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TRENGGANU.



Annual Medical Report
For 1939.



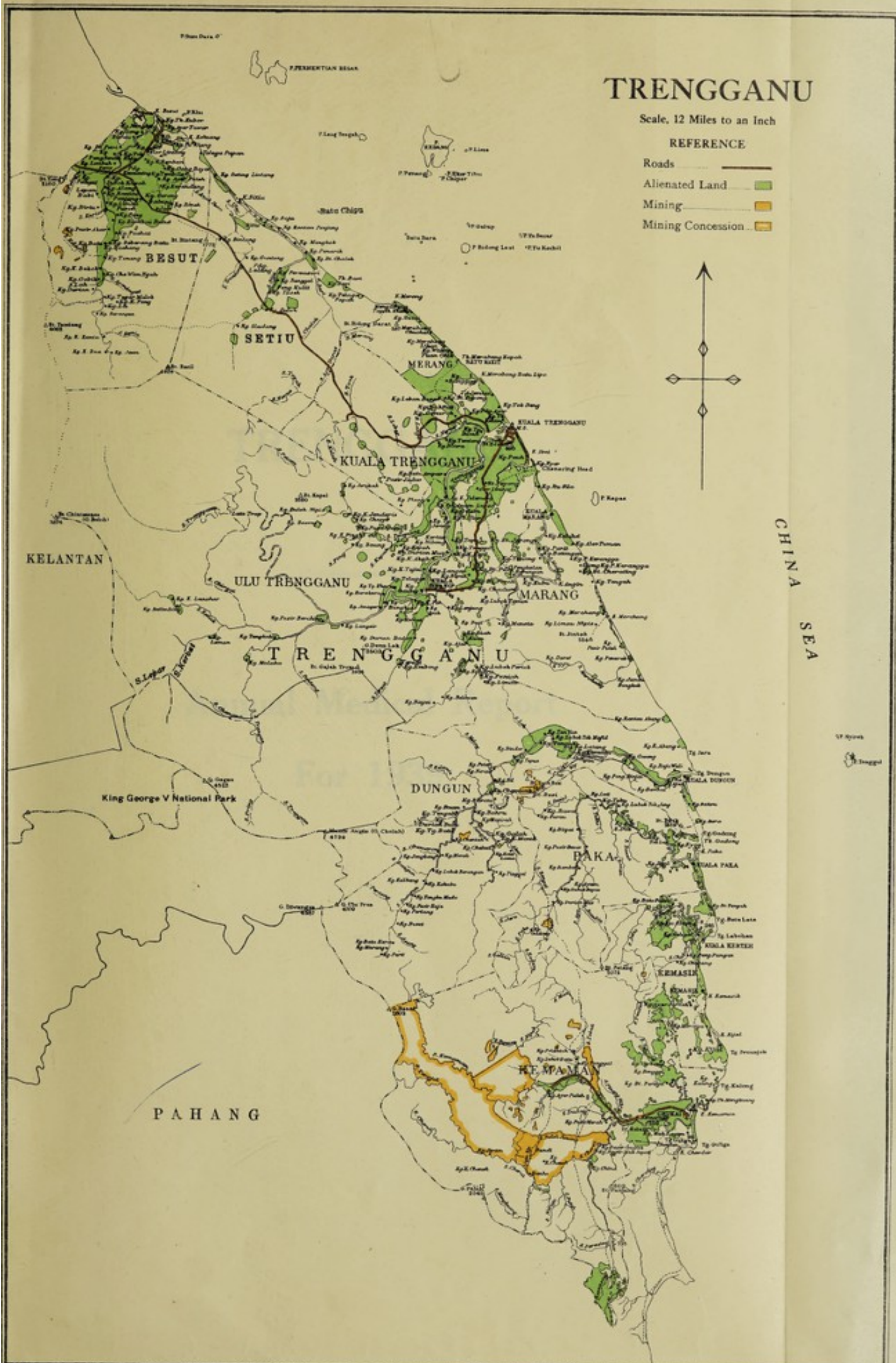
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TRENGGANU

Scale, 12 Miles to an Inch

REFERENCE

- Roads —————
- Alienated Land ————
- Mining ————
- Mining Concession ————



TRINIDAD

Map of the Island of

Trinidad, showing

the principal towns and

the principal rivers.

Scale of Miles.

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TRENGGANU.



Annual Medical Report
For 1939.

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TRENGGANU.
ANNUAL MEDICAL REPORT
FOR THE YEAR 1939.

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I.—ADMINISTRATION.

(A) Staff.

(a) Medical Officer.

Dr. A. L. Sheild.

(b) Assistant Medical Officers.

Dr. Ten Yoon Fong L. M. S. Kuala Trengganu.

Dr. Suppiah Kanagalinggam L.R.C.P. & S. (Edinburgh), L.R.F.P. & S. (Glasgow)
Dungun.

Dr. T. Danaraj L. M. S. Kemaman.

(c) Assistant Dental Surgeon.

Mr. Leaw Khin Siong was appointed on 1.10.39 and commenced work in Kuala Trengganu on 27.10.39.

The strength of the staff at the end of the year was as follows:—

Medical Officer	..	1	
Assistant Medical Officers	..	3	
Assistant Dental Surgeon	..	1	
Staff Nurse	..	1	
Nurses	..	3	(1 grade III, 2 probationer)
Midwives	..	4	
Male Dressers	..	28	(one special grade, one grade I, eight grade II, ten grade III and eight probationers)
Vaccinators	..	4	
Health Inspectors	..	3	
Clerks	..	4	
Steward & Store-keeper	..	2	
Menials	..	46	

(B) Finance.

		Actual Expenditure
	1938	1939
Personal Emoluments	\$ 71,744.69	\$ 74,490.25
Annually Recurrent	47,461.09	59,504.35
Special Votes	1,480.03	3,356.33
	<u>\$120,685.81</u>	<u>\$137,350.93</u>

(N.B.—\$1.00=two shillings and four pence).

The revenue collected by the Medical Department was as follows:—

	1938	1939
Hospital Charges	\$2,483.12	\$2,364.90
Sale of Medicine	539.50	814.00
Licences to druggists and dentists	150.00	170.00
Registrar, Births and Deaths	65.50	119.00
Miscellaneous	52.35	35.06
	<u>\$3,290.47</u>	<u>\$3,502.96*</u>

* Because of the war, \$2,059.82 of this sum was spent on a reserve supply of drugs, condensed milk and powdered skim milk.

The following table compares the financial position with that of previous years:—

Year.	Revenue from Medical Department.	Revenue of State.	Expenditure of Medical Department.	Expenditure of State.	Percentage of Medical to State Expenditure.
1934	\$ 764.05	\$1,699,319.12	\$ 59,380.93	\$1,405,157.17	4.23%
1935	1,693.68	2,196,949.07	69,601.05	2,038,841.49	3.41%
1936	1,929.46	2,431,519.52	92,928.96	1,911,730.81	4.86%
1937	3,079.65	2,660,398.98	112,516.16	2,645,686.33	4.25%
1938	3,290.47	2,427,004.47	120,685.81	2,360,446.88	5.11%
1939	3,502.96	2,527,544.46	137,350.93	2,666,995.84	5.15%

The expenditure of the State included \$196,696.68 in respect of repayment of loans to the Straits Settlements Government.

(C) Buildings.

The following buildings were completed during the year:—

Kuala Trengganu.—

- (i) Permanent building containing Dental Clinic, Waiting Room and office for the Assistant Medical Officer.
- (ii) Two Dressers Quarters.
- (iii) One block of four attendants quarters.

Besut.—

An emergency ward of six beds was completed early in the year.

Dungun.—

- (i) Additions to the Dispensary to include office for Assistant Medical Officer, midwife's office and emergency operating theatre.
- (ii) One female ward of ten beds.

PUBLIC HEALTH.

(A) Population.

The population at the 1921 census was 153,765 while at the end of 1931 census it was 179,789 of which 92,354 were males and 87,435 were females. It comprised:—

Malaysians	164,564
Chinese	13,254
Indians	1,371
Europeans	35
Eurasians	15
Others	550

Calculated by the geometrical method, the 1939 mid-year population was 204,543 and the rates for births and deaths are calculated on this basis.

(B) Births.

There were 6,956 (8,259)* live births registered during the year of which 3,535 (4,269) were males and 3,421 (3,990) were females. The ratio of male to female births was thus 1,033 (1,069) per 1,000 females born. The birth rate was 34.01 (41.01) per mille. The number of still births recorded was 276 (337), a rate of 39 (40) per 1,000 total births.

Appendix B sets out the births according to race.

*Throughout this report these figures in brackets are for 1938.

(C) Deaths.

The number of deaths registered was 5,432 (4,785), a rate of 26.56 (23.76) per mille; of these, 2,954 (2,626) were males and 2,478 (2,159) were females.

The highest number of deaths was 545 (in November) and the lowest 387 (in September). Deaths of children under 5 years of age numbered 2,333 (2,073) or 42.94% (43.53%) of the total deaths.

Appendix B shows the deaths arranged according to sex, race and age group.

Causes of Deaths.—The main courses of deaths as reported during the last five years have been:—

	1935	1936	1937	1938	1939
Unspecified fever and Malaria	2,557	2,661	2,761	2,756	3,472
Convulsions	996	1,095	867	1,245	1,147
Intestinal Diseases	264	172	183	113	144
Beri-beri	76	61	23	31	45
Respiratory Diseases	143	140	90	115	141
Maternal Mortality	77	64	53	65	59
Senility	238	217	212	229	227
Accidents	50	66	60	39	56
Other Causes	218	197	182	192	141
Total	4,619	4,673	4,431	4,785	5,432

A closer analysis of the causes of deaths would be useless for the reason that barely 4% of the deaths are certified by qualified medical practitioners.

Of the 3,472 cases of deaths due to unspecified fever and malaria only 57 (86) are known to have been caused by malaria, two of which were cases of black water fever. There were sixteen cases described as 'deman kepala' which means a long continuous fever and might be enteric or typhus. As to the others, no cause can be assigned.

Noxious Animals.—One (6) person was killed by a tiger and 1 (0) by a crocodile.

Deaths due to insects.—Two children died following multiple stings by hornets.

Maternal Mortality.—*Fifty nine (65) women were stated to have died as the result of child birth giving a rate of 8.15 (7.89) per thousand births (alive and still). One woman died as the result of abortion.

(D) Infantile Mortality.

The number of deaths of children under one year of age was 1,552 (1,654) or 28.75% (28.93%) of the total number of deaths of which 839 (953) were males and 713 (701) were females. The infantile mortality rate was 223.12 (200.26) per mille, while the mortality rate of children under the age of 4 weeks was 73.60 (76.89) per 1,000 live births.

*Includes one death from abortion.

The following table shows the infant mortality rates per mille in various districts for the last five years:—

	1939		1935	1936	1937	1938	1939
	No. of births.	No. of Infant deaths.					
Besut ..	739	117	115.01	182.13	146.23	142.09	158.32
Setiu Rakit ..	250	35	172.98	283.15	162.17	177.70	140.00
Batu Rakit ..	450	135	226.74	288.21	150.11	214.81	300.00
K. Trengganu	3,104	723	200.66	201.72	174.89	209.96	232.92
Ulu Trengganu	445	86	269.07	141.37	139.10	110.74	193.82
Marang ..	375	73	239.32	190.71	149.28	184.53	194.66
Dungun ..	508	115	257.31	280.75	207.09	242.73	226.37
Paka ..	181	65	317.92	267.07	267.70	259.56	355.80
Kemasek ..	187	47	238.99	278.78	252.81	219.39	251.33
Kemaman ..	717	156	250.76	230.78	218.18	251.61	217.57
Whole State ..	6,956	1,552	207.65	213.09	175.60	200.26	223.12

This table is arranged geographically, Besut being in the North and Kemaman in the South, and with the exception of Ulu Trengganu, all are situated on the coast.

The figures for 1939 show a slight increase in infant mortality for the whole state but there is a marked increase in the rate at Batu Rakit and Paka.

Being on the coast these places are fairly free of malaria compared with Ulu Trengganu where the spleen rate is high but the infant mortality rate comparatively low, so that malaria cannot be held to be the main factor in this high rate.

As was suggested in last year's report, the two main factors appear to be (a) improper feeding and (b) the conditions of extreme squalor and overcrowding that still persist in many of the coast towns and larger 'kampongs'. This is particularly noticeable in Paka where it is thought that the steps now being taken to demolish the old town and rebuild a new one will give more favourable figures in the future.

Even more important than overcrowding and squalor is the question of malnutrition. In all the coastal towns and larger 'kampongs' cheap brands of condensed milk are available and the Malay mothers prefer to give the child this milk improperly diluted rather than breast feed it. In the Ulu, tinned milk is not so easily obtained and the mother has to breast feed her child; this is probably why these children thrive better than those on the coast. Although there are infant welfare centres at Besut, Kuala Trengganu, Dungun and Kemaman, the Malays in these towns seldom bring their children for advice or treatment. These difficulties will be overcome only by teaching school-girls the elements of hygiene and health and, when the State can afford it, the employment of a Health Sister to visit 'kampongs'.

(E) Registration of Births and Deaths.

The Medical Officer is registrar while he has a clerk who acts as Assistant Registrar. There are deputy registrars at the following 42 places:—

Hospitals, Kemaman and Dungun—Assistant Medical Officers.

28 Police Stations—Officers in charge.

2 Customs Offices—Officers in charge.

10 Offices of Penghulus (district head-men).

It is considered that the registration is now fairly complete but there were 11 prosecutions for failure to register births and 2 for failure to register deaths.

The following table shows the number of births, deaths and deaths of infants with the corresponding rates since the inception of registration in Trengganu. The mid-year population has been calculated from the census figures of 1921 and 1931 by the geometrical method:—

Year.	Mid-year Population.	Number of Births.	Birth rate.	Number of Deaths.	Death rate.	Number of Infant Deaths.	Infantile Mortality rate.
1929	174,936	4,841	27.67	4,763	27.23	1,643	359.39
1930	177,693	6,189	34.83	4,501	25.84	1,573	254.14
1931	180,493	6,489	35.05	4,323	23.05	1,469	226.38
1932	183,338	6,836	37.29	4,809	26.24	1,643	240.35
1933	186,227	7,078	38.01	3,619	19.43	1,159	163.75
1934	189,161	6,330	33.46	4,590	24.27	1,401	221.33
1935	192,142	7,055	36.72	4,619	24.04	1,465	207.65
1936	195,170	7,105	36.51	4,683	23.99	1,514	213.09
1937	198,246	6,845	34.53	4,427	22.33	1,202	175.60
1938	201,370	8,259	41.01	4,785	23.76	1,654	200.27
1939	204,543	6,965	34.01	5,432	26.56	1,552	223.12

III.—HYGIENE AND SANITATION.**(A) Special Diseases.**

The most reliable information as to the incidence of disease in Trengganu is obtained from the statistics of patients treated by the Medical Department. As has been pointed out above, the report of deaths are more trustworthy as to fact than to cause.

(i) Malaria.

The incidence of malaria varies widely in different parts of Trengganu. The coast line, where approximately two thirds of the population reside, is comparatively free. Inland, the incidence of malaria rises rapidly, particularly amongst those people living by the upper reaches of the Rivers.

The islands off the East Coast of Trengganu are highly malarious, being hilly, covered with jungle, and containing innumerable seepages between the hills and the sea which make ideal breeding places for *Anopheles Maculatus*, the chief vector. *Anopheles Ludlowi* has also been found but only on Pulau Kapas.

The cost of carrying out efficient anti-malarial measures is prohibitive and all that can be done is to see that an adequate supply of quinine is kept on these islands, which is left in charge of the customs officer where there is a customs station or with the penghulu.

The following figures are relevant:—

	1938.	1939.
Number of deaths reported being due to malaria ..	86	57*
Number of deaths reported as being due to fever unspecified	2,670	3,415
Number of deaths reported as being due to convulsions	1,245	1,147
Total death rate per mille	23.76	25.56
Number of out-patients treated by Dept. for malaria ..	20,318	20,363
Percentage of out-patients treated by Dept. for malaria	15.39	16.03
Number of in-patients treated by Dept. for malaria as principal disease	1,305	1,299
Percentage of Malays (i.e. the stable population) admitted into Government hospitals suffering from malaria as the principal disease	16.49%	13.32%
Spleen rate of school children	2.65	2.02%

*Of 57 cases of death from malaria 2(2) were due to black water fever—one in Kemaman Hospital and the other at Kuala Trengganu Hospital.

As regards the mines and estates, there were 6 (10) deaths from this cause in an average monthly population of 8,503 (7,084), showing an improvement on the figures for 1938.

(ii) Dangerous Infectious Diseases.

There were no cases of plague, cholera, smallpox or other dangerous infectious diseases.

Vaccination against smallpox.—Primary vaccinations numbered 6,023 and revaccinations 213 a total of 6,236 compared with 7,418 in 1938.

	Primary Vaccinations.	Revaccinations.	Total.
Vaccinator, Besut	1,068	23	1,091
Vaccinator, Kuala Trengganu	1,635	20	1,655
Vaccinator, Kuala Brang	859	105	964
Vaccinator, Dungun	1,202	16	1,218
Dispensaries	236	2	238
Travelling Dressers	1,023	47	1,070
Total	6,023	213	6,236

(iii) The Typhus Group of Fevers.

The following table shows the number of cases which have been diagnosed so far;—all have been confirmed by serological tests:—

Type Serological Type.	"Scrub" Typhus B. Proteus X "K."	"Shop" Typhus B. Proteus X "W."	Deaths.
1935	3	0	1
1936	2	2	1
1937	2	1	0
1938	0	1	0
1939	1*	1*	1

*Both from Kuala Trengganu.

(iv) Bowel Diseases.

The number of death reported to have been due to diseases of the bowel was 144 (113).

The continued low incidence of dysentery and enteric fever is remarkable in view of the low hygienic standard that obtains with regard to conservancy and water supplies. Doubtless the filtering action of the sandy soil on the coast plays a great part while the people living on the banks of the rivers are too scattered to pollute the rivers to any serious extent.

Dysentery.—One hundred and sixteen (53) cases were treated in Government Hospitals of which 53 (39) were amoebic while 113 (136) were treated as out-patients of which 11 (5) were reported as amoebic. In addition, 41 (48) cases of dysentery were reported from the estates and mines. There was no epidemic.

Enteric Fever.—Nineteen (14) cases were reported with 2 (2) deaths.

Helminths.—These are very prevalent and 57.78% (69.88%) of all specimens of stools examined at the hospitals and dispensaries had some kind of helminthic infection which was usually multiple (microscopic film method). The worms encountered were:—

Ankylostoma	in 20.36% of cases
Ascaris	in 31.54% of cases
Trichuris	in 26.61% of cases
Strongyloids	in 0.22% of cases
Lamblia intestinalis	in 0.28% of cases

Treatment with Santonin and oil of chenopodium is very popular and 18,557 patients were treated by the Medical Department as the principal disease.

(v) Tuberculosis.

One hundred and forty one (115) people were reported to have died of respiratory disease and 56 (42) of these deaths were said to have been due to tuberculosis. Thirty four of these deaths occurred in Government Hospitals and accounted for 22.68% (15.83%) of the total deaths there.

(vi) Beri-beri.

This disease is most prevalent in December, January and February i.e. towards the end of the North West Monsoon and is mostly of the Peripheral neuritic type. It is not an infrequent complication after child birth, enteric fever and severe malaria.

Dramatic results are obtained in cardiac cases by using injection of Vitamin B, but unfortunately the same excellent results are not obtained in the neuritic cases which are slow to respond to any form of treatment.

The disease is mostly confined to the coastal population where polished rice is eaten and it is rare to find cases in the interior where home grown unpolished rice is the staple diet.

This year there has been a further decrease in the number of cases, 768 patients being treated as compared with 790 in 1938, but there were 45 deaths compared with 31 last year. There was no death due to Beri-beri on any of the mines or estates.

(vii) Yaws.

The number of cases treated by the Department during the last five years have been:—

	Admissions In-patients.	Percentage to Total Admissions.	Outpatients Treated.	Percentage to Total number of Outpatients Treated.
1935	324	13.68	4,334	3.78
1936	257	10.45	2,845	2.17
1937	231	6.78	3,694	2.59
1938	114	3.01	11,123	8.43
1939	100	2.30	9,432	7.41

Of 3,516 school children examined 6.00% showed signs of yaws as compared with 2.61% in 1938, but most of these cases were tertiary yaws.

There was a decrease in the number of primary yaws treated by the department in 1939 as compared with 1938, probably due to the intensive campaign carried out during that year with Stovarsol tablets.

(viii) Other Infectious Diseases.

Chickenpox.—Small outbreaks occurred from time to time all over the State. Forty four (17) cases were reported with no deaths. No case was reported from the estates and mines.

Diphtheria.—There were three cases reported with no death.

Influenza.—This term includes the common cold; 3,997 (3,636) cases were treated by the Medical Department.

Measles.—Small outbreaks occurred from time to time all over the State. Eighty-one (19) cases were reported with no deaths. One (3) case occurred on Kretay Rubber Estate.

Mumps.—Forty-eight (7) cases were recorded with no (0) death.

Tetanus.—There were 3 cases, including one in a newly born infant, with two deaths.

Whooping Cough.—Twenty-one (31) cases were recorded with no death.

(B) GENERAL MEASURES OF SANITATION.

(i) Town Boards and Staff.

There are town-boards at the following places:—Besut, Batu Rakit, Kuala Trengganu, Marang, Kuala Dungun, Paka, Kretay, Kemasek, Kijal, and Chukai Kemaman. In most cases there are unofficial as well as official members on the boards and in all cases the Presidents are Malays.

The Medical Officer is also the Health Officer in Trengganu and the Assistant Medical Officers at Dungun and Kemaman act as Assistant Health Officers.

There are qualified Health Inspectors at Kuala Trengganu, Dungun and Kemaman while Dressers act as Health Inspectors in the smaller places.

The subordinate staff in the principal districts is as follows:—

	Overseers.	Mandors.	Drivers.	Coolies.			Total.
				Cleansing & Padang.	Markets & Lighting.	Conservancy.	
Besut, Kpg. Raja and K. Besut	1	1	0	9	4	0	13
K. Trengganu	1	2	5	47	13	12	72
Batu Rakit	0	0	0	1	0	0	1
Ulu Trengganu	0	0	0	2	1	0	3
Marang	0	0	0	2	1	0	3
Dungun	0	0	1	10	2	4	16
Paka	0	0	0	2	0	0	2
Kerteh	0	0	0	1	0	0	1
Kemasek (Kuala Kemasek, Ayer Jerneh & Kijal)	0	0	0	5	2	0	7
Chukai, Kemaman	1	0	1	11	2	0	13

(ii) Anti-Malarial Measures.

As has been pointed out, the larger towns which are all on the coast are free from malaria and anti-malarial measures are required where such are most difficult to achieve. Except in respect of mines and estates there is no legislation for dealing with mosquito control although the desirability of such has been brought to the notice of Government.

(iii) Sewage Disposal.

Kuala Trengganu.—The "double pail" system introduced in 1937 has continued to work satisfactorily. Six hundred and forty two latrines are now being served by the two conservancy lorries.

Kuala Dungun.—Here the conservancy system has increased its service from 208 latrines at the end of 1938 to 256 latrines at the end of 1939.

Chukai Kemaman.—Here 298 latrines are served by a private contractor, whose standard of efficiency has not proved so high in 1939 and it is probable that the Government will take over this conservancy system in 1940.

(iv) Refuse Disposal.

Disposal of refuse is by control tipping in the larger towns and by burning and burying in the villages. In Kuala Trengganu, Dungun and Kemaman, lorries are used to collect the rubbish while hand-carts are used in the smaller towns.

(v) Water-Supplies.

In all the towns and larger villages water is obtained from shallow and for the most part, unprotected wells, while in the country districts it is usually obtained from rivers. The water is of fair quality thanks to the sandy nature of the soil but in the larger towns a certain amount of pollution occurs due to the absence of a proper drainage system.

During the year further boring has been carried out by the Public Works Department to find an adequate water supply for the town but so far these efforts have met with no success.

The cost of using river water and a filtration plant is so prohibitive that it cannot be considered at present.

(vi) Drainage.

In Kuala Trengganu and Kemaman good progress has been made in the construction of drains but in Dungun, practically no work has been done in this direction.

(vii) House Inspections.

Inspection of houses is regularly performed in all Town-Board areas and during the year a total of 76 houses were recommended for demolition.

(viii) School Hygiene.

Medical Inspection.—Twenty-eight (25) Government Schools and 9 (6) Private Schools were inspected by the Assistant Medical Officers and Senior Dressers. All the children underwent a Medical examination and were later given the opportunity of treatment. The number examined was 3,516 (2,909) which was 92.79% (90.09%) of the number enrolled.

The following table gives figures for 1939:—

Districts.	Number Pupils Examined.	Dental Caries. %	Yaws. %	Enlarged Spleen. %	Ulcers. %	Skin disease. %
Besut	474	52.10	15.41	5.27	6.54	18.56
Setiu	202	56.43	7.92	1.48	2.97	8.91
Kuala Brang	83	32.73	0.50	4.09	1.48	16.83
Dungun	237	8.01	0.42	0.00	2.53	0.00
Paka	121	28.91	0.00	0.00	7.43	0.82
Kemasek	137	34.30	0.00	2.18	1.45	9.48
Kreteh	79	39.24	0.00	2.53	0.00	6.32
Kijal	71	28.16	4.22	5.63	0.00	5.63
Ulu Kemaman	487	34.49	0.00	0.61	7.39	3.29
Kemaman	33	54.54	0.00	30.30	6.06	18.18
Kuala Trengganu	1,592	16.14	7.34	0.69	7.59	9.48
Whole State	3,516	28.83	6.00	2.02	2.84	9.55

Total number of pupils on roll 3,790
 " " " " examined 3,516 = 92.79%

Percentage of enlarged Spleen:—

	1935	1936	1937	1938	1939
Kuala Trengganu	0.72	0.31	0.19	0.22	0.69
Rest of State	4.33	5.81	5.51	4.75	2.05
Whole State	2.38	2.73	3.02	2.65	2.02

Percentage of Yaws:—

	1935	1936	1937	1938	1939
Kuala Trengganu	13.50	7.03	3.10	1.85	7.34
Rest of State	5.17	13.20	4.52	3.28	3.21
Whole State	Not available	9.79	3.80	2.61	6.00

(ix) Labour Conditions.

Certain details abstracted from the health reports sent to the Medical Officer every month are summarised in Appendix C.

(a) Mines.—This year there has been a marked improvement in the health and living conditions on most of the mines, particularly at the Nippon Mining Company, Dungun and the Ishihara Sangyo Koshi Co., Kemaman.

(i) The Nippon Mining Company has the largest number of employees, the average monthly population being 4,498 (3,112). The Medical Staff consists of two doctors, one dental surgeon, a dresser, a nurse and a midwife who are all Japanese subjects. There is a well equipped hospital and now that a new ward has been completed there is ample accommodation for in-patients.

Malaria is still the greatest problem to be dealt with and the monthly returns still show too high an incidence of fresh infections, although these figures are an improvement on those of 1938.

Because of these persistently high figures, the Management of the Mine agreed to engaged an Anti-Malarial Expert who commenced work in December. It is hoped that systematic and properly supervised anti-malarial measures will prove effective.

The sum spent by the Company in 1939 on anti-malarial work, sanitation, new coolie lines etc. was \$61,317.00.

(ii) The Ishihara Sangyo Koshi Co., Kemaman, is another large iron mine that has an average monthly population of 1,395 (960). Here also health and living conditions have improved greatly during the year, while the addition of a new hospital has given ample accommodation for in-patients. The Medical Staff consists of one doctor, one dresser and a nurse.

During 1939, the Company spent the sum of \$3,519.00 on anti-malarial work, sanitation and new coolie lines.

(iii) On the Bundi Tin Mine which has an average monthly population of 489, health and living conditions showed marked improvement, the death rate per mille dropping from 11.17 in 1938 to 2.04 in 1939.

(b) Estates.

(i) The Kretay Plantations and Estates which are under the same management have an average monthly population of 969 (972). Health and living conditions have remained satisfactory throughout the year, while there has been a reduction in the number of cases of malaria viz:—

1938	110 cases
1939	75 cases

The following figures show the sums spent on:—

(i) Anti-malarial work and sanitation	\$4,442.00
(ii) Medical supplies and improvement to wards etc.	5,202.00
(iii) Coolie welfare work	892.00
(iv) New coolie lines	2,286.00
(v) Dispensary	852.00

(ii) Ulu Jabor Estate.

This rubber plantation, with an average monthly population of 709 (1,122) is situated in the extreme South of Trengganu. During 1939 there has been such an outstanding improvement in the health and living condition, that the death rate has dropped from 31.19 per mille in 1938 to 7.05 per mille in 1939.

The figures for money spent on improving the health conditions are given below:—

Anti-malarial work	\$5,311.09
Coolie welfare work	397.26
New coolie lines	2,421.26

All these estates were visited by the Medical Officer or the Assistant Medical Officers and Health Inspectors. A number of smaller mines were also inspected.

The number of coolies admitted from the following concerns into Government hospitals was 165 of whom 60 were suffering from malaria and the details are as follows:—

	No. of all Admissions.	Cases of Malaria.
Nippon Mining Co., Dungun	70	18
Kretay Estates & Plantations	15	2
Sungei Ayam Tin Mines, Kemaman	1	1
Bundi Tin Mine	11	8
Kajang Tin Mine (1925), Kemaman	3	1
Ishihara Sangyo Koshi, Kemaman	45	26
Hin Leong Saw-Mills, Kemaman	20	4

There was only one death, due to Broncho-Pneumonia.

(x) Housing and Town Planning.

Fairly wide municipal limits have been fixed in the towns and within these limits, site and building plans have to be passed by the Town-Boards before a house may be built. Additions and renovations to buildings also have to be sanctioned by Town-Boards. In Kuala Trengganu, the rule is that all plans for permanent buildings, additions and renovations to the value of \$2,000.00 and over have to receive the sanction of the Medical Officer while the Health Inspector inspects all the other plans.

(xi) Food in Relation to Health.

The following premises are licensed:—Coffee-shops, eating-houses, lodging-houses, ice-factories, aerated water factories and bakeries. In larger towns, regular inspections are paid by the Health Inspectors and all are inspected at least twice a year and the worst ones more often by the Medical Officer and Assistant Medical Officers. Gradual improvement is being effected.

Markets.—In the towns there are markets of semi permanent type while the villages have temporary markets. The market in Kuala Trengganu is still inadequate but a new one is to be built on the land reclaimed from the river.

(xii) Other Licensed Premises.

Laundries, bakeries, billiard saloons and hair dressing saloons have to be licensed and are regularly inspected by the Medical Officer.

(xiii) Measures taken to Spread the Knowledge of Hygiene and Sanitation.

The Medical Officer, Health Inspectors, Dressers and other officials endeavour to impress upon the people the necessity of keeping their houses and surrounding compounds in a clean condition but the results obtained are very disappointing.

(xiv) Dentists and Druggists.

Compulsory registration is in force and the Medical Officer is the registrar.

There are 27 (20) dentists in practice, only one of whom has proper qualifications. Dentists now have to possess annual practising certificates. Rules providing for better premises, clean utensils etc. can now be enforced.

Druggists.—The number of registered druggists is 5 (5). A new schedule of deleterious drugs is now enforced.

Control of Drugs.—The Medical Department helps the Customs Department to control the import of drugs while returns of all drugs imported are sent to the Medical Officer for scrutiny. All deleterious drugs are first sent to the Medical Officer before release.

IV.—MATERNITY AND CHILD WELFARE WORK.

There are 4 midwives in the service of the Department while the staff nurse and the nurse are also qualified midwives. There are 3 other qualified midwives in residence in the State one of whom is employed by the Nippon Mining Company, Dungun.

(A) Maternity Work.

Cases conducted in Kuala Trengganu Hospital numbered 119 (103) while cases conducted in patients' homes numbered 271 (315).

Maternity Cases Conducted for 1939.

The following are the summaries of the work performed:—

	Malays	Chinese	Indians	Others	Total	Maternal Deaths	Still Births	Infant died 1st 10 days including Premature
Kuala Trengganu Hospital ..	9	105	4	1	119	0	4	3
Kuala Trengganu Town Clinic ..	63	55	5	—	123	—	1	1
Midwife, Besut ..	48	2	—	—	50	0	7	—
Midwife, Dungun ..	2	29	3	—	34	—	—	—
Midwife, Kemaman	1	58	2	1	64	—	—	7
Total ..	125	249	14	2	390	—	12	11

Abortion and Miscarriage.

	Malays	Chinese	Indians	Others	Total
Kuala Trengganu Hospital	0	3	0	1	4
Kuala Trengganu Town Clinic	—	3	—	—	3
Midwife, Besut	1	—	—	—	1
Midwife, Dungun	—	1	—	—	1
Midwife, Kemaman	—	2	—	—	2
Total	1	9	—	1	11

Women appearing for Ante-natal Examination.

	Malays	Chinese	Indians	Others	Total	Total Attendances
Kuala Trengganu Hospital	1	5	0	0	6	23
K. Trengganu Town Clinic	42	30	3	2	77	200
Midwife, Besut	80	—	—	1	81	175
Midwife, Dungun	6	19	1	1	27	39
Midwife, Kemaman	3	4	—	—	7	7
Total	132	58	4	4	198	444

General Hospital, Kuala Trengganu.—The number of cases conducted here was 119 (103) including 9 (4) Malays. There was no (3) death.

Kuala Trengganu Town Clinic.—The number of cases treated by the Japanese Midwife was 123 (123) including 63 (69) Malays and 55 (50) Chinese.

Besut.—The Malay Midwife conducted 50 (62) cases of whom 48 (58) were Malays.

Dungun.—The Midwife conducted 50 (62) cases of whom 2 were Malays and 29 Chinese and 3 Indians.

Kemaman.—Here 64 (66) cases were conducted, nearly all the cases being Chinese.

(B) Infant and Child Welfare Services.

It is hoped with the help of the four midwives in the districts to build up gradually a child welfare service. After delivery, they are expected to pay ten daily visits to the mother and child. When not otherwise engaged, they assist in the treatment of women and children in the dispensaries.

A maternity and Child Welfare Clinic is run in conjunction with the Kuala Trengganu Town Dispensary. The following table compares the number treated during the year 1938 and 1939:—

	1938	1939
Number of infants treated under 1 year of age	225	268
Number of children treated aged 1-12 years	1,271	1,566
Cases receiving ante-natal treatment	103	77

Infant and Child Welfare Service in the Government Hospitals

Infant and Child Welfare Service in the Government Hospitals in the State:—

	Kuala Trengganu Hospital.	Chukai Kemaman Hospital.	Kuala Dungun Hospital.
No. of infants under 1 year of age ..	42	5	4
No. of children treated aged 1-12 years ..	102	31	10
Cases receiving ante-natal treatment ..	6	5	—

V.—HOSPITALS AND DISPENSARIES.

(A) Hospital Inpatients.

The following accommodation is now available for inpatients:—

Kuala Trengganu Hospital	190 beds
Dungun Hospital	20 beds
Kemaman Hospital	28 beds
	238

The charges are moderate, being 40 cents a day for admission to the general wards (payment is usually made by companies on behalf of their coolies) and \$1.00 per day in the case of second class wards. The majority of the 3rd Class patients are unable to pay and receive Free Treatment. There is, as yet no first class accommodation in Trengganu, so that European emergency cases who would normally enter a first class ward are treated either in the Medical Officer's house or, if they are fit to stand the journey—enter the first class ward in Kota Bharu.—Kelantan.

The cost of Diet was as follows:—

	cts.
Kuala Trengganu.—General wards	13.70 p.d. approx.
Special wards	50.90 p.d. approx.
Kuala Dungun.— General wards	25.89 p.d. approx.
Kemaman.— General wards	20.85 p.d. approx.

The following is the summary of the work performed at the hospitals:—

	1939			All hospitals Including Transfers.
	Kuala Trengganu General Hospital.	Kemaman Hospital.	Dungun Hospital.	
Total number of Admissions	2,515	1,021	805	4,341
" " " Females admitted	400	99	30	529
" " " Malays admitted	1,037	125	106	1,268
" " " Deaths	92	31	30	153
Number of deaths per 100 Admissions	3.65	3.03	3.72	3.52
Number of deaths excluding cases dying within 48 hours of admissions	76	25	29	130
Number of deaths per 100 admissions excluding cases dying within 48 hours of admission	3.02	2.45	3.60	2.99
Number of cases of child birth conducted in Maternity Ward	119	64	34	217
Number of operations (excluding teeth extraction)	213	120	75	408
Number of deaths after operation	3	—	—	3
Number of cases treated by dental extraction	260	58	22	340

The returns of diseases and deaths of inpatients is set out in Appendix D.

The following figures relate to the prevailing diseases treated:—

Diseases.	Admissions.	Deaths.	Mortality Per Cent.
Malaria Acute (Parasite demonstrated in Blood)	544	7	1.28 (1.98)
Malaria Acute (Clinical diagnosis)	605	3	0.49 (1.44)
„ „ Cachexia	139	2	1.44 (11.76)
Blackwater fever	11	2	18.18 (50.00)
Influenza	105	0	0 (0)
CHEST AFFECTIONS:—			
Bronchitis	103	0	0 (0)
Pneumonia	54	19	35.18 (46.43)
Empyema & Pleurisy	7	1	14.28 (0)
Pulmonary Tuberculosis	92	34	36.95 (26.76)
INTESTINAL AFFECTIONS:—			
Diarrhoea and enteritis	60	3	5.00 (6.89)
Dysentery	116	12	10.34 (3.70)
Hepatic Abscess (Amoebic)	6	0	0 (0)
OTHER AFFECTIONS:—			
Helminthic diseases	113	2	1.77 (0)
Beri beri	135	3	2.22 (5.17)
Anaemia	43	1	2.32 (4.34)
Yaws	100	1	1.00 (0)
SURGICAL CONDITIONS:—			
Chronic ulcer	307	0	0 (0)
Wounds, Fractures, etc.	290	5	1.73 (1.32)
Abscess, boils, cellulitis carbuncles etc.	122	0	0 (0)
Burns & Scalds	13	1	7.69 (5.55)
VENEREAL DISEASES:—			
Syphilis, late manifestations	4	2	50.00 (9.09)
Hereditary	0	0	0 (0)
Syphilis, other forms	13	0	0 (0)
Other venereal diseases	281	0	0 (0.47)

NOTES ON PREVAILING DISEASES AMONGST HOSPITAL PATIENTS.

(i) Malaria.—There were 1,299 (1,305) admissions which represent 29.69% (34.49%) of the total admissions. The mortality rate for all types of cases was 1.08% (1.99%)—the details are given above. Included in these figures are 11 (4) cases of black water fever with 2 (2) deaths.

Totaquinine has been used throughout the year instead of quinine hydrochloride and has given excellent results at half the cost.

In special cases atebirin is given and plasmoquinine is always given in cases that show crescents persisting after routine treatment with totaquinine.

The following table shows the figures of malaria for a period of five years in comparison:—

	Admissions.	Deaths.	Mortality per 100 cases treated.
PERIOD 1930—1934:—			
Acute Malaria—Parasites demonstrated in blood	209	17	8.13
Malaria, Clinical Diagnosis & Cachexia	1,374	31	2.25
PERIOD 1935—1939:—			
Acute Malaria—Parasites demonstrated in blood	2,129	33	1.55
Malaria, Clinical Diagnosis & Cachexia	2,077	26	1.25

The following table shows the type of malaria in the cases confirmed by microscopical examination:—

	1938	1939
Subtertian	347	363
Benign Tertian infection	234	119
Quartan infection	28	33
Mixed infection	49	29
Total	658	544

Venereal Diseases.—During the year, 666 (684) cases of gonorrhoea, 81 (65) cases of syphilis and 96 (131) cases of soft-sore and lympho-granuloma venereum were treated. It will be seen that while there has been a slight increase in the syphilitic cases there has been a decrease in the number of cases of soft-sore and lympho-granuloma. Figures for gonorrhoea show little change from 1938.

During the year, an investigation made as to probable source of infection, shows that Dungun is by far the worst town in this respect.

The factors responsible for this state of affairs appear to be (a) the large number of employees of the Nippon Mining Company and (b) that there are an estimated 400 or more prostitutes in Dungun who never apply for any kind of treatment.

The men may undergo treatment, (quite a number do) but on being discharged from hospital they soon became re-infected. Until there is some means of controlling the prostitutes there is little hope of any improvement in the figures for venereal diseases.

The number of in-patients treated throughout the State according to race were as follows:—

	Malays.	Chinese.	Indians.	Others.	Total.
Gonorrhoea	70	63	73	6	212
Syphilis	—	10	7	—	17
Soft-sore and Lympho-granuloma Venereum	12	33	23	1	69

The following is a summary of the work performed on them:—

(a) Injections given:—

Sulfarsenol & Sulphostab	177
Metallic Bismuth	43
Dmelcos Vaccine	104
Gonococcus Vaccine	4
Contramine	53
Calcium Chloride	4
Acriflavine & Trypaflavine	14
Other	16

(b) Miscellaneous:—

Dressings	2,612
Irrigations	4,484
Prostatic Massage	49
Dilations	2
Catherization	11
Minor Operations	13

(c) Diagnostic procedures are included in the laboratory returns.

The number of outpatients treated throughout the State at the dispensaries was as follows:—

	Malays.	Chinese.	Indians.	Others.	Total.
Gonorrhoea	309	69	62	14	454
Syphilis	23	36	2	3	64
Soft-sore and Lympho-granuloma Venereum	13	7	5	2	27

The following is a summary work performed on them:—

(a) Injections given:—

Sulfarsenol & Sulphostab	104
Metallic Bismuth	25
Gonococcus Vaccine	2
Dmelcos Vaccine	4
Contramine	15
Acriflavine & Trypaflavine	13
N. A. B.	4

(b) Other procedures:—

Dressings	138
Irrigations	426

(c) Diagnostic procedures are included in the section on laboratory work.

(iii) Pulmonary Tuberculosis.—There were 92 (71) cases with 34 (19) deaths giving a mortality rate of 36.95% (25%).

(iv) Dysentery.—One hundred and sixteen (44) cases were admitted. There were 53 (39) cases of amoebic dysentery with 5 (0) deaths, 34 (7) cases of bacillary dysentery with 5 (1) deaths and 29 (8) cases with 2 (1) deaths in which the cause was undefined. In addition, there were 6 (4) cases of amoebic liver abscess with no death.

(v) Beri Beri.—There were 135 (155) cases with 3 (8) deaths, giving a mortality rate of 2.22% (5.18%). Excellent results were obtained in those cases with cardiac symptoms by the use of Vitamin B injections but the results of using the same preparations in the neuritic type are most disappointing.

(vi) Tropical Typhus.—There were 2 (1) admissions with one death, one was proved to be of the 'Shop' type and the other the 'Scrub' type and both cases were from Kuala Trengganu.

(B) Out-patients.

There are permanent Dispensaries at the following places:—

- Kampong Raja, Besut
- Kampong Buloh
- Kuala Trengganu Town
- General Hospital, Kuala Trengganu
- Kuala Brang
- Hospital, Kuala Dungun
- Hospital, Chukai Kemaman.

In addition, there are small dispensaries at Penarek and Kemasek each in the charge of a travelling dresser while a travelling dresser is attached to the Kampong Raja Dispensary and to each of the Hospitals; these travelling dressers are all Malays. The work of the travelling dressers is greatly restricted during the period of the north-east monsoon (November—March). The State is, in general, fairly well served by these dispensaries and travelling dressers, with the exception of Paka river basin where a small dispensary will be established when funds permit.

The number of new cases treated by these dispensaries and travelling dressers was 110,712 (110,273) while the total number of attendances was 135,225 (135,382).

In addition to performing vaccinations, the vaccinators distribute medicine during their visits and the number of cases so treated was 15,778 (21,114).

Eleven rural police stations and four customs stations which are situated in places where there are no dispensaries, are supplied with small stocks of simple drugs such as quinine, antiseptic lotions and ointments, etc., for distribution and 499 (585) treatments were given.

There is no dispensary in the extreme South of Trengganu. The Jabor Valley Estate is paid a small sum of money in return for medical attention to the few Government servants who are stationed there.

The following table shows the numbers treated:—

	1938		1939	
	New Cases.	Total Attendances.	New Cases.	Total Attendances.
Cases treated by Dispensaries & Travelling Dressers	110,273	135,382	110,712	135,225
Cases treated by Vaccinators	21,114	21,706	15,778	16,001
Cases treated by Customs & Police stations	585	585	499	499
Total	131,972	157,673	126,989	151,725

Appendix F shows the number of patients treated at the various dispensaries.

Seven hundred and fourteen patients were visited by the dressers at their homes.

The Medical Officer is always in attendance at the General Hospital, Kuala Trengganu; he attends personally to most of the calls from His Highness the Sultan and family, Europeans and some Asiatics while he is called into consultation by the other officers. Regular visits are paid by him to the towns and villages in the State and to the larger mines and estates, although he is now helped to a great extent by the Assistant Medical Officers and the Health Inspectors.

(C) Operations.

A list of operations is given in Appendix E. Eight hundred and four people underwent operations, mostly of a minor nature and 345 were teeth extractions.

There is little scope for major surgery in Trengganu as the majority of people have a rooted objection to undergoing operations. This is probably due to the fact that in the past, when permission has finally been given, the patient is in extremis and past the stage when surgical intervention would probably save life.

On several occasions during the year the Medical Officer was called in consultation and performed operations at the Kota Bharu Hospital, Kelantan.

(D) Laboratory Work.

This summarised in Appendix G. All permanent dispensaries are now equipped with microscopes while specimens for serological examinations are sent to Kuala Trengganu as required.

VI.—INSTITUTION FOR MENTAL DISEASE AND LEPROSY.

(A) Mental Disease.

Mental patients are brought to a special ward in the Kuala Trengganu hospital. If after supervision for some time there is no likelihood of early improvement, they are transferred to the Singapore Mental Institution.

The following table refers to the lunatics maintained at the Singapore Mental Hospital:—

	Male.	Female.	Total.
Remaining on 1.1.1939	17	2	19
Admitted	6	—	6
Total treated	23	2	25
Discharged	1	0	1
Died	3	0	3
Remaining on 31.12.1939	19	2	21

(B) Lepers.

Leper Registration.—A register has been kept of all lepers coming to the notice of the Department. The names of one hundred and eight persons have been recorded and of these 30 have died, 12 have left the State of their own accord (including one absconded from Sungei Buloh Settlement), 12 males are being maintained by the Government at the Leper Settlement, Sungei Buloh, 15 cannot be traced and 39 are known to be alive.

The following table refers to those in the two latter categories:—

	Alive		Untraceable		Total.
	Male.	Female.	Male.	Female.	
Malays	13	11	5	3	32
Chinese	12	1	7	0	20
Indians	2	0	0	0	2
Total	27	12	12	3	54

VII.—HEALTH OF THE EUROPEAN POPULATION AND ASIATIC OFFICIALS.

The total number of Europeans residents in the State was 25 (26). There was no (0) death. The following table shows the sick, invaliding and death-rate of European Officials:—

Total number of officials resident	22
Average number of resident	16
Total number on sick leave	21
Total number of days on sick list	199
Average daily number on sick-list	0.34
Average number of days on sick leave for each patient	9
Total number invalided	0
Total deaths	0
Number of cases of sickness contracted away from residence	1

Asiatic Officials.—The total number of new cases treated was 5,800 (4,051) of which 1,904 (1,487) were members of the police force. Most of the Asiatic officials were examined during the year for signs of Pulmonary tuberculosis.

VIII.—PORT HEALTH WORK.

Number of boats from Siam examined for infectious diseases during the year	553
Number of crew examined for infectious diseases during the year	4,369

IX.—METEOROLOGY.

Reading on the instruments kept at the General Hospital, Kuala Trengganu showed that:—

- The highest temperature of 94°F was recorded on 14.6.39.
- The lowest temperature of 72°F was recorded on 3.3.39.
- The month with the highest rainfall was January with 57.36 inches.
- The highest rainfall within 24 hours was 19.8 inches and this occurred on 12.1.39.
- The total rainfall for the year was 122.83 (115.20) inches.

Rain-gauges are also kept at the dispensaries at Kuala Dungun, Kampong Raja, Besut on the coast, and Kuala Brang in the interior of the State. The annual rainfall in the interior of the State as estimated at Bukit Besi and Kuala Brang, is usually about 40 inches higher than on the coast. The wettest part of the year is the period of the north-east monsoon which falls between November and March and this greatly interferes with the travelling work of the dressers. The rainfall at Kuala Brang was 169.80 (142.01) inches, that at Kampong Raja 156.60 (113.64) inches and that at Kuala Dungun 144.38 (139.08) inches.

X.—VETERINARY WORK.

There is no veterinary department in Trengganu and any work of this nature falls upon the Medical Department. During 1939 there was no epidemic.

The Quarantine and Prevention of Diseases Enactment which came into force on 6.3.37 also applies to animals.

The following prohibitions as regards import are still in force.

Disease.	Animals.	From	Extent of order.
Rinderpest	All animals	Indo-China	Absolute prohibition
Rinderpest	Cattle, buffalos, sheep, oxen, goats & pigs	Siam	" "
Foot & Mouth Disease	Goats & sheep	India	" "
" " "	Buffalos, oxen, goats, sheep and pigs	Singapore	" "
Rabies	Dogs	Siam and Kelantan	" "

By Gazette Notification 177, authority from the Medical Officer must first be obtained before cattle can be imported from the neighbouring State of Kelantan while a certificate must be produced from the Chief Medical Officer, Kelantan certifying that the cattle are free from disease.

A. L. SHEILD, M.B., CH.B., (N.Z.), D.T.M.&H., F.R.C.S., (EDIN.).

MEDICAL OFFICER, TRENGGANU.

APPENDIX A.

STAFF.

(1) DISTRIBUTION OF STAFF.

The distribution of the staff at the end of the year was as follows:—

STATE.—

- 1 Medical Officer in charge.
- 1 Chief Clerk, Malay Clerk Special grade.
- 2 Clerks, Malay Grade II.
- 1 Grade III English Clerk (Passed grade II).
- 1 Steward and Store-keeper.
- 1 Assistant Store-keeper.
- 1 Peon.

KUALA TRENGGANU.—

- 1 Assistant Medical Officer.
- 1 Assistant Dental Surgeon.

(a) General Hospital:—

- 4 Dressers grade II.
- 7 Dressers grade III.
- 5 Probationer Dressers.
- 1 Senior Staff Nurse.
- 1 Nurse grade III.
- 2 Probationer Nurses.
- 30 Menials (including 4 females).

(b) Town Dispensary and Welfare Centre:—

- 1 Dresser grade I.
- 1 Midwife (holds a Japanese Certificate).
- 2 Attendants (1 female).

(c) Outdoor and Other Duties:—

- 1 Health Inspector (holds certificate of the Royal Sanitary Institute).
- 1 Travelling Dresser (Probationer)
(Dressers from the Hospital also assist in this work in rotation).
- 1 Vaccinator.

KUALA DUNGUN.—

(a) Hospital and Dispensary:—

- 1 Dresser Special grade.
- 1 Dresser grade III.

APPENDIX A.—(Continued).

- 1 Probationer Dresser.
- 1 Midwife (holds certificate — the Canton Leung Keong Baptist Hospital).
- 4 Menials.

(b) Outdoor and Other Duties:—

- 1 Health Inspector (holds certificate of the Royal Sanitary Institute).
- 1 Vaccinator.

CHUKAI KEMAMAN.—

- 1 Assistant Medical Officer.

(a) Hospital and Dispensary:—

- 1 Dresser grade III.
- 1 Probationer Dresser.
- 1 Midwife (holds certificate "B" of the Straits Settlements).
- 7 Menials (including 1 female).

(b) Outdoor and Other Duties:—

- 1 Health Inspector (holds certificate of the Royal Sanitary Institute).
- 1 Travelling Dresser, grade III.

KAMPONG RAJA DISPENSARY, BESUT.—

- 1 Dresser grade II.
- 1 Probationer Dresser.
- 1 Midwife (holds certificate "B" of the Straits Settlements).
- 1 Vaccinator.
- 1 Attendant

KUALA BRANG DISPENSARY.—

- 1 Dresser.
- 1 Vaccinator.
- 1 Attendant.

KEMASEK DISPENSARY.—

- 1 Dresser, grade II.

KAMPONG BULOH DISPENSARY.—

- 1 Travelling Dresser, grade III.
- 1 Attendant.

(2) **APPOINTMENTS.**

The following appointments were made during the year:—

C. Mohammed was appointed Probationer Dresser on 1.2.39.

Koshi Abraham was appointed Probationer Dresser on 5.3.39.

Megat Jamalul Zambri bin Megat Mohammed Essa was appointed Probationer Dresser on 5.3.39.

Leaw Khin Siong L.D.S., was appointed Assistant Dental Surgeon on 27.10.39.

(3) **RESIGNATIONS.**

Abdullah bin Lincha, Probationer Dresser, left the service on 31.1.39.

Ahmed bin Salim, Probationer Dresser, left the service on 31.8.39.

(4) **EXAMINATIONS.**

Seng Chuan Kooi passed the September Examination for grade III.

(5) **PROMOTION.**

Seng Chuan Kooi was promoted to grade III on 1.7.39.

APPENDIX B.
CALENDAR YEAR 1939.
Deaths grouped according to age, sex and race Live Births
grouped according to sex and race.
DEATHS.

Death by Age Groups.	Sex	Europeans	Eurasians	Chinese	Malays	Indians	Others	Total
0 ..	M	—	—	13	249	—	2	264
	F	—	—	17	230	1	—	248
4 Weeks ..	M	—	—	22	278	—	—	300
	F	—	—	14	210	1	—	225
3 months ..	M	—	—	12	148	2	—	162
	F	—	—	7	126	1	—	134
6 months ..	M	—	—	10	102	—	1	113
	F	—	—	13	92	1	—	106
1 year ..	M	—	—	20	380	1	1	402
	F	—	—	19	358	1	1	379
5 years ..	M	—	—	9	178	1	1	189
	F	—	—	3	147	—	1	151
10 years ..	M	—	—	1	71	—	—	72
	F	—	—	—	63	—	—	63
15 years ..	M	—	—	1	83	—	—	84
	F	—	—	1	40	—	—	41
20 years ..	M	—	—	12	62	3	5	82
	F	—	—	5	79	—	—	84
25 years ..	M	—	—	14	98	3	2	117
	F	—	—	1	71	—	—	72
30 years ..	M	—	—	23	138	6	5	172
	F	—	—	2	121	2	1	126
35 years ..	M	—	—	25	85	4	2	116
	F	—	—	4	49	1	1	55
40 years ..	M	—	—	27	130	4	5	166
	F	—	—	1	125	2	—	128
45 years ..	M	—	—	25	47	4	1	77
	F	—	—	7	41	—	—	48
50 years ..	M	—	—	19	128	4	1	152
	F	—	—	2	132	—	1	135
55 years & over	M	—	—	55	423	7	1	486
	F	—	—	15	468	—	—	483
	M	—	—	288	2,600	39	27	2,954
	F	—	—	111	2,352	10	5	2,478
Total Deaths ..	M & F	—	—	399	4,952	49	32	5,432
Births }	M	—	—	348	3,124	27	36	3,535
	F	—	—	304	3,062	25	30	3,421
Total Live Births ..	M & F	—	—	652	6,186	52	66	6,956

APPENDIX C.
HEALTH STATISTICS OF LABOUR POPULATION IN TRENGGANU.

Name of Company.	Total Malaria Cases.	Average Monthly No. of Employees.	Average Monthly No. of Dependents.	Total Average Monthly Population.	DEATHS.					Total Death Rate per Mille.	SICK — RATE.			
					Employees.	Dependents.	Total.	Injury.	Malaria.		Labourers.		Dependents.	
											Total Number.	Total No. of days.	Total Number.	Total No. of days.
1 (a) Kretay Estates	59	533	148	681	9	3	12	—	2	17.06	1,541	2,594	134	215
(b) Kretay Plantations, Kretay	16	212	76	288	2	1	3	—	—	10.41	857	743	75	76
2 Jabor Valley Estates, Jabor	232	514	195	709	9	2	11	—	5	7.05	1,209	6,619	274	1,235
3 Hin Leong Saw Mills, Kemaman	—	95	46	141	—	—	—	—	—	—	1	2	2	4
4 Bundi Mining Co., Kemaman	10	269	220	489	—	1	1	—	—	2.04	255	1,151	100	537
5 Sungei Ayam Mining Co., Kemaman	8	39	12	51	—	—	—	—	—	—	30	155	—	—
6 Kajang Mining Co., Kemaman	15	89	43	132	—	—	—	—	—	—	105	258	21	79
7 Ishihara Sangyo Koshi, Kemaman	702	961	434	1,395	9	1	10	—	1	7.00	1,468	10,775	200	1,369
8 Nippon Mining Co., Dungun	447	3,902	596	4,498	22	1	23	2	1	5.11	14,554	64,070	1,998	10,636
9 Ulu Patris Mining Co., Dungun	—	45	4	49	—	—	—	—	—	—	1	15	—	—
10 Sungei Damar Tin Mine, Dungun	—	70	—	70	—	—	—	—	—	—	—	—	—	—
Total	1,489	6,729	1,774	8,503	51	9	60	2	9	7.05	20,021	86,382	2,804	14,151

APPENDIX D.

HOSPITAL IN-PATIENTS.

Returns of diseases and Deaths for the year 1939.

DISEASES.	Remaining in hospital at the end of 1938.	Yearly Total		Total Cases Treated.	Remaining in hospital at the end of 1939.
		Admissions.	Deaths.		
I.—Infectious and Parasitic Diseases.					
1. Typhoid fever	1	18	2	19	3
2. Paratyphoid fever	—	—	—	—	—
3. Typhus:					
Tropical typhus	—	2	1	2	—
4. Relapsing fever	—	—	—	—	—
5. Undulant fever	—	—	—	—	—
6. Smallpox	—	—	—	—	—
7. Measles	—	14	—	14	—
8. Scarlet fever	—	—	—	—	—
9. Whooping Cough	—	4	—	4	1
10. Diphtheria	—	—	—	—	—
11. Influenza:—					
(1) With pneumonia	—	1	—	1	—
(2) With other respiratory com- plication	—	—	—	—	—
(3) Without respiratory compli- cations	1	104	—	105	1
12. Cholera	—	—	—	—	—
13. Dysentery:—					
(1) Amoebic (Liver abscess, see item No. 99)	3	53	5	56	—
(2) Bacillary	1	34	5	35	—
(3) Undefined or due to other causes	—	29	2	29	—
14. Plague	—	—	—	—	—
15. Erysipelas	—	—	—	—	—
16. Acute Poliomyelitis	—	—	—	—	—
17. Encephalitis Lethargica	—	—	—	—	—
18. Cerebro-spinal fever	—	—	—	—	—
19. Glanders	—	—	—	—	—
20. Anthrax	—	—	—	—	—
21. Rabies	—	—	—	—	—
22. Tetanus:—					
(1) Tetanus of newly born	—	—	—	—	—
(2) Other form of tetanus	—	2	1	2	—
23. Tuberculosis:—					
(1) Respiratory system	15	92	34	107	9
(2) Central nervous system	—	—	—	—	—
(3) Bones and joints	—	2	—	2	—
(4) Lymphatic system	—	3	—	3	—
(5) Intestines or peritoneum	—	3	1	3	—
24. Leprosy	2	11	—	13	4
25. Syphilis:—					
(1) Primary	—	9	—	9	2
(2) Secondary	1	4	—	5	1
(3) Tertiary	—	4	2	4	—
(4) Hereditary	—	—	—	—	—
26. Other venereal diseases:—					
(1) Soft chancre	3	50	—	53	4
Carried forward	27	439	53	366	25

APPENDIX D.—(Contd.)

DISEASES.	Remaining in hospital at the end of 1938.	Yearly Total		Total Cases Treated.	Remaining in hospital at the end of 1939.
		Admissions.	Deaths.		
<i>Brought forward</i> ..	27	439	53	366	25
(2) Gonorrhoea and its compli- cations ..	6	148	—	154	11
(3) Gonorrhoea ophthalmia ..	—	3	—	3	—
(4) Gonorrhoeal arthritis ..	4	59	—	63	2
(5) Lympho-granuloma venereum ..	1	21	—	22	1
(6) Tropical bubo ..	—	—	—	—	—
27. Purulent infective-septicaemia:—					
(1) Septicaemia ..	—	3	2	3	—
(2) Pyaemia ..	1	3	2	4	—
28. Yellow fever ..	—	—	—	—	—
29. Malaria:—					
(1) Tertian ..	2	119	—	121	1
(2) Quatan ..	1	33	—	34	—
(3) Aestivo-Automnal (subtertian) ..	8	363	7	371	2
(4) Mixed Infection ..	3	29	—	32	—
(5) Unclassified ..	21	605	3	626	12
(6) Cachexia ..	1	139	2	140	10
(7) Black water-fever ..	—	11	2	11	1
30. Other diseases due to protozoa:—					
(1) Yaws (Frambosia) ..	3	100	1	103	8
(2) Spirochaetosis icterohaemor- rhagica ..	—	—	—	—	—
31. Ankylostomiasis ..	2	65	2	67	2
32. Other diseases due to helminths:—					
(1) Cestodes ..	—	—	—	—	—
Nematodes ..					
(1) Ascaris ..	1	43	—	44	—
(2) Filaria ..	—	3	—	3	—
Trematodes ..	—	—	—	—	—
(3) Clonorchis Senensis ..	—	—	—	—	—
(4) Other helminths ..	—	2	—	2	—
33. Sprue ..	—	—	—	—	—
34. Other infectious or parastic dis- eases:—					
(1) Rubella ..	—	—	—	—	—
(2) Varicella (Chicken Pox) ..	—	8	—	8	—
(3) Mumps and its complications ..	—	7	—	7	—
(4) Dengue ..	—	—	—	—	—
(5) Meliviosis ..	—	—	—	—	—
II.—Cancer and other Tumours.					
35. Sarcoma:—					
(1) Thigh ..	—	1	—	1	1
(2) Testis ..	—	1	—	1	1
(3) Lympho-Sarcoma ..	—	1	—	1	—
36. Cancer of the Eye ..	—	1	—	1	—
37. Cancer of the buccal cavity and pharynx ..	1	1	1	2	—
38. Cancer of the Parotid glands ..	—	2	—	2	1
39. Cancer of the digestive organ and peritoneum:—					
Stomach ..	—	4	2	4	—
<i>Carried forward</i> ..	82	2,214	77	2,287	78

APPENDIX D.—(Contd.)

DISEASES.	Remaining in hospital at the end of 1938.	Yearly Total		Total Cases Treated.	Remaining in hospital at the end of 1939.
		Admissions.	Deaths.		
<i>Brought forward</i>	82	2,214	77	2,287	78
40. Cancer of the respiratory organs:— Larynx	1	—	1	1	—
41. Cancer of the female genital organs:— Cervix	—	1	—	1	—
42. Cancer of the male genito-urinary organs	—	—	—	—	—
43. Tumours non-malignant:— (1) Of female genital organs	—	1	—	10	1
(2) Of other sites	—	10	—	10	1
III.—Rheumatism, Diseases of Nutri- tion and of Endocrine Organs and other General Diseases.					
44. Rheumatic fever	—	—	—	—	—
45. Chronic rheumatism and osteo arthritis	2	34	—	36	3
46. Gout	—	2	—	2	—
47. Diabetes (not including diabetes insipidus)	—	9	—	9	1
48. Scurvy including Barlow's Disease	—	—	—	—	—
49. Beri-Beri including epidemic dropsy	17	135	3	152	12
50. Pellagra	—	4	—	4	—
51. Innanition	1	—	—	1	—
52. Debility (General)	—	10	—	10	1
53. Diseases of the thyroid and para- thyroid gland	—	—	—	—	—
54. Diseases of the Thynus	—	—	—	—	—
55. Other General Diseases:— Glycosuria	—	3	—	3	1
IV.—Diseases of the Blood and Blood Forming Organs.					
56. Anaemia and Chlorosis:— (1) Pernicious Anaemia	—	1	1	1	—
(2) Secondary Anaemia	2	42	—	44	2
(3) Chlorosis	—	—	—	—	—
57. Haemorrhagic Conditions:— Purpura	—	1	—	1	—
58. Hodgkin's Diseases	—	1	1	1	—
59. Diseases of the Spleen:— (1) Peri-splenitis	—	1	—	1	—
(2) Internal Haemorrhage from Spleen	—	1	1	1	—
V.—Chronic Poisoning.					
60. Alcoholism (Acute or Chronic)	—	2	—	2	—
61. Chronic poisoning by other organic substances:— (1) Opium Addiction	—	9	—	9	1
(2) Others	—	1	—	1	—
62. Chronic poisoning by mineral sub- stances	—	—	—	—	—
<i>Carried forward</i>	105	2,482	84	2,587	101

APPENDIX D.—(Contd.)

DISEASES.	Remaining in hospital at the end of 1938.	Yearly Total		Total Cases Treated.	Remaining in hospital at the end of 1939.
		Admissions.	Deaths.		
<i>Brought forward</i>	105	2,482	84	2,587	101
VI.—Diseases of the Nervous System and Sense Organs.					
63. Encephalitis (not including encephalitis lethargica)	—	—	—	—	—
64. Meningitis (not including tuberculous meningitis or cerebro-spinal meningitis)	—	3	2	3	—
65. Tabes Dorsalis	—	—	—	—	—
66. Apoplexy and paralysis:—					
(1) Cerebral haemorrhage and paralysis	—	1	—	1	—
(2) Haemiplegia cause not determined	3	10	—	13	3
(3) Other paralysis	1	4	—	5	—
67. Insanity:—					
(1) Under observation	11	71	—	82	32
(2) Insanity	—	9	—	9	—
68. Epilepsy	—	2	—	2	—
69. Infantile Convulsion (Age under five years)	—	5	3	5	1
70. Other diseases of the nervous systems:—					
(1) Neuritis and Neuralgia	—	9	—	9	—
(2) Hysteria	—	2	—	2	—
(3) Sciatica	—	4	—	4	—
71. Diseases of the Eye:—					
(1) Conjunctivitis	1	45	—	46	—
(2) Subconjunctivitis Haemorrhage	—	1	—	1	—
(3) Hypermetropia	—	1	—	1	—
(4) Iritis	1	2	—	3	—
(5) Corneal Ulcer	1	5	—	6	—
(6) Panophthalmitis	—	1	—	1	—
(7) Stye	—	2	—	2	—
(8) Cataract	—	3	—	3	—
(9) Other diseases of the eye	—	3	—	3	—
72. Disease of the Ear and mastoid sinus:—					
(1) Otitis media	—	4	—	4	—
(2) Otitis externa	—	1	—	1	—
(3) Mastoiditis	—	1	—	1	—
(4) Other diseases of the Ear	—	1	—	1	—
VII.—Diseases of the Circulatory System.					
73. Chronic Endocarditis & Valvular Diseases:—					
Mitral Valve disease	—	4	1	4	1
74. Diseases of myocardium:—					
Myocarditis (Acute or chronic)	—	9	4	9	—
75. Pericarditis	—	1	—	1	—
76. Arterio-Sclerosis	—	2	1	2	—
<i>Carried forward</i>	123	2,688	95	2,811	138

APPENDIX D.—(Contd.)

DISEASES.	Remaining in hospital at the end of 1938.	Yearly Total		Total Cases Treated.	Remaining in hospital at the end of 1939.
		Admissions.	Deaths.		
<i>Brought forward</i>	123	2,688	95	2,811	138
77. Gangrene	—	1	1	1	—
78. Diseases of the Veins:—					
(1) Haemorrhoids	4	9	—	13	—
(2) Thrombosis	—	1	—	1	—
79. Disease of the lymphatic systems:—					
(1) Lymphangitis	—	4	—	4	—
(2) Adenitis	—	10	—	10	—
(3) Suppurative Parotitis	—	2	—	2	—
80. Abnormalities of blood pressure:—					
(1) High blood pressure	—	2	1	2	—
(2) Low blood pressure	—	—	—	—	—
VIII.—Diseases of Respiratory System.					
81. Diseases of the nasal fossae and its annexa:—					
(1) Diseases of the nose; nasal polypus	—	4	—	4	—
82. Diseases of the larynx:—					
Laryngitis	—	2	—	2	—
83. Bronchitis:—					
(1) Acute	1	57	—	58	2
(2) Chronic	2	46	—	48	2
84. Broncho-Pneumonia	—	28	9	28	2
85. Lobar Pneumonia	1	15	6	16	—
86. Pneumonia (Not otherwise defined)	—	11	4	11	—
87. Pleurisy:—					
(1) Empyema	—	2	1	2	—
(2) Other pleurisy	—	5	—	5	—
88. Asthma	1	80	2	81	2
IX.—Diseases of the Digestive System.					
89. Diseases of the buccal cavity, Pharynx etc.:—					
(1) Pyorrhoea	—	1	—	1	1
(2) Stomatitis	—	1	—	1	—
(3) Alveolar Abscess	—	17	—	17	—
(4) Dental caries	—	8	—	8	—
(5) Diseases of the tonsils	—	28	—	28	1
(6) Pharyngitis	—	4	—	4	—
(7) Thrush	—	1	—	1	—
(8) Gingivitis	—	1	—	1	—
90. Ulcer of the stomach or duodenum:—					
(1) Gastric Ulcer	—	20	3	20	—
(2) Duodenal Ulcer	—	3	1	3	—
91. Other diseases of the stomach:—					
(1) Gastritis	—	15	—	15	—
(2) Others	1	22	—	23	1
92. Diarrhoea and enteritis (under 2 years)	—	12	2	12	—
<i>Carried forward</i>	133	3,100	125	3,233	149

APPENDIX D.—(Contd.)

DISEASES.	Remaining in hospital at the end of 1938.	Yearly Total		Total Cases Treated.	Remaining in hospital at the end of 1939.
		Admissions.	Deaths.		
<i>Brought forward</i>	133	3,100	125	3,233	149
93. Diarrhoea and enteritis (2 years and over)	—	—	—	—	—
(1) Colitis	—	—	—	—	—
(2) Other undefined	—	48	1	48	—
94. Appendicitis:—					
(1) Acute Appendicitis	—	2	—	2	—
(2) Chronic Appendicitis	—	1	—	1	—
(3) Appendicular Abscess	—	6	—	6	—
95. Omphalitis	—	1	—	1	—
96. Hernia; intestinal obstruction:—					
(1) Hernia	—	5	1	5	—
(2) Strangulated Hernia	—	2	—	2	1
97. Constipation, intestinal stasis	—	8	—	8	—
98. Affection of the rectum & Anus:—					
(1) Fistula in Ano	—	1	—	1	—
(2) Ischio-rectal Abscess	1	2	—	3	—
(3) Perineal Abscess	1	5	—	6	—
(4) Peri-anal Sinuses	—	1	—	1	—
(5) Forn Perineum	—	2	—	2	—
(6) Recto-vesical Fistula	—	1	—	1	1
99. Cirrhosis of the liver (Non- syphilitic):—					
(1) Alcoholic	—	—	—	—	—
(2) Not returned as alcoholic	—	7	4	10	2
100. Other diseases of the liver:—					
(1) Hepatitis	—	4	—	4	—
(2) Peri-hepatitis	—	1	—	1	—
(3) Amoebic abscess	—	6	—	6	—
(4) Acute yellow atrophy	—	1	—	1	—
101. Diseases of the gall bladder and ducts:—					
(1) Cholecystitis without record of calculi	—	2	—	2	—
(2) Catarrhal jaundice	1	6	—	7	1
X.—Diseases of the Genito- Urinary System (Non-Venereal).					
102. Acute Nephritis	1	3	—	4	—
103. Chronic Nephritis	3	18	9	21	2
104. Nephritis (Undefined as Acute or Chronic)	—	3	1	3	—
105. Other diseases of the kidney and annexa:—					
(1) Pyelitis	—	6	—	6	1
(2) Ruptured kidney	—	1	—	1	—
(3) Peri-Nephri Abscess	—	1	1	1	—
(4) Uraemia	—	2	2	2	—
(5) Others	—	7	—	7	1
106. Diseases of the bladder:—					
(1) Cystitis (Acute or Chronic)	—	3	—	3	—
(2) Others	—	3	—	3	—
<i>Carried forward</i>	140	3,259	144	3,399	158

APPENDIX D.—(Contd.)

DISEASES.	Remaining in hospital at the end of 1938.	Yearly Total		Total Cases Treated.	Remaining in hospital at the end of 1939.
		Admissions.	Deaths.		
<i>Brought forward</i> ..	140	3,259	144	3,399	158
107. Diseases of the Urethra:—					
(1) Stricture ..	—	2	—	2	—
(2) Ruptured Urethra ..	—	1	—	1	—
(3) Urethritis ..	—	3	—	3	—
(4) Others ..	—	1	—	1	—
108. Diseases of the male genital organs:—					
(1) Balanitis ..	—	2	—	2	—
(2) Epididymitis ..	—	2	—	2	—
(3) Hydrocele ..	—	10	—	10	1
(4) Orchitis ..	—	3	—	3	—
(5) Phimosis ..	1	1	—	2	—
(6) Scrotal Abscess ..	—	1	—	1	—
(7) Gangrene Scrotum ..	—	1	—	1	—
109. Diseases of the female genital organs:—					
(1) Endometritis ..	1	1	—	2	—
(2) Salpingitis ..	—	5	—	5	—
(3) Vaginitis ..	—	1	—	1	—
(4) Leucorrhoea ..	—	1	—	1	—
(5) Amenorrhoea ..	—	2	—	2	—
(6) Dysmenorrhoea ..	—	3	—	3	—
(7) Menorrhagia ..	—	1	—	1	—
(8) Atresia Vagina ..	—	1	—	1	—
XI.—Conditions Arising in Pregnancy, Childbirth and the Puerperal State.					
110. Ante-natal ..	—	6	—	6	—
111. Abortion not returned as septic:— Abortion without record of hæ- morrhage:—	—	5	—	5	—
112. Puerperal hæmorrhage:—					
(1) Ante-partum hæmorrhage ..	—	3	—	3	—
(2) Post-partum hæmorrhage ..	—	7	—	7	—
113. Retained placenta ..	—	1	—	1	—
114. Puerperal Fever ..	—	1	—	1	—
115. Toxaemias of Pregnancy:—					
(1) Post-partum eclampsia ..	—	1	—	1	—
(2) Albuminuria of pregnancy ..	—	2	—	2	—
116. Hydatid Mole ..	—	1	—	1	1
117. Conditions associated with Labour:—					
(1) Normal Labour ..	3	116	—	119	1
(2) Abnormal Labour ..	1	6	—	6	—
118. Miscarriage ..	—	1	—	1	—
XII.—Diseases of the Skin and Cellular Tissues.					
119. Carbuncles, boils ..	—	23	—	23	—
120. Cellulitis, Acute Abscess:—					
(1) Cellulitis ..	—	22	—	22	—
(2) Acute Abscess ..	4	77	—	81	3
<i>Carried forward</i> ..	150	3,573	144	3,723	164

APPENDIX D.—(Contd.)

DISEASES.	Remaining in hospital at the end of 1938.	Yearly Total		Total Cases Treated.	Remaining in hospital at the end of 1939.
		Admissions.	Deaths.		
<i>Brought forward</i>	150	3,573	144	3,723	164
121. Ulcers	24	307	—	331	18
122. Dermal Mycoses	—	1	—	1	—
123. Eczema	1	12	—	13	1
124. Tinea	1	7	—	8	—
125. Herpes	—	4	—	4	1
126. Scabies	1	22	—	23	—
127. Psoriasis	—	1	—	1	—
128. Urticaria	—	6	—	6	—
129. Dermatitis	—	8	—	8	1
130. Corn	—	1	—	1	—
131. Mycetoma	—	1	—	1	—
132. Pyoderma	—	2	—	2	—
133. Others	—	27	—	27	—
XIII.—Diseases of the Bones and Organs of Locomotion.					
134. Arthritis	1	10	—	11	1
135. Synovitis	—	2	—	2	—
136. Osteomyelitis	3	5	—	8	—
137. Sinus of knee	—	1	—	1	—
138. Myositis	—	1	—	1	—
139. Fibrositis	—	1	—	1	—
140. Pleurodynia	—	2	—	2	—
141. Torticollis	—	1	—	1	—
142. Myalgia	—	3	—	3	1
143. Congenital Malformation:— Harelip	—	3	—	3	—
XIV.—Diseases of Early Infancy.					
144. Marasmus	—	4	1	4	—
XV.—Conditions Associated with Old Age.					
145. Senility	—	1	—	1	—
XVI.—Affections Produced by External Causes.					
146. Accidental Drowning	—	1	1	1	—
147. Cut Throat	—	1	—	1	—
148. Food Poisoning	—	6	1	6	—
149. Attack by Venomous Animals:— Snake bite	—	1	—	1	—
150. Accidental burns:— (1) Burn by fire	—	8	1	8	—
(2) Scald	—	5	—	5	—
151. Injury by cutting or piercing instruments	2	48	2	50	2
152. Injury by fall, crushing etc:— (1) By fall	4	79	—	83	1
(2) By rail vehicle	—	1	—	1	1
(3) By other means	—	63	—	63	—
<i>Carried forward</i>	187	4,219	150	4,406	191

APPENDIX D.—(Contd.)

DISEASES.	Remaining in hospital at the end of 1938.	Yearly Total		Total Cases Treated.	Remaining in hospital at the end of 1939.
		Admissions.	Deaths.		
<i>Brought forward</i>	187	4,219	150	4,406	191
153. Attacks by animals:— (Except poisoning by Venomous animals)					
Goring, bites, kicks etc.	—	3	—	3	—
154. Sprain	1	8	—	9	—
155. Fractures	2	30	1	32	6
156. Concussion of the brain	—	1	—	1	—
157. Cerebral compression due to injury	—	2	2	2	—
158. Amputation of upper extremities	—	2	—	2	—
159. Dislocations	1	5	—	6	—
160. Contracture of right Index finger	—	1	—	1	—
161. Other external injuries	2	30	—	32	—
XVII.—Ill-defined Conditions.					
162. Malingering	—	2	—	2	—
163. Fever unclassified	4	26	—	30	—
164. Persons admitted for observation	—	10	—	10	—
165. Persons accompanying patients	—	2	—	2	—
Total	197	4,341	153	4,538	197

APPENDIX E.
RETURN OF OPERATIONS.

Pathological Condition and Nature of Operation.	Number of Cases.					Results.		
	Kuala Trengganu Hospital and Dispensary.	Chukai Kemaman Hospital and Dispensary.	Kuala Dungun Hospital and Dispensary.	Other Dispensaries.	Total.	Relieved.	Cured.	Died.
Skin & subcutaneous tissues:—								
Abscess, boils, carbuncles cellulitis etc.	52	52	36	22	162	—	162	—
Sinuses excised & scraped	8	—	—	—	8	—	8	—
Removal of Nail	2	—	—	—	2	—	2	—
Excision of horny Growth (face)	1	—	—	—	1	—	1	—
Suturing of wounds	21	41	27	19	108	2	116	—
Cauterization of Sores, etc., (Thermo-Cautery)	9	—	—	—	9	—	9	—
Removal of foreign bodies:—								
Ear	5	—	1	—	6	—	6	—
Eye	1	1	—	—	2	—	2	—
Nose	2	—	1	—	3	—	3	—
Upper extremities	3	4	—	5	12	—	12	—
Lower extremities	5	1	1	4	11	—	11	—
Removal of cysts:—								
Sebaceous	3	—	—	—	3	—	3	—
Meibomian	1	—	—	—	1	—	1	—
Dermoid	1	—	—	—	1	—	1	—
Excision of Corns	—	1	—	—	1	—	1	—
Removal of Supernumerary Digit	—	—	1	—	1	—	1	—
Tumours:—								
Fibroma	3	—	—	—	3	—	3	—
Other (Non-malignant)	4	—	—	—	4	—	4	—
Lymphatic Glands:—								
Incision of bubo etc.	6	1	—	—	7	—	7	—
Lips, eyes, mouths and salivary glands:—								
Prolapsed iris	1	—	—	—	1	—	1	—
Pterygium	1	—	—	—	1	—	1	—
Ectropion	1	—	—	—	1	—	1	—
Epulis	1	—	—	—	1	—	1	—
Peritonsillar Abscess	1	—	—	—	1	—	1	—
Encapsulated tumour of left submaxillary gland	1	—	—	—	1	—	1	—
Extraction of teeth	260	58	22	5	345	—	345	—
Repair of harelip	1	—	—	—	1	—	1	—
Alveolar Abscess	—	2	—	1	3	—	3	—
Haematoma rt. parietal incised	—	1	—	—	1	1	—	—
Ear, Mastoid, etc.:—								
Repairs of ear holes and other minor plastic operations	3	—	1	—	4	—	4	—
Nose:—								
Nasal polypi	3	—	—	—	3	—	3	—
Spine & Meninges:—								
Carried forward	400	162	90	56	708	3	705	—

APPENDIX E.—(Contd.)

Pathological Condition and Nature of Operation.	Number of Cases.					Results.		
	Kuala Trengganu Hospital and Dispensary.	Chukai Kemaman Hospital and Dispensary.	Kuala Dungun Hospital and Dispensary.	Other Dispensaries.	Total.	Relieved.	Cured.	Died.
<i>Brought forward</i> ..	400	162	90	56	708	3	705	—
Diagnostic lumbar punctures	8	—	—	—	8	8	—	—
Abdomen:—								
With protusion of intestines	2	—	—	—	2	—	—	2
Paracentesis Abdominis ..	7	1	—	—	8	8	—	—
Abscess pleural cavity aspirated ..	—	1	—	—	1	—	1	—
Rectum & Anus:—								
Ischio-rectal Abscess ..	3	—	—	—	3	—	3	—
Sigmoidoscopy ..	2	—	—	—	2	—	2	—
Perineal Abscess ..	—	1	—	—	1	—	1	—
Fistula in Ano ..	—	1	—	—	1	—	1	—
Hernia:—								
Radical cure for oblique inguinal hernia ..	4	—	—	—	4	—	3	1
Strangulated hernia ..	1	—	—	—	1	—	1	—
Male Uro-genital Organs:—								
Paraphimosis ..	—	—	1	—	1	—	1	—
Phimosis (dorsal slit) ..	2	—	—	—	2	—	2	—
Circumcision ..	4	—	—	—	4	—	4	—
Hydrocele, radical cure ..	3	—	—	—	3	—	3	—
Hydrocele, tapping & injection of sclerosing solution ..	1	2	—	—	3	3	—	—
Supra-pubic cystotomy for stricture of urethra (Venereal) ..	1	—	—	—	1	—	1	—
Stenosis of external (meatus) ..	1	—	—	—	1	—	1	—
External Urethrotomy for stricture ..	1	—	—	—	1	—	1	—
Rupture of urethra ..	1	—	—	—	1	—	1	—
Peri-urethral Abscess ..	2	—	—	—	2	—	2	—
Abscess & Gangrene Scrotum ..	—	1	—	—	1	—	1	—
Dilatation of Strictures ..	3	—	—	—	3	—	3	—
Orchidectomy (Sarcoma of undescended testis) ..	1	—	—	—	1	—	1	—
Female Urogenital Organs:—								
Periniorrhaphy & Colporrhaphy ..	1	—	—	—	1	—	1	—
Periniorrhaphy ..	9	—	—	—	9	—	9	—
Forceps, Applications of ..	2	—	—	—	2	—	2	—
Abortion (Manual removal of foetus) ..	—	1	—	—	1	—	1	—
Retained Placenta (Removal of) ..	—	2	—	—	2	—	2	—
Transverse presentation combined with cephalic Version ..	—	1	—	—	1	—	1	—
<i>Carried forward</i> ..	459	173	91	56	779	22	754	3

APPENDIX E.—(Contd.)

Pathological Condition and Nature of Operation.	Number of Cases.					Results.		
	Kuala Trengganu Hospital and Dispensary.	Chukai Kemaman Hospital and Dispensary.	Kuala Dungun Hospital and Dispensary.	Other Dispensaries.	Total.	Relieved.	Cured.	Died.
<i>Brought forward</i>	459	173	91	56	779	22	754	3
Prolapse of Cervix Replaced	—	1	—	—	1	—	1	—
Hydatid Mole (removed)	—	1	—	—	1	—	1	—
Bones:—								
Reduction of Fractures	4	1	1	—	6	—	6	—
Joints:—								
Aspiration of knee joints	1	—	2	—	3	—	3	—
Repair of wounds involving joints and bones	3	—	—	—	3	—	3	—
Reductions of dislocations	—	2	1	—	3	—	3	—
Amputations:—								
Arm	1	—	—	—	1	—	1	—
Toes, fingers, etc.	5	—	1	—	6	—	6	—
Incision made on site of sting	—	—	1	—	1	—	1	—
Total	473	178	97	56	804	22	779	3

APPENDIX F.

Details of Out-patients at the Various Dispensaries.

Dispensaries.	1938			1939			New Cases Treated on Visits to Kampongs.			
	Total New Patients.	Total Attendances.	Total New Cases on Visits to Kampongs.	New Cases.		Total New Cases.	Total Attendances.	Males.	Females.	Total.
				Males.	Females.					
1. Kampong Raja Besut	6,078	6,901	298	4,608	1,537	6,145	7,274	—	—	—
2. Travelling Dresser, Besut	1,703	1,703	1,703	3,636	1,501	5,137	5,283	3,636	1,501	5,137
3. Setiu Travelling, Dresser	5,819	5,948	2,894	2,420	893	3,313	3,400	2,420	893	3,313
4. Kuala Trengganu Town—Dispensary & Clinic	13,257	20,974	—	13,512	4,237	17,749	23,528	—	—	—
5. Kuala Trengganu Hospital Dispensary	5,457	6,750	—	3,813	1,089	4,902	8,874	—	—	—
6. Kuala Trengganu Travelling Dresser	28,309	33,327	28,309	18,905	9,205	28,110	31,061	18,905	9,205	28,110
7. Kuala Brang	9,096	9,763	3,852	5,863	2,694	8,557	9,154	1,918	1,089	3,007
8. Kuala Dungun	6,093	8,590	—	4,609	954	5,563	9,483	—	—	—
9. Kuala Dungun Travelling Dresser	5,804	6,017	5,804	1,740	1,330	3,070	3,318	1,740	1,330	3,070
10. Kemasek Travelling Dresser	6,419	6,782	3,532	4,537	1,329	5,866	6,395	1,495	318	1,813
11. Kemaman	5,240	8,954	—	3,111	870	3,981	5,676	—	—	—
12. Kemaman Travelling Dresser	4,626	6,350	4,626	1,637	514	2,151	3,141	1,637	514	2,151
13. Kampong Buloh Travelling Dresser	12,372	13,323	9,946	10,965	5,203	16,168	18,638	9,272	4,373	13,645
14. Vaccinators	21,114	21,706	21,114	10,318	5,460	15,778	16,001	10,318	5,460	15,778
15. Police, Customs etc.	585	585	585	441	58	499	499	441	58	499
Total	131,972	157,673	82,663	90,115	36,874	126,989	151,725	51,782	24,741	76,523

APPENDIX G.
LABORATORY WORK.

	Kuala Trengganu.	Chukai Kemaman.	Kuala Dungun.	Kuala Brang.	Kampong Raja.	Total.
BLOOD.						
Microscopical examination for						
Protozoa:—						
Total No. of films examined	2,906	925	582	91	73	4,577
Negatives	2,363	420	508	62	55	3,408
Positives	543	505	74	29	18	1,169
Plasmodium falciparum	252	371	14	17	4	658
Plasmodium Malariae ..	57	17	4	—	1	79
Plasmodium Vivax and falciparum	33	30	5	—	—	68
Plasmodium Malariae and falciparum	2	—	1	—	—	3
Crescents	60	25	—	1	—	86
Plasmodium Vivax and Malariae	—	—	1	—	—	1
Microscopic examination for						
Microfilaria:—						
Total No. of specimens examined	14	—	—	—	—	14
Positive for Microfilaria Bancrofti	2	—	—	—	—	2
Negative	12	—	—	—	—	12
Estimation of haemoglobin	70	—	—	—	—	70
Enumeration of erythrocytes	74	—	3	—	—	77
Enumeration of leucocytes ..	55	4	10	—	—	69
Differential Counts for leucocytes	35	2	5	—	—	42
Widal Reaction:—						
Total performed	46	—	—	—	—	46
Positive	25	—	—	—	—	25
Negative	21	—	—	—	—	21
Weil-Felix Reaction:—						
Total performed	25	—	—	—	—	25
Positive (3 'K' & 2 'W' Strains)	5	—	—	—	—	5
Negative	20	—	—	—	—	20
Kahn Test:—						
Total performed	21	—	—	—	—	21
Positive	5	—	—	—	—	5
Negative	16	—	—	—	—	16
"Dmelcos" Skin test for Soft-						
Sore:—						
Total performed	50	7	8	—	—	65
Positive	29	3	2	—	—	34
Negative	21	4	6	—	—	31
Sputum						
Microscopic examination for						
B. Tuberculosis:—						
Total No. examined ..	304	35	3	3	4	349

APPENDIX G.—(Contd.)

	Kuala Trengganu.	Chukai Kemaman.	Kuala Dungun.	Kuala Brang.	Kampong Raja.	Total.
Positive	54	12	1	2	2	71
Negative	250	23	2	1	2	278
Smear from Urethra, Cervix, Conjunctive, etc. ..						
Microscopic examination for Gonococci:—						
Total No. examined ..	539	54	11	4	3	611
Positive	296	24	8	3	3	334
Negative	243	30	3	1	—	277
Smear from knee joint for G.N.D. and Streptococci (Positive)	1	—	—	—	—	1
Smear from Throat for K.L.B. (All Negative) ..	12	—	11	—	—	23
Smear from Pleural effusion for Pneumococci etc. (Negative)	—	—	1	—	—	1
Positive	—	1	—	—	—	1
Nose and Skin:—						
Microscopical examination for lepra bacillus Total No. examined ..	24	3	—	—	—	27
Positive	4	—	—	—	—	4
Negative	20	3	—	—	—	23
Van Den Bergh:—						
Total performed (Positive)	2	—	—	—	—	2
Cerebrospinal fluid:—						
Cell Count	2	—	—	—	—	2
Microscopic examination for Meningococci (Positive) ..	1	—	—	—	—	1
Gastric Analysis. ..	8	—	—	—	—	8
URINE.						
Chemical and Microscopical examination (excluding examination for Gonococci and routine examination in the wards) ..	671	355	40	44	40	1,150
Culture for B. Typhosum:—						
Total performed ..	3	—	—	—	—	3
All (negative) Water, Cul- tured for B Typhosum (negative)	1	—	—	—	—	1
Examination for Occult Blood:—						
Total No. examined ..	6	—	—	4	—	10
Positive	2	—	—	3	—	5
Negative	4	—	—	1	—	5
No. of Police exhibits examined	16	—	—	—	—	16

APPENDIX G.—(Contd.)

	Kuala Trengganu.	Chukai Kemaman.	Kuala Dungun.	Kuala Brang.	Kampong Raja.	Total.
FÆCES.						
Infection with ankylostoma, ascaris and trichuris is very common, entamoeba histolytica, entamoeba coli, lamblia intestinalis and strongyloids are not nearly so frequent. Tape worm, distoma oxyuris Vermicularis are occasionally observed, but there was no case in 1939.						
The following are the result of the examination:—						
Preparations examined	2,295	747	391	105	111	3,649
Positive	1,067	537	286	104	78	2,072
Negative	1,228	210	105	1	33	1,577
Ankylostoma	85	135	25	17	2	264
Ankylostoma & Ascaris	42	68	9	15	12	146
Ankylostoma & Trichuris	52	17	14	1	—	84
Ankytoma, Ascaris and Trichuris	105	120	10	10	4	249
Ascaris	211	57	89	5	21	383
Trichuris	145	45	55	6	15	266
Ascaris & Trichuris	260	—	55	38	19	372
Ascaris & Strongyloid	—	—	1	—	—	1
Entamoeba histolytica cysts of Ent. Histolytica	4	—	—	—	—	4
Strongyloids	6	—	—	1	—	7
Lamblia Intestinalis	8	—	2	—	—	10
Pus Cells	107	—	23	4	5	156
Culture for B. Typhosum (All Negative)	7	—	—	—	—	7

APPENDIX H.

New Cases of Hospital In-patients by Race for 1939.

	Malays.	Chinese.	Indians.	Others.	Total
Kuala Trengganu Hospital	1,037	1,100	370	8	2,515
Chukai Kemaman Hospital	127	611	261	22	1,021
Kuala Dungun Hospital	115	279	383	28	805
Total	1,279	1,990	1,014	58	4,341
By Percentage	29.46%	45.84%	23.36%	1.34%	100%

Out-patients treated by Department by Race.

	Malays.	Chinese.	Indians.	Others.	Total
X Kampong Raja Dispensary	5,905	129	94	17	6,145
Kemaman Dispensary	2,137	1,543	253	48	3,981
Travelling Dresser, Kuala Trengganu	27,820	227	63	—	28,110
Kemasek Dispensary	3,671	2,020	154	21	5,866
Kuala Brang Dispensary	8,417	108	32	—	8,557
Town Dispensary & Clinic K. Trengganu	14,098	3,105	514	32	17,749
Kampong Buloh Dispensary	15,679	405	82	2	16,168
Travelling Dresser, Kemaman	1,948	182	21	—	2,151
Travelling Dresser, Besut	5,056	64	17	—	5,137
Vaccinator Besut	709	4	—	—	713
X Kuala Trengganu Hospital Dispensary	3,537	1,049	250	66	4,902
Customs and Police	499	—	—	—	499
Travelling Dresser, Setiu	3,268	43	2	—	3,313
Vaccinator, (Kuala) Brang	5,707	28	—	—	5,735
Vaccinator, Kuala Trengganu	7,654	25	—	—	7,679
Dungun Dispensary	3,404	1,063	995	101	5,563
Travelling Dresser, Dungun	2,949	112	9	—	3,070
Vaccinator, Dungun	1,567	75	9	—	1,651
Total	114,025	10,182	2,495	287	126,989
By Percentage	89.79%	8.02%	1.96%	0.23%	100%





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