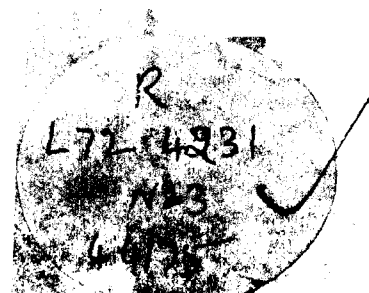


The Pasteur Institute
of
Southern India, Coonoor.

1923



THE
PASTEUR INSTITUTE
OF
SOUTHERN INDIA, COONOR

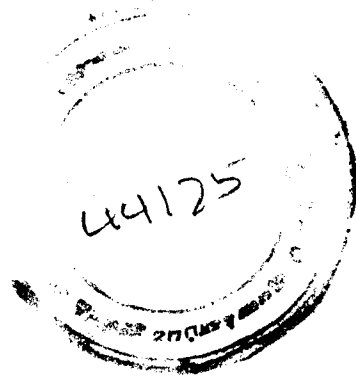
THE
ANNUAL REPORT OF THE DIRECTOR

TOGETHER WITH THE
SIXTEENTH ANNUAL REPORT OF THE CENTRAL
COMMITTEE OF THE ASSOCIATION FOR THE
YEAR ENDING 28TH FEBRUARY 1923

MADRAS
PRINTED BY THE SUPERINTENDENT, GOVERNMENT PRESS

1923

401
457



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REPORT OF THE DIRECTOR OF THE PASTEUR INSTITUTE OF SOUTHERN INDIA, COONOR.

PART I.

THE WORK OF THE INSTITUTE FROM 1ST MARCH 1922 TO 28TH FEBRUARY 1923.

The number of patients who underwent a full course of treatment during the year in this institute was 3,375, a decrease of 96 on the previous year's number. The fall in the number was due to the gradual introduction of the scheme for the issue of anti-rabic vaccine to Government Head-quarter Hospitals in the Presidency.

Three patients died during the course of treatment from hydrophobia.

Ten died less than fifteen days from the date of completion of treatment, and twelve more than fifteen days after the completion of treatment. The last are classed as failures giving a rate of 0.35 per cent.

There were in addition 102 persons, who for various reasons did not complete the full course of treatment and are, therefore, excluded from the above figures.

At the close of the year 103 patients remained under treatment.

Two patients had symptoms of hydrophobia on arrival and are not included in the tables.

Advice, but no treatment, was given to 171 persons.

The virus was in its 846th passage on February 28th, 1923.

1-A

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TABLE I

Showing results of the treatment at the Pasteur Institute, Coonoor.

Year.	Total number of patients treated.	Died during treatment.	Died less than 15 days after the completion of treatment.	Died more than 15 days after the completion of treatment.	Percentage of failures (omitting columns 3 and 4).	Percentage of deaths, including column 4.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1907-08	182	2	...	1	55	55
1908-09	340	...	1	1	29	59
1909-10	658	...	2	1	15	48
1910-11	827	3	3	6	72	169
1911-12	940	...	3	6	64	96
1912-13	1,240	...	1	13	105	113
1913-14	1,293	3	3	14	108	131
1914-15	1,210	6	7	8	66	124
1915-16	1,490	3	3	8	54	74
1916-17	1,707	4	5	15	87	116
1917-18	2,366	3	9	19	79	121
1918-19	2,975	4	4	25	84	97
1919-20	3,172	6	9	26	81	110
1920-21	3,623	3	6	23	68	80
1921-22	3,471	5	10	28	80	109
1922-23	3,375	3	10	12	35	65
Total	28,899	45	81	206	71	99

With the sanction of Government it was decided to issue carbolized anti-rabic vaccine to different centres in the Presidency so that persons bitten by animals suspected to be rabid might be treated locally and saved long railway journeys to Coonoor with all the attendant expenses. The scheme is a tentative one, so the vaccine is to be issued only to the Superintendents of Government Headquarter Hospitals and is not saleable to private practitioners. Treatment at the Pasteur Institute is still open to any one who desires it and can go to Coonoor at his own expense. The Institute remains the centre for treatment for the Nilgiri district. The scheme has been put into operation gradually during the year, beginning with those districts which are most distant from Coonoor. The nearer districts which have always sent the bulk of the patients were supplied during the last few days of the year only.

It is too soon therefore to comment on the working of the new scheme. The chief drawback no doubt will be that many persons who are being treated near their homes will not have patience to go through the full course of treatment. Of those who have come to Coonoor during the past sixteen years only a very small proportion have absconded or, in spite of

advice, have refused to go through the full course which lasts 14 days.

A pamphlet entitled "Notes on Rabies for Medical Officers" was sent to the Superintendents of all the Headquarters Hospitals which contained all necessary information under the following headings:—

I. The possibilities of infection with the virus of rabies.

II. Methods of dealing with wounds inflicted by rabid animals.

III. How to deal with a dog which has bitten one or more persons.

IV. Indications for anti-rabic treatment.

V. Care of patients during and after treatment.

VI. How to give the injections.

VII. Reactions, local and systemic.

TABLE I-A

Showing the results of the treatment with the vaccine issued to the Government Headquarter Hospitals.

Year.	Total number of patients treated.	Died during treatment.	Died less than 15 days after the completion of treatment.	Died more than 15 days after the completion of treatment.	Percentage of failures (omitting columns 3 and 4).	Percentage of deaths, including column 4.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1922-23	1,248	...	5	4	0.32	0.72

The total number of persons who received anti-rabic treatment during the year was—

At the Pasteur Institute, Coonoor	...	3,375
At Government Headquarter Hospitals	...	1,248
		<u>4,623</u>

The ratios given in Table I-A are not in agreement with those given in Table II. In Table II the ratios are calculated not on the total number of persons treated but on the total number of completed returns received.

In Table I-A the calculations are made in the same way as in Table I so as to bring the two tables into line for purposes of comparison. If further reports referring to these particular persons are received later on, the necessary alterations in the figures will be made in the annual report of this Institute next year.

As has been pointed out in previous annual reports we do not receive information about the subsequent health of all the patients treated in Coonoor, only a proportion. Still, for the purposes of Table I, the ratios are calculated on the total number treated, and if information comes too late to be incorporated in the annual report of any one year, the recorded figures are adjusted in the next annual report. My belief is that, even though the subsequent history of all the patients treated here has not been reported, we may take it that, when no report is received, the probabilities are that person is alive and well. More notice is taken when a death occurs and somebody makes it his business to let us know, so the final error is not likely to be great.

TABLE II.

Name of institution.	Number of persons for whom vaccine was issued.	No returns received.	Number of persons reported to have received the full course of treatment	Number of persons reported to have been not fully treated.	Died during treatment, omitting column 5.	Died less than 15 days after completion of treatment, omitting column 5.	Died more than 15 days after completion of treatment omitting column 5.	Percentage of failures, omitting columns 6 and 7.	Percentage of deaths, including columns 7 and 8.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Government Headquarters Hospital—									
Anantapur ...	26	6	16	4	...	1	...	...	6.25
Bellary ...	15	5	10	...	...	1	...	...	10.00
Berhampur ...	11	4	7	...	...	...	...	...	...
Calicut ...	6	6	...	...	...	...	...	...	...
Chingleput ...	18	3	14	1	...	...	...	...	...
Chittoor ...	80	43	33	4	...	...	2	6.08	6.06
Cocanada ...	8	5	3	...	...	...	...	...	...
Cuddalore ...	31	9	22	...	...	...	...	...	...
Cuddapah ...	31	13	18	...	...	1	...	...	5.56
Guntur ...	112	62	33	17	...	...	...	...	...
Kurnool ...	4	3	1	...	...	...	...	...	...
General Hospital, Madras.	520	520	...	...	...	...	...	...	...
Government Headquarters Hospital—									
Madura ...	61	29	26	6	...	...	...	...	...
Mangalore ...	36	15	20	1	...	...	1	5.00	5.00
Masulipatam ...	82	58	23	1	...	2	...	...	8.69
Nellore ...	45	20	24	1	...	...	...	...	...
Palamcottah ...	13	3	10	...	...	...	1	10.00	10.00
Ramnād ...	29	11	18	...	...	...	...	...	...
Salem ...	4	4	...	...	...	...	...	...	...
Tanjore ...	6	5	...	...	...	...	...	...	...
Trichinopoly ...	2	2	...	...	...	...	...	...	...
Vellore ...	2	2	...	...	...	...	...	...	...
Visagapatam ...	85	21	7	...	...	...	...	...	...
Unclassified ...	71	65	6	...	...	...	...	...	...
Total ...	1,243	915	291	42	...	5	4	1.37	3.08

Table II gives the result of treatment in the Headquarters Hospitals.

There seems to be some difficulty in finding out whether the people treated were alive or dead three months after the completion of the treatment, for reports were received about 291 only, whereas the possible number that could have been reported on in the time was about 720.

No other useful comment can be made this year on the results of the new scheme.

PART II.

ON THE MORTALITY DUE TO RABIES.

The enquiry under G.O. No. 716, Public, dated 3rd July 1911, was continued during the year, and the results so far obtained are shown in Table III.

TABLE III.

Year.	Persons observed.	TREATED.			UNTREATED.		
		Number.	Deaths from hydrophobia.	Percentage of deaths.	Number.	Deaths from hydrophobia.	Percentage of deaths.
1913-14 ...	444	169	5	2.9	275	20	7.2
1914-15 ...	382	123	3	2.4	259	16	6.1
1915-16 ...	203	83	...	...	120	3	2.5
1916-17 ...	242	85	3	3.5	157	6	3.8
1917-18 ...	207	86	7	8.1	121	7	5.7
1918-19 ...	247	105	4	3.8	142	13	9.1
1919-20 ...	147	71	1	1.4	76	10	13.1
1920-21 ...	87	20	...	...	67	2	2.9
1921-22 ...	111	39	...	...	72	5	6.9
1922-23 ...	104	31	1	3.2	73	3	4.1
Total ...	2,174	812	24	2.9	1,362	85	6.2

TABLE IV

Showing the risk run when bitten by a rabid animal, the criterion of whose infectivity is the death from hydrophobia of one of the persons bitten.

Number of persons bitten	...	...	...	423
Number untreated...	...	...	...	278
Deaths from hydrophobia among the untreated...	...	...	...	148
Mortality from hydrophobia calculated on total number of persons bitten	...	...	...	32.8

The remainder of the 423 bitten persons, 145 in number, came for anti-rabic treatment after one or more of those bitten by the same animal had died from hydrophobia. None of them developed the disease. This is not to be taken as a measure of the efficacy of the treatment, for these persons had passed the period of greatest risk and probably would not have developed hydrophobia if they had not been treated. They are mentioned merely to account for the whole number in Table IV.

TABLE V

Shows the number and percentage of failures according to the race of patients.

Year.	ASIATICS.			EUROPEANS AND ANGLO-INDIANS.			Persons advised but not treated.
	Total treated.	Failures.	Percentage of failures.	Total treated.	Failures.	Percentage of failures.	
1907-08	121	1	.83	61	...	...	16
1908-09	251	1	.40	89	...	...	38
1909-10	483	1	.21	175	...	...	71
1910-11	603	5	.82	221	1	.45	74
1911-12	810	6	.77	130	...	...	128
1912-13	1,090	18	1.19	150	...	...	210
1913-14	1,141	14	1.23	152	...	...	227
1914-15	1,043	8	.77	167	...	...	185
1915-16	1,379	8	.58	111	...	...	142
1916-17	1,548	15	.97	161	...	...	217
1917-18	2,134	19	.89	262	...	...	328
1918-19	2,825	24	.76	160	1	.66	260
1919-20	2,998	16	.80	178	...	...	233
1920-21	3,446	23	.68	177	...	...	145
1921-22	3,250	25	.76	221	2	.90	211
1922-23	3,197	12	.37	178	...	...	171
Total	23,318	201	.76	2,581	4	.15	2,501

TABLE VI

Shows the number of days that elapsed before patients arrived for treatment.

Number of days after the bite.	1922-23. Number of patients.	Deaths		
		During treatment.	Within 15 days of completion.	More than 15 days after completion.
1-5	1,622	...	4	7
6-10	1,185	1	3	3
11-15	328	1	...	...
16-20	90	...	...	...
21-25	35	...	...	...
26-30	56	...	2	...
31-35	8	...	1	...
36-40	11	...	...	...
Over 40	40	1	...	2
Total	3,375	3	10	12

TABLE VII

Shows the number of persons treated by months.

Month.	1922-23.				Total during previous years.	Complete total.
	Euro-peans.	Anglo-Indians.	Asia-tics.	Total.		
March	10	5	311	326	2,091	2,417
April	7	18	286	311	2,215	2,526
May	17	7	325	349	2,091	2,440
June	8	2	275	285	2,127	2,412
July	19	4	264	287	2,259	2,546
August	16	1	254	271	2,237	2,508
September	15	3	188	206	2,097	2,303
October	5	5	240	250	1,997	2,247
November	7	1	245	253	2,022	2,275
December	5	1	294	300	2,054	2,354
January	6	4	291	301	2,060	2,361
February	6	6	224	236	2,274	2,510
Total	121	57	3,197	3,375	25,524	28,899

TABLE VIII

	Europeans.							Anglo-Indians.						
	A.	B.	C.	D.	E.	F.	Total treated.	A.	B.	C.	D.	E.	F.	Total treated.
Face	2	1	...	...	...	...	8	1	...	...	...	...	...	...
Extremities and trunk (naked).	25	8	54	3	13	...	113	11	...	13	1	10	...	35
Extremities and trunk (through clothing).	8	...	2	...	...	...	5	2	1	11	...	...	...	14
	Asiatics.							All classes.						
	A.	B.	C.	D.	E.	F.	Total treated.	A.	B.	C.	D.	E.	F.	Total treated.
Face	6	1	89	...	...	...	96	8	...	...	...	...	...	107
Extremities and trunk (naked).	87	22	2,406	10	7	...	2,532	15	...	...	...	...	...	2,680
Extremities and trunk (through clothing).	10	8	553	3	...	...	569	2	...	...	...	...	...	588

Explanation of letters.

- A = Animal proved rabid by microscopical or biological test or by both.
 B = Animal certified rabid by a Veterinary Surgeon or Medical Officer. No laboratory tests.
 C = Animal probably rabid according to history. No laboratory tests.
 D = Animal bit and ran away. Nothing known about it.
 E = Animal proved rabid, but chances of virus having got into the patients are highly problematical.
 F = Laboratory tests negative. Animal probably did not suffer from rabies.

TABLE IX

Shows the classification of all deaths according to the part of the body bitten.

	1920-21.			1921-22.			1922-23.		
	Face.	Extremities and trunk (naked).	Extremities and trunk (through clothing).	Face.	Extremities and trunk (naked).	Extremities and trunk (through clothing).	Face.	Extremities and trunk (naked).	Extremities and trunk (through clothing).
During treatment ...	...	3	...	1	4	...	2	...	1
Within 15 days of completion.	1	5	...	2	7	...	3	7	...
More than 15 days after completion.	2	21	...	5	20	2	3	8	1

TABLE X

Shows the Provinces from which the persons treated during 1922-23 came.

Province.	Europeans.	Anglo-Indians.	Asiatics.	Total.
Madras	23	28	1,974	2,025
Bombay	27	5	137	169
Nizam's Dominions	21	2	78	96
Mysore	37	17	308	362
Travancore	...	...	226	226
Cochin	1	...	355	356
Puduchottai	...	...	8	8
Kolhapur	...	...	13	13
French India	...	...	20	20
Singli	...	...	2	2
Portuguese India	...	...	15	15
Miraj	...	...	12	12
Central Provinces	...	...	3	3
Bengal	...	5	36	41
Coorg	2	...	3	5
United Provinces	...	...	2	2
Total ...	121	57	3,197	3,375

TABLE XI

Shows the classification of patients—Europeans, Eurasians and Asiatics.

<i>British Army.</i>					
Officers	...	...	...	...	6
Officers' wives and children	...	...	...	...	...
Soldiers	...	...	...	...	59
Soldiers' wives and children	...	...	...	...	9
Total					74
<i>Indian Army.</i>					
British officers	...	...	...	...	7
Officers' wives and children	...	...	...	...	4
Sepoys	...	...	...	...	14
Followers	...	...	...	...	6
Total					31
<i>European Civilians.</i>					
In Government service	...	...	...	...	2
Not in Government service	...	...	...	...	34
Total					36
<i>Anglo-Indians</i>					
In Government service	...	...	...	...	8
Not in Government service	...	...	...	...	49
Total					57
<i>Asiatics.</i>					
In Government service	...	...	...	...	115
Not in Government service	...	...	...	...	3,062
Total					3,177

TABLE XII

Shows the classification of Asiatic patients treated from 1st March 1922 to 28th February 1923.

Hindus	...	...	...	...	2,343
Muhammadans	...	...	...	...	380
Indian Christians	...	...	...	...	514
Parsees	...	...	...	...	7
Other castes	...	...	...	...	3
Total					3,197

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Contributions were received during the year from—

Local Governments.

	RS.	A.	P.	RS.	A.	P.
Government of Madras	7,000	0	0			
Do. Bombay	1,000	0	0			
Do. French India	500	0	0			
Do. Portuguese India (arrears).	...					
Do. Military Department (arrears).	...					
				8,500	0	0

Native States.

Hyderabad State ... (due) ...	...					
Mysore do.	1,500	0	0			
Travancore do. ... (1921 & 1922) ...	750	0	0			
Cochin do.	500	0	0			
Pudukkottai do.	200	0	0			
				2,950	0	0

Railways.

South Indian Railway	100	0	0			
H.E.H. the Nizam's State Railway ...	100	0	0			
Madras and Southern Mahratta Railway.	150	0	0			
Great Indian Peninsula Railway ...	150	0	0			
Bengal-Nagpur Railway	150	0	0	650	0	0

Cantonments.

1. Bangalore Cantonment	600	0	0			
2. Secunderabad do.	100	0	0			
3. Bellary do.	50	0	0			
4. Poona do.	100	0	0			
5. Aurangabad do.	50	0	0			
6. Ahmednagar do.	50	0	0			
				950	0	0

Regiments.

64th Pioneers	25	0	0			
1st Argyll and Sutherland High-landers	100	0	0			
79th Carnatic Infantry	50	0	0			
18th Brigade, R.F.A., Kirkee ...	120	0	0			
83rd Wallajah Light Infantry ...	100	0	0			
5th Cavalry	75	0	0			
2nd Lincolnshire	30	0	0			
3rd Royal Sappers and Miners ..	100	0	0			
				600	0	0

TABLE XIII

Shows the animals that bit, scratched or licked the patients.

Animal.	During the fifteen years 1907-1922.	During 1922-23.	Total.	Percentage.
Dog	24,478	8,196	27,674	95.75
Wild dog	2	...	2	...
Jackal	685	106	791	2.74
Wolf	3	...	3	...
Cheetah	7	...	7	...
Cat	87	30	117	...
Wild cat	1	1	2	...
Man	129	16	145	...
Monkey	42	10	52	...
Cow	16	3	19	...
Calf	8	1	4	...
Buffalo	4	2	6	...
Horse	29	3	32	...
Mule	1	1	2	...
Donkey	19	2	21	...
Goat	4	1	5	...
Guinea-pig	2	...	2	...
Rabbit	...	1	1	...
Pig	1	...	1	...
Fowl	1	...	1	...
Sheep	...	1	1	...
Laboratory accident	1	...	1	...
Unknown	9	1	10	...
Total	25,524	3,375	28,899	...

TABLE XIV.

Analysis of specimens sent or brought to the Institute for examination for rabies.

		1st March 1921 to 28th February 1922.	1st March 1922 to 28th February 1923.
No.	Remarks.	No.	Remarks.
Both microscopic and biological tests, positive.	1	...	
Both microscopic and biological tests, negative.	7		
Microscopic test, positive, but biological test, negative.	...	...	
Microscopic test, doubtful, but biological test, positive.	...	1	
Microscopic test, negative, but biological test, positive.	1		
Microscopic test only applied	227	211 positive, 16 negative.	224 positive, 12 negative.
Biological test only applied	3	3 positive, 1 negative.	
Neither test was carried out	56	Brain putrid and unfit for examination.	Brain putrid and unfit for examination.
Total	295		290

12

TABLE XV.

Deaths from Hydrophobia.

No.	Race.	Sex.	Age.	Biting animal.	Number and position of bites.	On bare skin or through clothing.	Canterised or not.	Interval between bite and beginning of treatment in days.	Interval between end of treatment and death in days.	Interval between bite and death in days.
<i>During treatment.</i>										
1	Asiatic.	M.	35	Dog	2 left knee	... through clothing...	Not canterised.	60	...	72
2	"	M.	5	"	5 face	... Bare skin	"	11	...	17
3	"	F.	5	"	8 "	... "	Canterised	6	...	79
<i>Less than 15 days after completion of treatment.</i>										
1	Asiatic.	M.	14	Dog	2 right hand, 3 left knee.	Bare skin	Not canterised.	30	9	53
2	"	M.	10	"	Several, right gluteal	"	"	6	8	23
3	"	M.	22	"	2 right foot, 1 right thumb.	"	Canterised	28	33	75
4	"	M.	72	"	3 right thigh, 2 left hand.	"	Not canterised.	6	9	29
5	"	M.	10	Jackal	2 left hand, 3 right cheek.	"	"	4	13	30
6	"	M.	15	"	3 left brow	"	Canterised	5	13	32
7	"	M.	12	"	4 right thigh, 1 left leg.	"	Not canterised.	35	6	55
8	"	M.	5	"	1 lower lip	"	"	5	14	33
9	"	M.	25	Jackal	1 left hand	"	Canterised	1	14	29
10	"	M.	32	"	5 right hand	"	"	8	13	35
<i>More than 15 days after completion of the treatment.</i>										
1	Asiatic.	M.	12	Dog	6 left leg	Through clothing.	Canterised	5	35	54
2	"	M.	8	"	4 face	"	Not canterised.	8	23	44
3	"	M.	40	"	4 left foot	"	"	4	80	98

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TABLE XV—cont.
Deaths from Hydrophobia—cont.

No.	Race.	Sex.	Age.	Biting animal.	Number and position of bites.	On bare skin or through clothing.	Canterized or not.	Interval between bite and beginning of treatment in days.	Interval between end of treatment and death in days.	Interval between bite and death in days.
<i>More than 15 days after completion of the treatment—Cont.</i>										
4	Asiatic.	M.	20	Dog	5 right hand	Bare skin	Not canterized.	9	23	45
5	"	M.	11	"	3 left leg	"	"	5	53	71
6	"	M.	13	Jackal	5 chin	"	Canterized	5	18	37
7	"	M.	10	Dog	4 right leg	"	Not canterized.	3	76	93
8	"	M.	11	"	5 right hand and thigh	"	Canterized	1	43	57
9	"	M.	36	"	5 right hand	"	Canterized	8	32	54
10	"	M.	25	Jackal	3 right foot	"	Not canterized.	40	17	71
11	"	M.	9	"	2 left leg	"	"	40	21	75
12	"	F.	6	Dog	1 right ear	"	"	5	23	41

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THE SIXTEENTH ANNUAL REPORT OF THE
CENTRAL COMMITTEE OF THE PASTEUR
INSTITUTE OF SOUTHERN INDIA, COONOR.

The office of President of the Association was filled during the year by Major-General Sir Gerald Godfray Giffard, K.O.I.E., C.S.I., K.H.S., I.M.S.

Lieut.-Col. J. W. Cornwall, I.M.S., was the Honorary Secretary and Treasurer of the Association during the year.

The Central Committee of the Association met six times during the year on the following dates:—

June 21st, 1922, at Coonor.
June 30th, 1922, at Coonor (special meeting).
August 16th, 1922, at Coonor (do. do.).
November 29th, 1922, at Madras.
February 3rd, 1923, at Coonor (special meeting).
March 14th, 1923, at Madras.

The Fifteenth Annual General Meeting of the members of the Association was held in Madras on November 29th, 1922, at which the following Committee for the year 1922-23 was formed:—

List of Ex-officio Members of the Central Committee.

1. The General Officer Commanding, Madras District.
2. The Collector of the Nilgiris.
3. The District Medical and Sanitary Officer of the Nilgiris.
4. The Surgeon-General with the Government of Madras.
5. The Principal, Medical College, Madras.
6. The Director, King Institute, Guindy.
7. The Officer Commanding, Station Hospital, Wellington.
8. The Chairman, Municipal Council, Coonor.
9. The Director, Pasteur Institute, Coonor.
10. The Diwan of Mysore.
11. The Diwan of Cochin.
12. The Diwan of Travancore.
13. The Diwan of Pudukkottai.
14. The Prime Minister to His Exalted Highness the Nizam.
15. The Sanitary Commissioner with the Government of Madras.
16. The Superintending Engineer, IV Circle, Coimbatore.
17. The Assistant Director of Medical Services, Madras District.
18. The Surgeon to His Excellency the Governor of Madras.
19. The Personal Assistant to the Surgeon-General with the Government of Madras.
20. The Officer Commanding, Station Hospital, Madras.
21. The Agent, South Indian Railway, Trichinopoly.
22. The Assistant Director, Pasteur Institute, Coonor.

List of Elected Members of the Central Committee for 1922-23.

No.	Name.	Designation.
1.	J. O. Robinson, Esq.	Director, Messrs. Spence & Co., Madras.
2.	J. C. Molony, Esq., I.C.S.	Collector, Vellore.
3.	M.R.Ry. T. V. Seshagiri Ayyar	M.L.A., Madras.
	Avargal.	
4.	Sir W. B. Ayling, Kt., I.C.S.	Judge, High Court, Madras.
5.	Diwan Bahadur G. Narayanaswami	Landlord, Madras
	Chetti Garu.	
6.	Dr. F. Milton	Coonoor.
7.	T. M. Ross, Esq.	Director, Messrs. Best & Co., Madras.
8.	W. Rhodes James, Esq.	Coonoor.
9.	Khan Bahadur Muhammad Usman Sahib	M.L.C., Madras.
	Bahadur.	
10.	J. W. Madeley, Esq., M.A., M.I.E.E. ...	Madras.
11.	M.R.Ry. O. Ramanathan Avargal ...	Solicitor, Madras.
12.	Khan Bahadur Muhammad Sad-ul-lah	M.L.C., Madras.
	Badshah Sahib Bahadur.	
13.	J. Milton, Esq.	Coonoor.
14.	J. Florence, Esq.	Coonoor.
15.	Major L. L. Porter	Coonoor.
16.	J. F. Morris, Esq.	Coonoor.
17.	Rao Sahib G. Venkatapati Nayudu Garu.	Landlord, Madras.
18.	The Zamindar of Marungapuri, Estate ...	Manapparai.
19.	Sir M. C. T. Muttayya Chettiyar Avargal,	Sheriff, Madras.
	Kt.	
20.	Lieut.-Col. E. W. C. Bradfield, O.B.E.,	Madras.
	I.M.S.	
21.	Thomas Eagan, Esq.	Director, The Coonoor Emporium.
22.	E. W. Fritchley, Esq.	"Shelwood," Coonoor.
23.	Rev. E. M. Macphail, C.B.E., D.D. ...	Madras.
24.	The Hon. Mr. Justice Phillips	Judge, High Court, Madras.
25.	Alex. MacDougall, Esq.	Madras.
26.	Brigadier-General C. L. Magniac ...	Madras.
27.	N. M. Murray, Esq.	Imperial Bank, Madras.
28.	J. M. Smith, Esq.	Messrs. P. Orr & Sons, Madras.

The following gentlemen retired from the Central Committee during the year:—

1. Sir J. F. Simpson, Kt.
2. W. Lamb, Esq.
3. Sir Robert Stanes, Kt.
4. A. E. Lawson, Esq.
5. Sir W. B. Ayling, Kt., I.C.S.
6. Rao Sahib G. Venkatapati Nayudu Garu.
7. The Zamindar of Marungapuri.
8. Sir M. C. T. Muttayya Chettiyar Avargal, Kt.
9. Lieut.-Col. E. W. C. Bradfield, O.B.E., I.M.S.
10. Thomas Eagan, Esq.
11. E. W. Fritchley, Esq.
12. W. M. Miller, Esq.

The following gentlemen were elected to the Central Committee during the year:—

1. Major L. L. Porter, Coonoor.
2. J. Florence, Esq., Coonoor.
3. J. F. Morris, Esq., Coonoor.
4. Rao Sahib G. Venkatapati Nayudu Garu.
5. The Zamindar of Marungapuri.

Firms.

	RS.	A.	P.	RS.	A.	P.
Messrs. Cox & Co.	100	0	0			
" Turner & Co.	100	0	0			
" Gannon, Dunkerley & Co. ...	30	0	0			
" Chrome Leather Co., Madras	50	0	0			
" Volkart Brothers	100	0	0			
" Best & Co.	100	0	0			
" Parry & Co.	100	0	0			
" Wilson & Co.	100	0	0			
" Beardsell & Co.	100	0	0			
" Bombay Co.	100	0	0			
" South Indian Export Co ...	100	0	0			
" Buckingham and Carnatic Mills.	200	0	0			
				1,180	0	0

Madras Presidency District Boards.

1. District Board of Kistna	338	0	0
2. Do. Madura	300	0	0
3. Do. Rāmnād	280	0	0
4. Do. Guntūr	287	0	0
5. Do. Gōdāvari	260	0	0
6. Do. Anantapur	150	0	0
7. Do. Ganjām	200	0	0
8. Do. Chittoor	209	0	0
9. Do. Tinnevely	304	0	0
10. Do. South Kanara	200	0	0
11. Do. Chingleput	125	0	0
12. Do. Cuddapah	151	0	0
13. Do. Salem	299	0	0
14. Do. Bellary	166	0	0
15. Do. Malabar	511	0	0
16. Do. Tanjore	401	0	0
17. Do. North Arcot	331	0	0
18. Do. Karnool	150	0	0
19. Do. Coimbatore	716	0	0
20. Do. Vizagapatam	367	0	0
21. Do. Trichinopoly	400	0	0
22. Do. South Arcot	300	0	0
23. Do. Nellore	100	0	0
24. Do. Koraput	25	0	0
25. Do. The Nilgiris	100	0	0
26. Taluk Board of Mangalore ...	5	0	0
			6,695 0 0

Madras Presidency Municipalities.

1. Tenali Municipal Council	45	0	0
2. Chidambaram do.	52	0	0
3. Madura do.	335	0	0
4. Tiruvannāmalai do.	21	0	0
5. Pēddāpuram do. (due Rs. 101) ...			
6. Periyakulam do.	45	0	0
7. Ellore do.	92	0	0

Madras Presidency Municipalities—cont.

		RS.	A.	P.	RS.	A.	P.
8. Salem Municipal Council.	...	147	0	0			
9. Chingleput	do.	27	0	0			
10. Negapatam	do.	75	0	0			
11. Srivilliputtūr	do.	72	0	0			
12. Bellary	do. (due Rs. 85).	...					
13. Berhampur	do.	20	0	0			
14. Virudupatti	do.	52	0	0			
15. Erode	do.	40	0	0			
16. Udamalpet	do.	20	0	0			
17. Mannārgudi	do.	35	0	0			
18. Tinnevely	do.	110	0	0			
19. Tiruppattūr	do.	25	0	0			
20. Dhārāpuram	do. due Rs. 10.	50	0	0			
21. Palni	do.	32	0	0			
22. Adōni	do. (1921 and 1922).	154	0	0			
23. Bimlipatam	do.	22	0	0			
24. Palamcottah	do.	110	0	0			
25. Narasaraopet	do.	20	0	0			
26. Karūr	do.	22	0	0			
27. Walajapet	do.	25	0	0			
28. Māyavaram	do. (due Rs. 33-8).	...					
29. Anakāpalle	do. (due Rs. 50).	50	0	0			
30. Ongole	do.	32	0	0			
31. Vizianagram	do.	92	0	0			
32. Chittoor	do.	37	0	0			
33. Dindigul	do.	62	0	0			
34. Coimbatore	do.	75	0	0			
35. Tuticorin	do.	100	0	0			
36. Conjeeveram	do.	132	0	0			
37. Guntūr	do. (due Rs. 100).	...					
38. Parlākimedi	do. (due Rs. 90).	...					
39. Cochin	do.	50	0	0			
40. Cuddapah	do.	42	0	0			
41. Ootacamund	do.	200	0	0			
42. Anantapur	do.	25	0	0			
43. Kodaikānal	do.	25	0	0			
44. Tiruppūr	do.	24	12	0			
45. Calicut	do.	195	0	0			
46. Kumbakōnam	do.	25	0	0			
47. Tanjore	do.	150	0	0			
48. Cuddalore	do.	30	0	0			
49. Mangalore	do.	120	0	0			
50. Palghat	do.	50	0	0			
51. Vizagapatam	do.	107	0	0			
52. Masulipatam	do.	105	0	0			
53. Nellore	do.	25	0	0			
54. Kurnool	do.	65	0	0			
55. Vāniyambādi	do.	50	0	0			
56. Bōdināyakkanūr	do.	30	0	0			
57. Nandyāl	do.	40	0	0			
58. Proddatūr	do. (due Rs. 37).	...					
59. Chicacole	do.	60	0	0			
60. Oonoor	do.	25	0	0			
61. Vellore	do.	50	0	0			

Madras Presidency Municipalities—cont

		RS.	A.	P.	RS.	A.	P.
62. Madras Corporation	...	250	0	0			
63. Cannanore Municipal Council (due Rs. 60)	...	...					
64. Rajahmundry	do. (due Rs. 240).	200	0	0			
65. Tirupati	do. (1921 and 1922).	20	0	0			
66. Srirangam	do. (due Rs. 25).	...					
67. Cocanada	do.	135	0	0			
68. Hospet	do. (due Rs. 10).	10	0	0			
69. Tiruvālūr	do. (due Rs. 20).	...					
70. Gudiyāttam	do.	10	0	0			
71. Tellicherry	do.	30	0	0			
72. Bezwada	do. (due Rs. 40).	...					
73. Trichinopoly	do. (1921 and 1922).	614	0	0			
74. Mercara	do.	25	0	0			
75. Pollachi	do. (due Rs. 25).	...					
76. Tadpatri	do.	32	0	0			
77. Hindupur	do.	10	0	0			
78. Sivakāsi	do.	10	0	0			
					5,067	12	0

Bombay Presidency District and Taluk Local Boards.

1. District Local Board of Thana	...	200	0	0
2. Do. Bijapur	...	100	0	0
3. Do. Kolaba	...	50	0	0
4. Do. Poona	...	50	0	0
5. Do. West Khandesh	...	...		
	(due Rs. 50).	...		
6. Do. Dharwar	...	100	0	0
7. Do. Ratnagiri	...	25	0	0
8. Do. Satara	...	300	0	0
9. Do. Belgaum (1921 and 1922).	...	100	0	0
10. Do. Sholapur	...	150	0	0
11. Taluk Local Board of Salsette (1921 and 1922).	...	100	0	0
12. Do. Vada (1921 and 1922).	...	10	0	0
		1,185	0	0

Bombay Presidency Municipalities.

1. Poona City Municipal Council	...	60	0	0
2. Poona Suburban do.	...	50	0	0
3. Bijapur Municipal Council (due Rs. 25).	...	...		
4. Haveri do.	...	4	14	0
5. Navalgund do. (due Rs. 20).	...	...		
6. Ilkal do.	...	20	0	0
7. Junar do.	...	1	0	0
8. Jejuri do.	...	10	0	0
9. Athni do.	...	12	0	0
10. Nipani do.	...	5	0	0
11. Sasvad do.	...	5	0	0
12. Satara Suburban do.	...	30	0	0
13. Panvel do.	...	5	0	0
		202	14	0

Donations from Patients.

	RS.	A.	P.	RS.	A.	P.
1. Miss Jeyam	1	0	0			
2. Mr. J. Cumming	20	0	0			
3. Mr. S. Koder	200	0	0			
4. Mr. Sankaranarayana Pillai ...	50	0	0			
5. Mrs. H. Stevenage	5	0	0			
6. Mr. Ramamurti	2	0	0			
7. Mr. Kasi Chetti	5	0	0			
8. Yuvaraj of Vizianagram	100	0	0			
9. Mr. Krishnaswami	25	0	0			
10. Capt. Lennox	40	0	0			
11. Mrs. Sewell	50	0	0			
12. Mr. R. V. Patback	10	0	0			
13. Mr. Subba Rao	2	0	0			
14. Major F. B. Scott	50	0	0			
15. Mr. Venkatarama Rao	5	0	0			
16. Sergeant Ferni	10	0	0			
17. Mr. W. R. E. Taylor	30	0	0			
18. Mr. N. Sarabhalingam	5	0	0			
19. Mrs. Winckler	15	0	0			
20. Mr. P. V. Ranade	15	0	0			
21. Mrs. A. Z. Ward	25	0	0			
22. Mrs. F. A. Steele	25	0	0			
23. Mr. Rajasekhara Reddi	5	0	0			
24. Miss Wolf	10	0	0			
25. Mr. Ramaswami Nayudu	10	4	0			
26. Mr. R. Jackson	100	0	0			
27. Mr. K. A. Srinivasa Ayyar ...	5	0	0			
				820	0	0

Special donations from others.

1. Mrs. Ratna Bai Wadia	100	0	0			
2. Mr. A. R. Talyar Khan	20	0	0			
3. Dr. De Monte	400	0	0			
4. Mr. H. D. Pndumjee	200	0	0			
5. Captain Carleton	60	0	0			
6. Messrs. John, Taylor & Sons ...	1,500	0	0			
7. Western India Turf Club	1,000	0	0			
				3,280	0	0

The following Government orders have been recorded :—

Revised memorandum for the treatment of patients at the Headquarter Hospitals and at the Pasteur Institute, Coonoor.
G.O. No. 1690, P.H., dated 6th December 1922.

Recording the Audit Report of the Pasteur Institute Accounts for the year 1921-1922.
G.O. No. 272, P.H., dated 15th February 1923.

Sanctioning the charge of Rs. 10 for each course of anti-rabic vaccine sent out to Head-quarter Hospitals.
G.O. No. 273, P.H., dated 15th February 1923.

The Governments of Bombay and of Portuguese India, and all the District Local Boards and Municipalities in the Bombay Presidency have withdrawn their contribution to this Institute, as the Government of Bombay have opened an Antirabic Department at the Bombay Bacteriological Laboratory.

The statement showing the Receipts and Payments of the Institute during the year 1922-23 is appended to the report. The net receipts, excluding the refunds of advances, amounted to Rs. 40,880, and the net payments, excluding advances and capital expenditure, amounted to Rs. 38,288. The additional capital expenditure of Rs. 9,443 was met from the invested funds of the Institute.

APPENDIX I.

Rainfall in inches in Coonoor.

Average for ten years (1908-17).		Maximum	Minimum	1918.	1919.	1920.	1921.	1922.
		during the ten years.						
January ...	5.49	18.34	0.00	6.46	9.75	10.99	12.25	8.53
February ...	2.99	6.63	0.44	0.41	0.00	0.00	...	1.52
March ...	2.04	11.22	0.00	1.61	0.23	0.11	0.46	0.79
April ...	2.56	9.66	0.21	3.50	3.15	8.45	4.26	8.61
May ...	4.07	8.24	1.29	7.29	4.98	4.57	4.10	6.01
June ...	3.11	7.27	0.66	3.16	2.37	2.58	1.88	4.80
July ...	4.36	9.64	0.70	1.49	3.42	1.10	6.89	1.50
August ...	4.12	7.73	0.84	3.24	2.63	2.33	6.81	2.69
September ...	5.36	18.57	1.46	1.66	11.88	4.12	2.65	4.30
October ...	12.54	29.61	4.30	14.50	16.49	8.27	13.85	25.81
November ...	11.08	19.79	0.32	26.89	14.83	10.58	2.77	11.76
December ...	4.68	11.63	0.00	5.68	9.59	0.00	3.97	3.84
Total ...	63.30	...	...	75.89	79.27	53.05	59.99	80.18

Maximum fall 84.92 inches in 1912.
Minimum fall 45.08 inches in 1908.

APPENDIX II.

Instructions for dealing with persons bitten by dogs or other animals which may be rabid.

1. When any person is bitten by an unknown dog without provocation he should go to Coonoor for treatment without delay, for experience has shown that it is likely that such a dog is rabid.

2. When any person is bitten by a dog which is known and can be captured, that dog should not be killed but securely tied up.

(a) If it is alive and well ten days after inflicting the bite the person bitten need not go for treatment.

(b) If, however, the dog falls ill or dies within ten days the person bitten should go for treatment and take with him portions of the dog's brain for verification, preserved according to the instructions issued.

3. Persons who are licked on the unbroken skin need not come for treatment.

4. Persons who have merely handled rabid animals and have no recent wounds need not come for treatment.

APPENDIX III.

Statement showing the Receipts and Payments of the Pasteur Institute of Southern India, Coonoor, for 1922-23.

APPEN

Statement showing the Receipts and Payments of the

Receipts.	Amount.		
	RS.	A.	P.
Opening balance with the Ootacamund Bank	1,742	14	9
Opening balance with the Coonoor Sub-Treasury.	11,509	2	5
Opening balance, fixed deposit	10,000	0	0
Opening balance with the Coonoor Post Office	232	15	1
Opening balance in hand	500	0	0
	23,985	0	3
Subscriptions from the members of the Association ...	348	3	0
Subscriptions from the members of the Committee ...	295	0	0
Contributions from the Madras District Boards ...	6,695	0	0
Contributions from the Madras Municipalities ...	5,067	12	0
Contributions from the Bombay District Local Boards ...	1,185	0	0
Contributions from the Bombay Municipalities ...	202	14	0
Contribution from the Government of Madras ...	7,000	0	0
Contribution from the Government of Bombay ...	1,000	0	0
Contribution from the Government of French India ...	500	0	0
Contributions from Native States	2,950	0	0
Contributions from Cantonments	950	0	0
Contributions from Railways	650	0	0
Contribution from Regiments	600	0	0
Contribution from firms	1,180	0	0
Donations from patients	820	0	0
Donations from others	3,479	0	0
Interest on investments	1,045	13	7
Cost of antirabic vaccine recovered	1,238	8	0
Miscellaneous receipts	3,139	11	9
Refunds of cent-ge, etc., by the P.W.D.	2,533	12	9
Total ...	40,880	11	1
Refunds of advances	20,242	9	0
Total receipts ...	85,108	4	4

PASTEUR INSTITUTE, COONOR,
1st March 1923.

DIX III.

Pasteur Institute of Southern India, Coonoor, for 1922-23.

Payments.	Amount.		
	RS.	A.	P.
Paid to Government for salaries advanced to medical staff.	3,743	13	4
Other establishment charges	10,076	0	0
Cost of apparatus and chemicals	5,552	15	4
Purchase of animals	1,091	7	0
Food for animals	990	2	0
Cost of books and journals	2,083	3	2
Postage and telegram charges	1,442	4	0
Cost of stationery and printing	275	1	6
Gas house charges	1,576	7	6
Charges for refrigerator	1,788	9	4
Premium on Fire Insurance Policies	373	13	0
Laboratory charges	715	5	7
Travelling allowance of officers	426	8	0
Improvements and annual repairs to buildings	2,423	11	6
Cost of furniture and tools	790	6	0
Miscellaneous charges	1,369	4	3
Charges for vaccine	2,829	8	0
Discounts and Bank charges	19	15	0
	38,288	6	6
Advances to patients	20,371	7	5
Cost of new buildings	9,443	15	8
Total ...	68,103	13	7
Closing balance with Ootacamund Bank	5,562	7	1
Closing balance with Coonoor Sub-Treasury	5,709	0	7
Closing balance with fixed deposit	5,000	0	0
Closing balance with Coonoor Post Office	232	15	1
Closing balance in hand	500	0	0
	17,004	6	9
Grand total ...	85,108	4	4

J. W. CORNWALL, Lieut.-Col., I.M.S.,
Honorary Secretary and Treasurer.

APPENDIX IV.

The following scientific papers dealing with work done in the Institute were published during the year :—

33. Note on the occurrence of the larvæ of *Phlebotomus crassirostris*, Stein, in the human intestine. W. S. Patton.

34. Note on two cases of cutaneous myiasis caused by the larva of *Sarcophaga* sp? W. S. Patton.

35. Note on the egg-laying habits of *Cobboldia elephantis*. W. S. Patton.

36. Note on the value of a tame cow for collecting the blood-sucking Diptera of a locality. W. S. Patton.

37. New Indian species of the genus *Musca*. W. S. Patton.

38. *Hypoderma crossia*, sp. nov., paracitic in its larval stages in cattle and goats in the Panjab. W. S. Patton.

39. A new variety of *Streptothrix* cultivated from mycetoma of the leg. J. W. Cornwall and H. M. LaFrenais.

40. Note on the salivary glands and sucking apparatus of *Cimex rotundatus*. J. W. Cornwall.

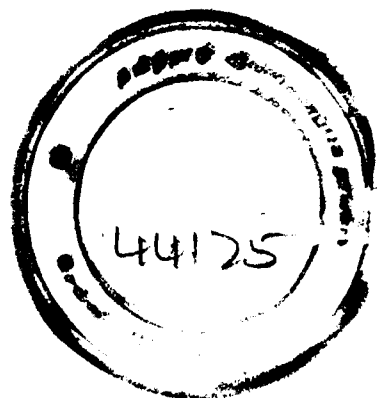
41. On the structure of the salivary pump in certain blood-sucking and other insects. J. W. Cornwall.

42. The Pathogenesis of deficiency disease.

Part XII. Concerning the function of the adrenal gland and its relation to the concentration of hydrogenions. R. McCarrison.

Part XIII. Effect of heat, cold, serum and sunlight on the action of epinephrin and adrenalin hydrochloride. R. McCarrison.

All the above were published in the Indian Journal of Medical Research. Vol. X, 1922.



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