy is to be seen in this as in most other countries on the sea-coast, but this is, I think, largely due to the fact that the poorer class of sufferers flock to the cities and towns, which are generally there situated, for the sake of the charity to be obtained in these larger centres of population.

"That it is both hereditary and contagious I firmly believe, but it never affects a whole family, and will sometimes skip a whole generation. The contagion is by no means active, for the healthy members may be in daily intercourse with the diseased, without contracting it; only occasionally does it happen that one or more take it, and these may, perhaps, have less to do with the diseased member than the others. I know of a family in which two sons had the disease and died of it, and another had incipient symptoms arrested by gurjun oil; the other members in daily attendance had shown no symptoms, whilst the wife of one who belongs to a perfectly healthy family, and who only occasionally came in contact with them, has now ulnar nerve paralysis, with shrinking of the interossei and anæsthetic patches. This and other instances of a similar kind lead me to believe that there must be some constitutional predisposition—I should say of a strumous character. This view I took years ago in my replies to Gavin Milroy's questions on the subject, mentioning the case of an English family resident here of a strumous constitution, in which an uncle developed the disease, and died years before his niece, who was not born at the time, also developed it.

"The treatment of the disease is, however, my subject on this occasion, and I shall now proceed with a short account, which will, I hope, be of interest.

"Gurjun oil was first brought to my notice some twenty years ago in a paper published in the *Edinburgh Medical Journal*, by the surgeon in charge of the penal establishment in the Andaman Islands. At that very time a case came under my observation of a lad who belonged to a family with considerable hereditary history of the disease. The initial sympton was a deep punched-out ulcer at the bottom of one foot, looking like a perforating ulcer, and insensible to pain —a very common commencement of tubercular leprosy. Not being able to get any gurjun oil in England, I sent to Singapore for some, and made use of it, but with very small success, as I left the district shortly after, and could not follow up the treatment.

"In private practice it is difficult to follow up a treatment of this kind. The patients are generally young, careless, and insensible of the terrible malady under which they suffer. The relatives are afraid to make use of direct applications themselves, servants and nurses soon grow weary of a long-continued and apparently useless treatment, and all are ready to give it up for any new remedy or nostrum suggested by sympathising friends.

"Still, in this case, as in some dozen or more others which came under my observation during the last fifteen years, it did good. Ulcers were almost invariably and rapidly cured by its application, and I have been frequently applied to for it on that account. Indeed, I almost look on it as a proof of the correctness of the diagnosis in an early case, though I daresay it may be useful for other ulcers.

"After using the gurjun on these cases under these circumstances I began to despair of ever doing any good, or, rather, seeing any cure as a result, when the following case came under my notice. On taking charge of him I told him that I would only do so on condition that he would under all circumstances stick to my prescription, and take no other advice—that the remedy had been used with good effect, and that he must resist all importunities to change it. This he religiously did, heroically aided by his mother, with the result recorded by himself. He is restored to health, and the mother not only has the gratification of seeing and aiding in this, but has doubtless been saved from taking the disease by the constant use that she made of the remedy.

"As I said before, I was so dispirited with former failures that I took no notes, but this case presents several points of interest, in addition to its successful termination.

"I. The long period that elapsed from the first appearance of the sores, and the constitutional effects. When I first, and casually, saw him, in 1874, he was under no treatment, and I recommended the amputation of the toe, which led to his father placing him under the care of his medical adviser. Had it been amputated then, years of suffering might have perhaps been spared him.

"II. The sudden change after the administration of chaulmoogra. Too sudden for that medicine to have had any effect—yet how likely to have secured for it all the credit.

"III. The complete immunity of the mother, who lived, ate, and drank with him, and dressed his sores day after day, and washed his clothing."

The following abstract of the case is compiled from the patient's own notes and observations.

In the early part of 1872, while bathing in the sea, the great toe of the left foot was injured. The cut remained open, and was treated with some lotion which a school-mate had been using for a bruise. It did not heal for two or three months, during which a boot could not be worn. About six months afterwards the same toe became swollen and black, and the cut reopened. Poultices and lotions were applied, and ultimately the toe got better, but minus the nail. The cut, however, continued to give trouble—opening about once every six months, but always yielding to treatment. Sometime in 1874 it was noticed that there was a scaly appearance round the ankle, and the cut which had opened again was very stubborn. In January 1875, it reopened, and the scaly band round the ankle was then broader. Cashew-nut oil was applied with benefit. Towards the end of 1875 it again reopened; and subsequently generally remained so. In 1876, it was noticed that the hands were not the natural size, and the hairs on the left leg seemed to be withering. Towards the end of 1877 the left ear appeared a little enlarged, and the scaly band around the ankle seemed to be slowly creeping up the leg. In February 1878 the general health had become so bad, that change and rest for a month in the mountains was advised; but no good resulted. The day after the ride home, the face appeared puffed and spotted. From this time, the toe would not yield to treatment, the general health became worse, and fever began to add to the patient's troubles, and he became unable to walk. At this time, early in 1879, the great toe, on which the ulceration had much increased, was so enlarged that it spread over the second toe, upon which there was also an ulcer, with the loss of the nail. The left foot had swollen to a very large size, and it had lost all feeling. The right foot was also a little swollen, the hands very much so, and on two or three of the fingers were small ulcers: one nail was already gone. The ears were much enlarged, particularly the left one; the nose and lips were swollen, and on the nose and upper-lip were pimples, which would not discharge, but remained hard. The forehead was swollen, and the face altogether much disfigured. Spots, too, began to appear on several parts of the body. He moved about with great difficulty on account of the size of the left foot, and he had become very nervous. In September 1879, Dr. Phillippo took the case in hand, and prescribed gurjun oil. This was to be rubbed in (prepared with lime-water) over every part of the body—

hands, face, etc.—twice a day, bathing before each application. The washing off was done with sapolio. The rubbing was effected by the patient himself, that he might get the benefit of the exercise. The oil was also applied as an ointment to all swellings and ulcers; and when renewing it, cashew-nut oil was first applied and allowed to dry in. A tablespoonful of the gurjun oil, prepared with a smaller proportion of lime-water, was taken internally morning and evening. For an hour or two after rubbing in the oil the feeling was uncomfortable, and there was a pricking, warm sensation all over the body. In consequence of the difficulty of obtaining the oil at first, and of the frequent attacks of fever, sometimes lasting several weeks, it was impossible to rub it in continuously. It was, however, always used as an ointment. From 1880 the fever was accompanied by outbursts of bumps and eruptions on the fingers, toes, legs, and even face, and these would discharge plentifully, like the older enlargements, which became gradually smaller, and disappeared. The worst time was the latter part of 1880 until late in 1881. He was then very weak and nervous, and could not use the legs, or even stand upon them. To go from one room to another he had to sit on the floor and proceed with the help of hands and arms. He sometimes had pains in the knees. Attacks of fever and eruption were frequent. The nails were all gone, some of them leaving minute bits: the hairs on legs, arms, etc., and on the eyebrows were gone. In 1881, chaulmoogra oil was substituted for the gurjun internally, but the rubbings with the latter were continued. Improvement was first seen in the face; the lips, ears, and nose gradually becoming natural before the end of 1881. The spots about the body also began to disappear, and the hands were getting better: the left foot, and especially the great toe, was the last to yield. The outbursts continued even after the old enlargements had disappeared, but were less severe each time, until they ceased. From 1882 the gurjun oil was rubbed in only once a day. The treatment was kept up, with some intermissions, until January 1886, when, at last, he "ceased to live in grease". He was at that time cured, all symptoms having disappeared, and having regained the use of his limbs, and discarded the crutches, with which he had been able to get about since 1884. For upwards of five years he has now been quite free from any return of the old troubles: his strength has steadily increased, and general health improved; and although there are marks left of the old disease, the nails and hairs have been coming back; even the eyebrows have been slowly growing.
