

## **Annual medical and sanitary report / Trengganu.**

### **Contributors**

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# TRENGGANU.

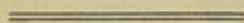
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Annual Medical Report  
For 1940.



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# **TRENGGANU.**



**Annual Medical Report**  
**For 1940.**

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# TRENGGANU

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## REFERENCE

- Roads —————
- Alienated Land ————
- Mining ————
- Mining Concession ————
- Forest Reserve ————
- Unmetalled Roads .....



CHINA  
SEA



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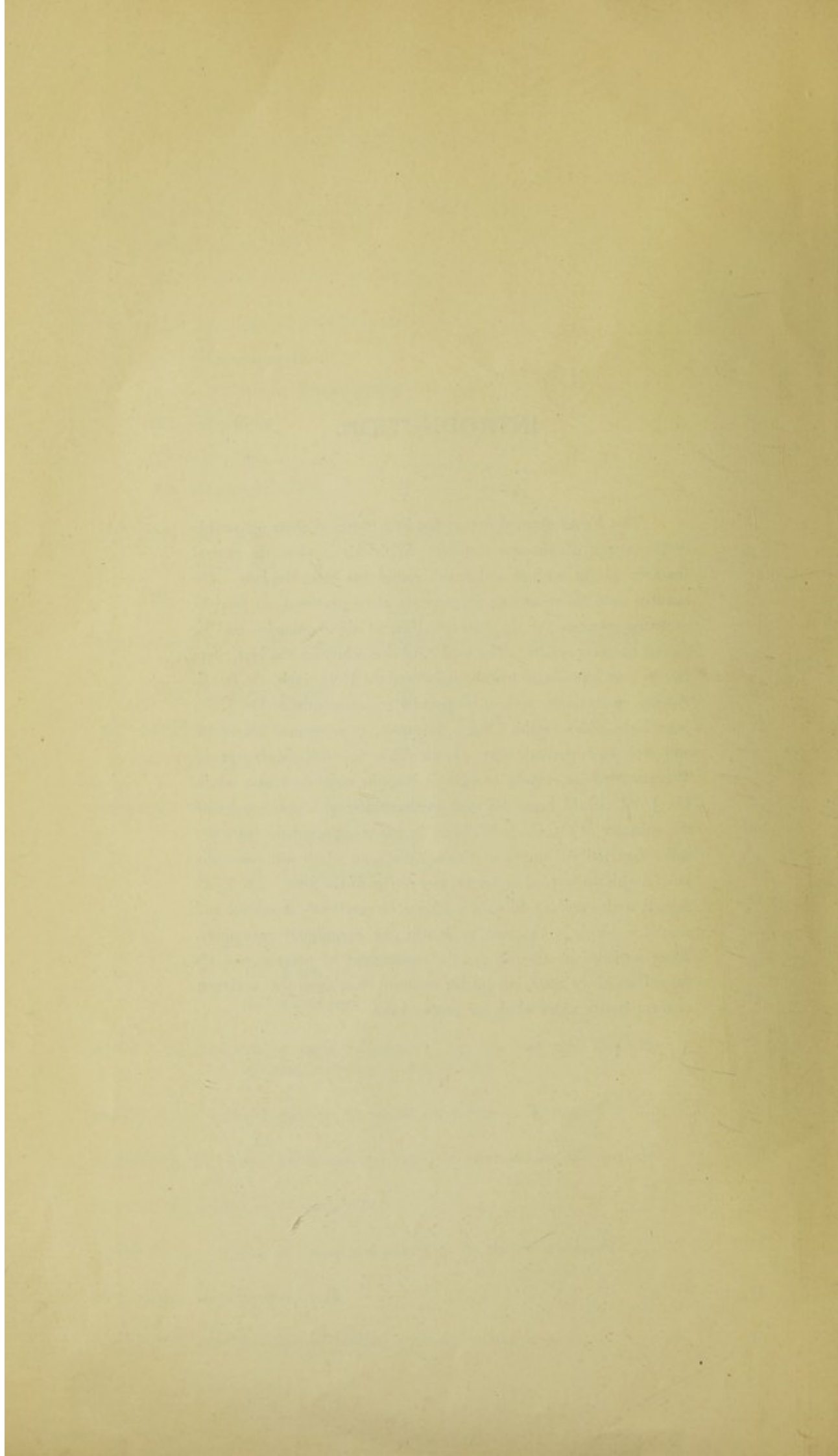
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## INTRODUCTION.

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This Year's Annual Report has been made as short as possible in the interest of war-time economy. With this in view, the general character of the medical and health record has been abridged. The essential data for measuring progress are alone preserved, so that the necessary measures for the future welfare of the community may be guided by these results. The vital need for achieving the best effect for the least expenditure has also influenced the Honourable, the British Adviser, to obtain the service, temporarily for six months of Dr. J. W. Scharff the Chief Health Officer, Singapore, to re-organise the health and associated medical work of the State so that the benefit of Western Medicine may be brought to bear the community as a whole. Dr. J. W. Scharff began his work in the middle of October and with the assistance of Dr. Cicely Williams, he has re-organised the maternity and infant welfare centres in Kuala Trengganu which will eventually link up with the hospital and dispensary service of the State. Dr. J. W. Scharff is also pushing forward a scheme of rural malaria control and sanitation which is designed to benefit the agricultural community. These activities are essential for the maintenance of progress and for the welfare of the State, but further comment must await the conclusion of these investigations which are now in hand.



# 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 Kanagalingam L.R.C.P. & S. (Edinburgh), L.R.F.P. & S. (Glasgow) Dungun.  
Dr. T. Danaraj L.M.S., Kemaman was relieved by Dr. Chung Keat Saik L.M.S., on 10.5.1940.
- (c) *Assistant Dental Surgeon.* Mr. Leaw Khin Siong.

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	29	(one special grade, one grade I, seven grade II, nine grade III, & eleven probationers)
Vaccinators	4	
Health Inspectors	3	
Clerks	4	
Steward & Store-keeper	2	
Menials	52	

	1939	Actual Expenditure 1940
(B) Finance.		
Personal Emoluments	\$ 74,490.25	\$ 75,622.63
Annually Recurrent	59,504.35	54,544.25
Special Votes	3,356.33	7,105.61
	<u>\$137,350.93</u>	<u>\$137,272.49</u>

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

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

	1939	1940
Hospital Charges	\$2,364.90	\$3,515.92
Sale of Medicine	814.00	488.08
Licences to druggists and dentists	170.00	145.00
Registrar, Births and Deaths	119.00	113.50
Dental Treatment	—	37.21
Miscellaneous	35.06	183.31
	<u>\$3,502.96</u>	<u>\$4,483.02</u>

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.
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%
1940	4,483.02	3,303,005.97	137,272.49	2,629,573.94	5.22%

The expenditure of the State included \$193,638.46 in respect of repayment of loans to the Straits Settlements Government.

A. Includes War Taxation	\$171,897.68
B. Does not include	4,052.38 on Special Health Work

## II.—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. The calculated mid year population for 1940 is 207,767 and it is on this figure that birth and death rates are based.

### (B) Births.

There were 7,600 (6,956)\* live births registered during the year of which 3,922 (3,535) were males and 3,678 (3,421) were females. The ratio of male to female births was thus 1,007 (1,033) per 1,000 females born. The birth rate was 36.58 (34.01) per mille. The number of still births recorded was 320 (276), a rate of 40 (39) per 1,000 total births.

Appendix B sets out the births according to race.

### (C) Deaths.

The number of deaths registered was 5,084 (5,432), a rate of 24.44 (26.56) per mille; of these 2,776 (2,954) were males and 2,308 (2,478) were females.

The highest number of deaths was 624 (in July) and the lowest 324 (in December). Deaths of children under 5 years of age numbered 2,085 (2,333) or 56.75% (42.94%) of the total deaths.

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

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

	1936	1937	1938	1939	1940
Typhoid fever	—	—	2	2	2
Unspecified fever and malaria	2,661	2,761	2,759	3,470	3,503
Convulsions	1,095	867	1,245	1,147	886
Intestinal diseases	172	183	113	144	130
Beri-beri	61	23	31	45	19
Respiratory diseases	140	90	115	141	126
Maternal mortality	64	53	65	59	40
Senility	217	212	229	227	233
Accidents	66	60	39	56	49
Other causes	197	182	192	141	96
Total	4,673	4,431	4,785	5,432	5,084

A closer analysis of the causes of deaths would be useless for the reason that barely 5% of the deaths are certified by qualified medical practitioners.

Of the 3,503 cases of deaths due to unspecified fever and malaria only 76 (57) are known to have been caused by malaria, two of which were cases of black water fever. There were four cases described as 'demam kepialu' which means a long continuous fever and might be enteric or typhus. As to the others, no cause can be assigned.

Noxious Animals.—Three (1) persons were killed by tigers, one by an elephant and one by a snake.

Deaths due to insects.—There was one death due to oedema of the glottis following a bee-sting.

Maternal Mortality.—\*Forty (59) women were stated to have died as the results of child birth giving a rate of 5.05 (8.15) per thousand births (alive and still). One woman died as the result of abortion.

Throughout the report these figures in brackets are for 1939.

\*Includes one death from abortion.

**(D) Infantile Mortality.**

The number of deaths of children under one year of age was 1,321 (1,552) or 25.98% (28.75%) of the total number of deaths of which 743 (839) were males and 578 (713) were females. The infantile mortality rate was 173.81 (223.12) per mille, while the mortality rate of children under the age of 4 weeks was 69.34 (73.60) per 1,000 live births.

The following tables show (A) the infant mortality rates per mille in various districts for the last five years and (B) the number of births, deaths, and deaths of infants with the corresponding rates since the inception of registration in Trengganu:—

**A.**

	1940		1936	1937	1938	1939	1940
	No. of births.	No. of Infant deaths.					
Besut ..	937	143	182.13	146.23	142.09	158.32	152.61
Setiu ..	268	35	283.15	162.17	177.70	140.00	130.59
Batu Rakit ..	457	112	288.21	150.11	214.81	300.00	245.07
K. Trengganu	3,400	531	201.72	174.89	209.96	232.92	156.18
Ulu Trengganu	484	86	141.37	139.10	110.74	193.82	177.77
Marang ..	392	83	190.71	149.28	184.53	194.66	211.74
Dungun ..	516	115	280.75	207.09	242.73	226.37	222.87
Paka ..	175	33	267.07	267.70	259.56	355.80	188.57
Kemasek ..	322	69	278.78	252.81	219.39	251.33	214.29
Kemaman ..	649	114	230.78	218.18	251.61	217.57	175.65
Whole State ..	7,600	1,321	213.09	175.60	200.26	223.12	173.81

**B.**

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	25.56	1,552	223.12
1940 ..	207,767	7,600	36.58	5,084	24.44	1,321	173.81

It is gratifying to note the marked fall in the 1940 Infantile mortality rate 173.81 per mille which is the second lowest figure ever recorded, the lowest being 163.75 in 1933.

As improper feeding is undoubtedly the main reason for the high infantile mortality rate in Trengganu, it is thought that the large decrease in 1940 is possibly due to the following facts:—

For four months of the year from November until February, the North East Monsoon usually prevents fishing being done to any great extent and these four months are lean ones for the fisher folk as little money is coming into the home and dried fish replaces the fresh fish in the diet.

In 1939—1940, as there was no proper North East Monsoon, fishing was scarcely interrupted and the lack of these lean months is reflected in the marked decrease in beri-beri cases treated in 1940—viz. 374 patients as compared with 768 in 1939. For the same reason, expectant mothers were probably in better health, and nursing mothers able to breast-feed their children adequately rather than give them improperly diluted sweetened milk, cocoanut milk, canjee or any other unsuitable food.

Malaria, per se, does not appear to be an important factor in the infantile mortality except in conjunction with improper diet.

In the Ulu, where the spleen rate is high the infantile death rate is comparatively low, as here the mothers must perforce breast-feed their children. In places such as Batu Rakit which is on the coast and also malarious, the rate is the highest in Trengganu because of the combined effects of improper feeding and malaria.

### 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, except in the places where hills with seepages are close to the coast. 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. 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 table shows that there has been little change in the prevalence of malaria during 1940 while the graph shows clearly the high incidence of Sub-Tertian infections from May to September:—

	1939.	1940
Number of deaths reported being due to malaria	57	76*
Number of deaths reported as being due to fever unspecified	3,415	3,503
Number of deaths reported as being due to convulsions	1,147	886
Total death rate per mille	25.56	24.44
Number of out-patients treated by Dept. for malaria	20,363	17,072
Percentage of out-patients treated by Depart. for malaria	16.03	15.19
Number of in-patients treated by Dept. for malaria as principal disease	1,299	1,283
Percentage of Malays (i.e. the stable population) admitted into Government hospitals suffering from malaria as the principal disease	13.32%	14.99%
Spleen rate of school children.	2.02%	3.89%

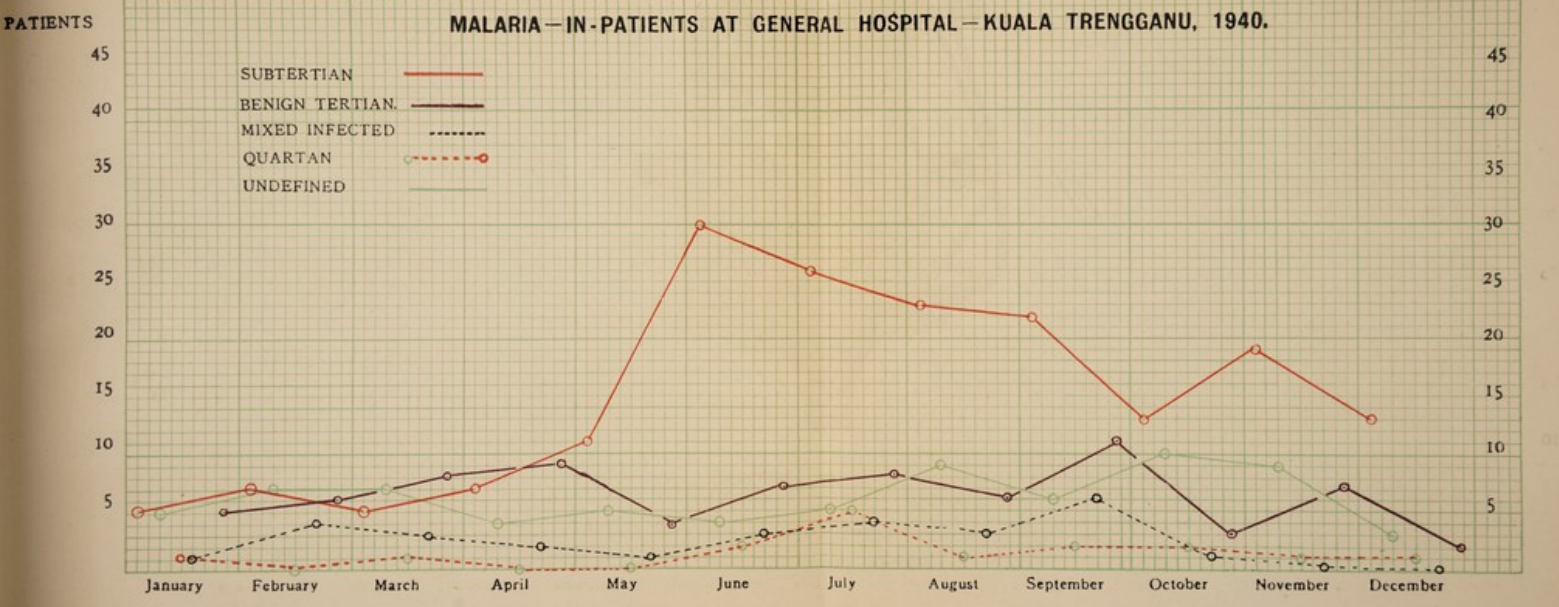
As regards the mines and estates, there were 5 (6) deaths from this cause in an average monthly population of 9,135 (8,503).

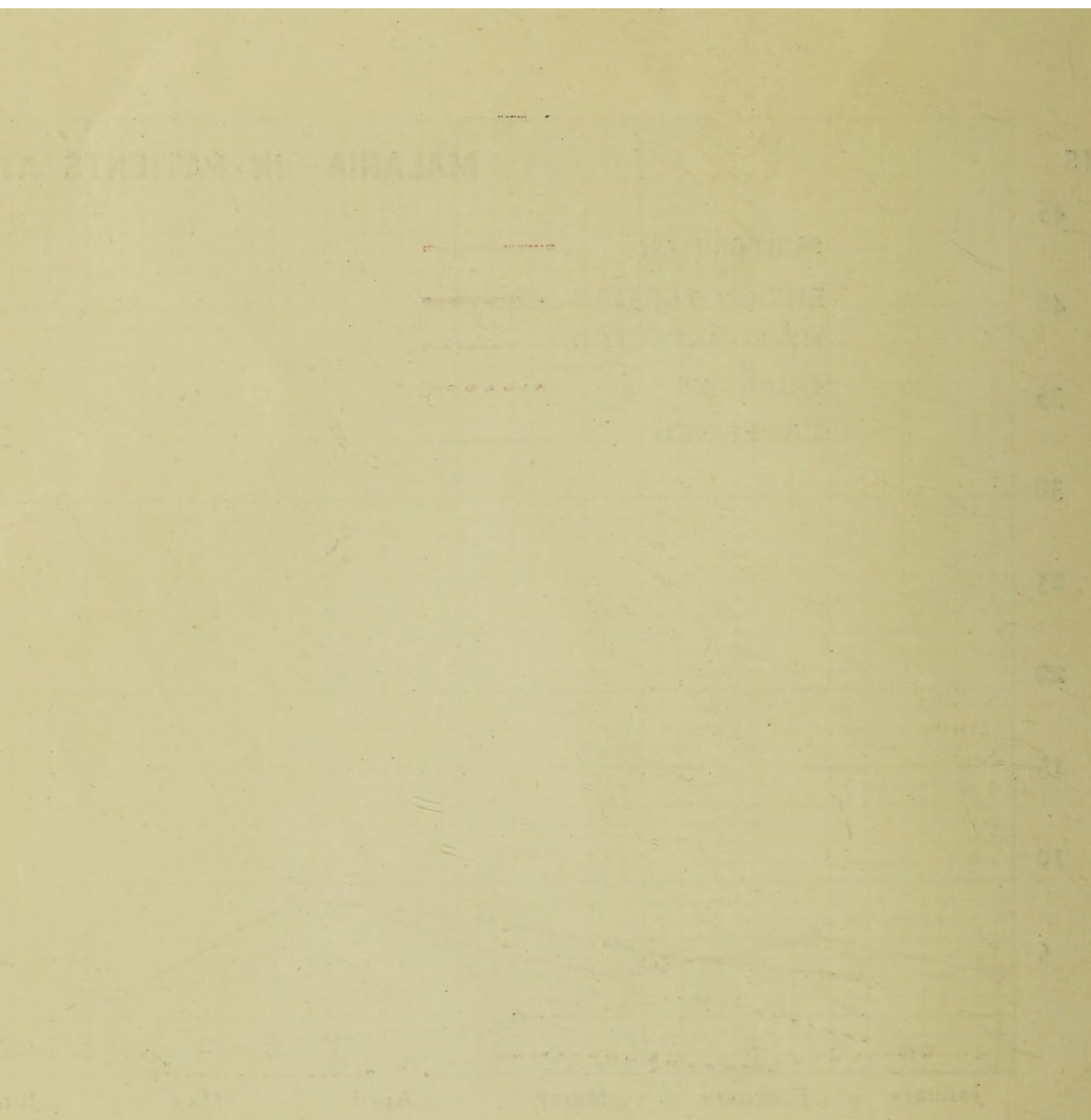
##### (ii) Dangerous Infectious Diseases.

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

Vaccination against smallpox.—Primary vaccinations numbered 7,540 and re vaccinations 150 a total of 7,690 compared with 6,236 in 1939.

\*Of 76 cases of death from malaria 2 (2) were due to black-water fever—both occurred in Kemaman Hospital.





## (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."	"Sho" Typhus B. Proteus X "W."	Deaths.
1936 .. .. .	2	2	1
1937 .. .. .	2	1	0
1938 .. .. .	0	1	0
1939 .. .. .	1	1	1
1940 .. .. .	2*	1*	0

## (iv) Bowel Diseases.

The number of deaths reported to have been due to diseases of the bowels was 130 (144).

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.—Seventy four (116) cases were treated in Government hospitals of which 31 (53) were amoebic while 62 (113) were treated as out-patients of which 7 (11) were reported as amoebic. In addition, 51 (41) cases of dysentery were reported from the estates and mines. There was no epidemic.

Enteric Fever.—Twenty (19) cases were reported with 2 (2) deaths.

Helminths.—These are very prevalent and 59.43% (57.78%) 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 13.60% of cases
Ascaris .. .. .	in 37.56% of cases
Trichuris .. .. .	in 28.79% of cases
Strongyloids .. .. .	in 0.39% of cases
Lambia intestinalis .. .. .	in 0.28% of cases

Treatment with Santonin and oil of chenopodium is very popular and 13,949 patients were treated by the Medical Department as the principal disease.

## (v) Tuberculosis.

One hundred and twenty six (141) people were reported to have died of respiratory disease and 46 (56) of these deaths were said to have been due to tuberculosis. Thirty two of these deaths occurred in Government hospitals and accounted for 22.38% (22.68%) of the total deaths there.

## (vi) Beri-beri.

This year there has been a further decrease in the number of cases, 374 patients being treated as compared with 768 in 1939, and 19 deaths were reported as compared with 45 deaths last year. There was no death due to Beri-beri on any of the mines or estates. A possible reason for this fall in the number of beri-beri cases is given under Infantile Mortality.

## (vii) Yaws.

	Admissions In-patients.	Percentage to total number of Admissions.	Out-patients treated.	Percentage to total number of out- patients treated.
1936 .. .. .	257	10.45	2,845	3.78
1937 .. .. .	231	6.78	3,694	2.59
1938 .. .. .	114	3.01	11,123	8.43
1939 .. .. .	100	2.30	9,432	7.41
1940 .. .. .	65	1.55	8,321	7.41

Of 3,958 school children examined 3.41% showed signs of yaws as compared with 6.00% in 1939, but most of these cases were tertiary yaws.

\*Two of them were from Kuala Trengganu of which one was out-patient and one from Kemaman Hospital.

**(viii) Other Infectious Diseases.**

Chickenpox.—No outbreak occurred. Twelve (44) cases were reported with no deaths. No case was reported from the estates and mines.

Diphtheria.—There was no (3) case this year.

Influenza.—This term includes the common cold; 5,291 (3,997) cases were treated by the Medical Department.

Measles.—Small outbreak occurred from time to time all over the State. Fifty seven cases were reported with no death.

Mumps.—Thirty two (88) cases were recorded with no (0) death.

Tetanus.—There were two cases, including one in a newly born infant, with no death.

Whooping Cough.—Twenty nine (21) cases were recorded with no death.

Dengue.—There were twenty six cases reported with no death.

**(B) GENERAL MEASURES OF SANITATION.****(i) Town Boards and Staff.**

There are town-boards at the following places:—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 town-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.

**(ii) Anti-Malarial Measures.**

Anti-malarial work in Trengganu is one of the Health problems now being investigated by Dr. J. W. Scharff. 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 for this has been brought to the notice of Government.

**(iii) Sewage Disposal.**

In Kuala Trengganu, Dungun and Chukai Kemaman, the double pail system is used, and the night soil is buried in special trenching grounds. Under Dr. J. W. Scharff's supervision, a certain amount of the night soil and refuse in Kuala Trengganu is now being used to manufacture compost, and it is hoped to extend this system to Dungun and Kemaman during 1941.

**(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 mostly obtained from rivers. The water is of fair quality due to the sandy soil but in the larger towns a certain amount of pollution occurs because of the absence of a proper drainage system.

**(vi) Drainage.**

In Kemaman, good progress was made in Town Drainage during 1940 but little or nothing was done in Kuala Trengganu and Dungun because of the lack of funds. In the latter town, the matter is urgent and every effort will be made in 1941 to have essential drains constructed.

**(vii) House Inspections.**

Inspection of houses is regularly performed in all Town-Board areas and unsatisfactory houses are recommended for demolition.

**(viii) School Hygiene.**

Medical Inspection.—Thirty (28) Government schools and 10 (9) Public 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 3,958 (3,516) which was 92.45% (92.79%) of the number enrolled.

The following table gives figures for 1940:—

Districts.	Number Pupils Examined.	Dental Caries. %	Yaws. %	Enlarged Spleen. %	Ulcers. %	Skin Diseases. %
Besut	612	45.26	12.25	3.92	3.59	15.03
Setiu	174	62.64	0.57	0.57	2.31	14.94
Kuala Brang	73	40.73	2.74	4.11	4.11	9.59
Dungun	255	42.75	1.18	4.70	9.02	7.84
Paka	114	47.27	9.65	4.38	14.91	6.14
Kemasek	145	31.72	0.00	2.07	6.89	12.41
Kreteh	47	57.45	0.00	19.15	4.26	10.64
Kijal	81	39.50	6.17	9.89	2.47	12.35
Ulu Kemaman	70	32.86	0.00	61.43	0.00	1.43
Kemaman	510	44.90	2.16	5.88	0.00	1.57
Kuala Trengganu	1,877	85.83	1.44	0.85	3.36	16.84
Whole State	3,958	63.85	3.41	3.89	3.69	12.96

Total number of pupils on roll .. .. . 4,281

„ „ „ „ examined .. .. . 3,958 = 92.45%

Percentage of enlarged Spleen:—

	1936	1937	1938	1939	1940
Kuala Trengganu	0.31	0.19	0.22	0.69	0.85
Rest of State	5.81	5.51	4.75	2.05	6.63
Whole State	2.73	3.02	2.65	2.02	3.89

Percentage of Yaws:—

	1936	1937	1938	1939	1940
Kuala Trengganu	7.03	3.10	1.85	7.34	1.44
Rest of State	13.20	4.52	3.28	3.21	5.19
Whole State	9.79	3.80	2.61	6.00	3.41

**(ix) Labour Conditions.**

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

During the year all mines and estates were inspected by the Medical Officer or Assistant Medical Officers and although there is still much to be done there has been a general improvement in the health and living conditions of the various labour forces.

The Nippon Mining Company (Labour population 5,000) and the Ishihara Sangyo Koshi Company (Labour population 1,322) now employ anti-malarial experts and good progress was made in this work during the year.

**(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-shops, 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 as soon as funds are available 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 conditions but the results obtained are very disappointing. A series lectures on Hygiene have been started at the Sultan Sulaiman English School and it is hoped to extend these lectures to other schools during 1941.

**(xiv) Dentists and Druggists.**

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

There are 25 (27) 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. is now enforced.

Druggists.—The number of registered druggists is 5 (3). 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.****(A) Maternity Work.**

Cases conducted in Kuala Trengganu Hospital number 131 (119) while cases conducted in patients' homes numbered 110 (123).

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	118	4	—	131	—	8	2
Kuala Trengganu Town Clinic	50	57	2	1	110	—	4	1
Midwife, Besut	49	6	—	1	56	—	1	1
Midwife, Dungun	5	40	1	5	51	—	1	—
Midwife, Kemaman	16	83	—	2	101	1	6	—
Total,	129	304	7	9	449	1	20	4

## Abortion and Miscarriage.

	Malays.	Chinese.	Indians.	Others.	Total.
Kuala Trengganu Hospital ..	1	4	1	—	6
Kuala Trengganu Town Clinic ..	4	—	—	—	4
Midwife, Besut .. .. .	1	1	—	—	2
Midwife, Dungun .. .. .	1	3	—	—	4
Midwife, Kemaman .. .. .	—	1	—	—	1
Total	7	9	1	—	17

## Women appearing for Ante-natal Examination.

	Malays.	Chinese.	Indians.	Others.	Total.	Total Attendances.
Kuala Trengganu Hospital ..	1	8	3	—	12	12
K. Trengganu Town Clinic ..	45	21	2	1	69	158
Midwife, Besut .. .. .	100	10	1	—	111	197
Midwife, Dungun .. .. .	3	10	1	2	16	19
Midwife, Kemaman .. .. .	16	25	1	1	43	45
Total	165	74	8	4	251	431

General Hospital, Kuala Trengganu.—The number of cases conducted here was 131 (119) including 9 (9) Malays. There was no (0) death.

Kuala Trengganu Town Clinic.—The number of cases conducted by the Japanese Midwife was 110 (123) including 50 (63) Malays and 57 (55) Chinese.

Besut.—The Malay Midwife conducted 56 (50) cases of whom 49 (48) were Malays.

Dungun.—The Midwife conducted 51 (50) cases of whom 5 (2) were Malays, 40 (29) Chinese, 5 (3) Indians and 1 (0) Others.

Kemaman.—Here 101 (64) cases were conducted, of which 16 were Malays, 83 Chinese and 2 Others.

**(B) Infant and Child Welfare Services.**

For some years past an attempt has been made to build up a Child Welfare Service in Trengganu at the various hospitals and dispensaries but owing to the lack of a nurse experienced in this kind of work, the results have been disappointing.

In November, 1940, Trengganu engaged Miss Jee Suan Kee, a Senior Health Nurse who has had considerable experience in Infant Welfare Centres. Properly conducted clinics are now held in Kuala Trengganu at the Town Dispensary, the Pantai Club, the Police Barracks and at the Hospital.

There has been an extremely good response by the public and it is hoped to extend this work in 1941, first to Dungun and Kemaman and then to the out-station dispensaries.

The following table compares the number treated during the year 1939 and 1940:—

	1939	1940
Number of infants under 1 year of age ..	268	368
Number of children treated age 1—12 years ..	1,566	1,874
Cases receiving ante-natal treatment ..	77	81

**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.
Number of infants under 1 year of age ..	29	5	6
No. of children treated aged 1—12 years ..	139	17	35
Cases receiving Ante-natal treatment ..	12	5	1

**V.—HOSPITALS AND DISPENSARIES.**

**(A) Hospital Inpatients.**

The following accommodation is now available for in-patients:—

Kuala Trengganu Hospital .. .. .	190 beds
Dungun Hospital .. .. .	20 beds
Kemaman Hospital .. .. .	56 beds
	266

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 \$1.50 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 ..	13.95 p.d. approx.
Special wards ..	65.34 p.d. approx.
Kuala Dungun.—General wards ..	21.08 p.d. approx.
Kemaman.—General wards ..	19.42 p.d. approx.

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

	1940.			All hospitals including transfers.
	Kuala Trengganu General Hospital.	Kemaman Hospital.	Dungun Hospital.	
Total number of Admissions .. .. .	2,265	1,001	928	4,194
"    "    "    Females admitted .. .. .	439	130	87	656
"    "    "    Malays admitted .. .. .	943	115	136	1,194
Total number of Deaths .. .. .	79	40	24	143
Number of deaths per 100 Admissions .. .. .	3.49	3.99	2.59	3.43
Number of deaths excluding cases dying within 48 hours of Admission .. .. .	69	35	17	121
Number of deaths per 100 admissions excluding cases dying within 48 hours of Admission .. .. .	3.05	3.49	1.83	2.88
Number of cases of child birth conducted in Maternity Wards .. .. .	131	42	3	176
Number of operations (excluding teeth extraction) .. .. .	205	134	92	431
Number of deaths after operation .. .. .	—	—	—	—
Number of cases treated by dental extraction .. .. .	2,438	30	17	2,485

The returns of diseases and deaths of inpatients 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) .. .. .	786	22	2.80 ( 1.28)
Malaria Acute (Clinical diagnosis) .. .. .	272	1	0.37 ( 0.49)
"    "    Cachexia .. .. .	214	7	3.27 ( 1.44)
Blackwater fever .. .. .	11	2	18.18 (18.18)
Influenza .. .. .	133	1	0.75 (0)
CHEST AFFECTIONS:—			
Bronchitis .. .. .	83	0	0 (0)
Pneumonia .. .. .	49	8	16.33 (35.18)
Pulmonary Tuberculosis .. .. .	89	32	35.95 (36.95)
Empyema & Pleurisy .. .. .	6	0	0 (14.28)
INTESTINAL AFFECTIONS:—			
Diarrhoea and enteritis .. .. .	59	4	6.78 ( 5.00)
Dysentery .. .. .	74	9	12.16 (10.34)
Hepatic Abscess (Amoebic) .. .. .	4	0	0 (0)
OTHER AFFECTIONS:—			
Helminthic diseases .. .. .	90	0	0 ( 1.77)
Beri beri .. .. .	61	4	6.56 ( 2.22)
Anaemia .. .. .	26	1	3.84 ( 2.32)
Yaws .. .. .	65	0	0 ( 1.00)
SURGICAL CONDITIONS:—			
Chronic ulcer .. .. .	348	0	0 (0)
Wounds, Fractures etc. .. .. .	249	3	1.20 ( 1.73)
Abscess, Boils, Cellulitis, Carbuncles etc. .. .. .	126	0	0 (0)
Burns & Scalds .. .. .	21	1	4.76 ( 7.69)
VENEREAL DISEASES:—			
Syphilis, Late manifestations .. .. .	5	0	0 (50.00)
Hereditary .. .. .	1	0	0 (0)
Syphilis, other forms .. .. .	30	0	0 (0)
Other venereal diseases .. .. .	302	0	0 (0)

#### NOTES ON PREVAILING DISEASES AMONGST HOSPITAL PATIENTS.

(i) Malaria.—There were 1,283 (1,299) admissions which represent 30.59% (29.69%) of the total admissions. The mortality rate for all types of cases was 2.48% (1.08%)—the details are given above. Included in these figures are 11 (11) cases of blackwater 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 atabrin 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 1931—1935:—			
Acute Malaria—Parasites demonstrated in blood .. .. .	535	11	2.06
Malaria, Clinical Diagnosis and Cachexia .. .. .	1,035	15	1.45
PERIOD 1936—1940:—			
Acute Malaria—Parasites demonstrated in blood .. .. .	2,555	53	2.07
Malaria, Clinical Diagnosis and Cachexia .. .. .	2,300	32	1.39

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

	1939	1940
Subtertian .. .. .	363	441
Benign tertian infection .. .. .	119	241
Quartan infection .. .. .	33	51
Mixed infection .. .. .	29	53
Total	544	786

## (ii) Venereal Diseases.

During the year, 603 (666) cases of gonorrhoea, 163, (81) cases of syphilis and 171 (96) cases of soft-sore and lympho-granuloma venereum were treated. It will be seen that while there has been an increase in the number of the cases of syphilis, lympho-granuloma and soft-sore, the figures for gonorrhoea show little change.

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 larger 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 .. .. .	78	65	59	3	205
Syphilis .. .. .	8	11	17	—	36
Soft-sore and Lympho-granuloma Venereum .. .. .	4	29	56	8	97

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

(a) Injections given:—

Sulfarsenol and Sulphostab .. .. .	189
Metallic Bismuth .. .. .	78
Dmelcos Vaccine .. .. .	62
Gonococcus Vaccine .. .. .	10
Contramine .. .. .	48
Calcium Chloride 10% .. .. .	2
Acriflavine and Trypaflavine .. .. .	94
N. A. B. .. .. .	3
Others .. .. .	26

(b) Miscellaneous:—

Dressings .. .. .	6,464
Irrigations .. .. .	5,202
Prostatic massage .. .. .	103
Dilatations .. .. .	7
Catherization .. .. .	29
Minor operations .. .. .	62

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

The number of out-patients treated throughout the State at the dispensaries was as follows:—

	Malays.	Chinese.	Indians.	Others.	Total.
Gonorrhoea .. .. .	196	107	82	13	398
Syphilis .. .. .	13	58	47	9	127
Soft-sore and Lympho-granuloma Venereum .. .. .	15	22	27	10	74

The following is a summary work performed on them:—

(a) Injections given:—

Sulfarsenol and Sulphostab .. .. .	447
Metallic Bismuth .. .. .	90
Gonococcus Vaccine .. .. .	84
Dmelcos Vaccine .. .. .	33
Contramine .. .. .	26
Acriflavine and Trypaflavine .. .. .	23
N. A. B. .. .. .	21
Others .. .. .	34

(b) Other procedures:—

Catherization .. .. .	2
Dressings .. .. .	615
Irrigations .. .. .	297
Prostrate massage .. .. .	1

(c) Diagnostic procedures are included in the Section on Laboratory Work.

(iii) Pulmonary Tuberculosis.—There were 89 (92) cases with 32 (34) deaths giving a mortality rate of 35.95% (36.95%).

(iv) Dysentery.—Seventy four (116) cases were admitted. There were 31 (53) cases of amoebic dysentery with 1 (5) deaths, 20 (34) cases of bacillary dysentery with 5 (5) deaths and 23 (29) cases with 3 (2) deaths in which the cause was undefined. In addition, there were 4 (6) cases of amoebic liver abscess with no death.

(v) Beri beri.—There were 61 (135) cases with 4 (3) deaths, giving a mortality rate of 6.56% (2.22%). 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 (2) admissions with 0 (1) death, one being the 'Shop' type and the other of the 'Scrub' type.

#### (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  
Kemasek

The number of new cases treated was 93,593 (110,712) while the total number of attendances was 120,516 (135,225).

In addition to performing vaccinations, the vaccinators distribute medicine during their visits and the number of cases so treated was 18,120 (15,778).

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 685 (499) treatments were given.

There is no dispensary in the extreme South of Trengganu. The Jabor Valley Estates 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 number treated:—

	1939		1940	
	New Cases.	Total Attendances.	New Cases.	Total Attendances.
Cases treated by Dispensaries and Travelling Dressers	110,712	135,225	93,593	120,516
Cases treated by Vaccinators	15,778	16,001	18,120	18,240
Cases treated by Customs and Police stations	499	499	685	685
Total	126,989	151,725	112,398	139,441

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

One thousand one hundred and thirty seven patients were visited by 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, European 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. Two thousand nine hundred and fifty four people underwent operations, mostly of a minor nature. Of these 2,490 were teeth extractions.

**(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 1.1.1940 .. .. .	19	2	21
Admitted .. .. .	9	10	19
Total treated .. .. .	28	12	40
Discharged .. .. .	3	1	4
Died .. .. .	1	—	1
Remaining on 31.12.1940 .. .. .	24	11	35

**(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 fourteen persons have been recorded and of these 33 have died, 12 have left the State of their own accord (including one absconded from Sungei Buloh Settlement), 11 males are being maintained by the Government at the Leper Settlement, Sungei Buloh, 15 cannot be traced and 43 are known to be alive.

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

	Alive		Untraceable		Total.
	Male.	Female.	Male.	Female.	
Malays .. .. .	14	12	5	3	34
Chinese .. .. .	12	2	7	0	21
Indians .. .. .	3	0	0	0	3
Total .. .. .	29	14	12	3	58

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

The total number of European residents in the State was 27 (25). 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 .. .. .	18
Total number on sick leave .. .. .	20
Total number of days on sick list .. .. .	83
Average daily number on sick list .. .. .	0.23
Total number of invalided .. .. .	0
Total deaths .. .. .	0

Asiatic Officials.—The total number of new cases treated was 5,013 (5,800) of which 1,524 (1,904) were members of the police force. Most of the Asiatic officials were examined during the year for signs of Pulmonary Tuberculosis.

MEDICAL OFFICER, TRENGGANU.

APPENDIX A.

STAFF.

(1) DISTRIBUTION OF STAFF.

The distribution of 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:—

- 3 Dressers Grade II (Passed Grade I).
- 3 Dressers Grade III (1 Passed Grade II).
- 9 Probationer Dressers (4 Passed Grade III).
- 1 Senior Staff Nurse.
- 1 Nurse Grade III.
- 1 Probationer Nurse.
- 1 Midwife.
- 33 Menials (including 5 females).

(b) Town-Dispensary and Welfare Centre:—

- 1 Dresser Grade I.
- 1 Midwife.
- 2 Attendants (1 female).

(c) Outdoor and Other Duties:—

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

KUALA DUNGUN.—

- 1 Assistant Medical Officer.

(a) Hospital and Dispensary:—

- 1 Dresser Special Grade.
- 1 Dresser Grade II.
- 1 Dresser Grade III.
- 1 Probationer Nurse.
- 5 Menials (including 1 female).

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

APPENDIX A.—(Contd.).

(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 Grade III.
- 1 Vaccinator.
- 1 Attendant.

KEMASEK DISPENSARY.—

- 1 Dresser Grade II.
- 1 Attendant.

KAMPONG BULOH DISPENSARY.—

- 1 Dresser Grade III (Passed Grade II).
- 1 Attendant.

(2) APPOINTMENTS.

The following appointments were made during the year:—

- Mr. Edwin Gomez was appointed Probationer Dresser on 1.1.1940.
- Ahmed bin Abdullah was appointed Probationer Dresser on 2.1.1940.
- Wan Hasnan bin Haji Wan Abdul Hamid was appointed Probationer Dresser on 14.1.1940.
- Mr. Yew Yen Poh was appointed Probationer Dresser on 14.1.1940.
- Dr. Chung Keat Saik, Assistant Medical Officer, Kemaman, was seconded from the Straits Settlements Medical Service on 9.5.1940.
- Miss Foo Yoke Yuen was appointed Probationer Nurse on 2.7.1940.
- Mrs. L. F. Knight was appointed Senior Staff Nurse on 11.11.1940.
- Awang Mohammed bin Mohammed Amin was appointed Probationer Dresser on 23.11.1940.

(3) RESIGNATIONS.

- T. A. Krishnan, dresser grade III, left the service on 31.3.1940.
- Che Rose b. Abdullah, probationer dresser, left the service on 31.3.1940.
- Mrs. A. Fisher, senior staff nurse, left the service on 21.4.1940.
- Miss Florence Chin, probationer nurse, left the service on 15.6.1940.

(4) DISMISSAL.

- W. M. Nordin bin Wahidin American Nordin, probationer dresser, was dismissed from the service on 9.6.1940.

(5) EXAMINATIONS.

- Messrs. J. G. Gomez, M. K. Gopal and How Ming Liew passed the September Examination for Grade I.
- Che Musa b. Alias and Syed Shith b. Jaafar passed the September Examination for Grade II.
- Che Nordin b. Mahmood, Che Megat b. Megat Essa and Mr. K. Abraham passed the September Examination for Grade III.

(6) PROMOTIONS.

- Che Musa bin Alias was promoted to Grade II on 1.7.1940.
- Che Nordin b. Mahmood was promoted to Grade III on 1.7.1940.

## APPENDIX B.

CALENDAR YEAR 1940.

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	—	—	11	288	4	1	304
	F	—	—	13	209	—	1	223
4 Weeks	M	—	—	16	180	2	—	198
	F	—	—	6	136	3	—	145
3 months	M	—	—	15	113	—	2	130
	F	—	—	5	98	—	—	103
6 months	M	—	—	11	98	—	2	111
	F	—	—	16	90	—	1	107
1 year	M	—	—	7	363	—	—	370
	F	—	—	12	380	1	1	394
5 years	M	—	—	6	193	1	1	201
	F	—	—	3	170	3	—	176
10 years	M	—	—	2	73	—	—	75
	F	—	—	2	56	—	—	58
15 years	M	—	—	2	66	—	—	68
	F	—	—	1	48	—	—	49
20 years	M	—	—	11	67	3	—	81
	F	—	—	4	60	1	—	65
25 years	M	—	—	14	82	1	4	101
	F	—	—	2	78	—	—	80
30 years	M	—	—	21	115	6	3	145
	F	—	—	7	113	2	1	123
35 years	M	—	—	18	57	4	—	79
	F	—	—	7	62	1	1	71
40 years	M	—	—	27	149	2	2	180
	F	—	—	3	96	—	1	100
45 years	M	—	—	20	53	3	—	76
	F	—	—	3	25	—	—	28
50 years	M	—	—	30	136	2	3	171
	F	—	—	3	129	—	—	132
55 years & over	M	—	—	48	432	3	3	486
	F	—	—	13	440	1	—	454
	M	—	—	259	2,465	31	21	2,776
	F	—	—	100	2,190	12	6	2,308
Total Deaths	M & F	—	—	359	4,655	43	27	5,084
Births	M	—	—	365	3,490	26	41	3,922
	F	—	—	348	3,262	39	29	3,678
Total Live Births	M & F	—	—	713	6,752	65	70	7,600

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 (b) Kretay Plantation, Kretay	80	504	133	637	5	4	9	1	—	14.13	1,573	2,457	150	227
2 Jabor Valley Estates, Jabor	44	184	80	264	5	2	7	—	—	26.52	860	1,041	88	139
3 Hin Leong Saw Mills, Kemaman	220	600	166	766	9	3	12	—	—	15.67	1,412	7,522	282	1,360
4 Bundi Mining Co., Kemaman	—	212	31	243	—	—	—	—	—	—	2	18	—	—
5 Sungei Ayam Mining Co., Kemaman	112	353	219	572	2	4	6	—	1	10.49	824	2,124	521	1,144
6 Kajang Mining Co., Kemaman	13	50	18	68	2	—	2	—	—	29.41	45	259	—	—
7 Ishihara Sangyo Koshi, Kemaman	16	87	30	117	—	—	—	—	—	—	93	96	8	34
8 Nippon Mining Co., Dungun	548	977	345	1,322	8	—	8	—	4	6.06	1,040	9,551	194	1,839
9 Ulu Patris Mining Co., Dungun	232	4,249	751	5,000	17	1	18	4	—	3.60	15,331	71,214	2,546	12,889
10 Sungei Damar Tin Mine, Dungun	3	65	3	68	—	—	—	—	—	—	4	34	—	—
	—	77	1	78	—	—	—	—	—	—	—	—	—	—
Total	1,268	7,358	1,777	9,135	48	14	62	5	5	6.79	21,184	94,316	3,789	17,632

## APPENDIX D.

## HOSPITAL IN - PATIENTS.

Return of diseases and Deaths for the year 1940.

DISEASES.	Remaining in hospital at the end of 1939.	Yearly Total		Total Cases Treated.	Remaining in hospital at the end of 1940.
		Admissions.	Deaths.		
<b>I.—Infectious and Parasitic Diseases.</b>					
1. Typhoid fever .. .. .	3	15	2	18	1
2. Paratyphoid fever .. .. .	—	—	—	—	—
3. Typhus:—					
Tropical typhus .. .. .	—	2	—	2	1
4. Relapsing fever .. .. .	—	—	—	—	—
5. Undulant fever .. .. .	—	—	—	—	—
6. Smallpox .. .. .	—	—	—	—	—
7. Measles .. .. .	—	3	—	3	—
8. Scarlet fever .. .. .	—	—	—	—	—
9. Whooping Cough .. .. .	1	3	—	4	—
10. Diphtheria .. .. .	—	—	—	—	—
11. Influenza:—					
(1) With pneumonia .. .. .	—	—	—	—	—
(2) With other complications (convulsions) .. .. .	—	1	1	1	—
(3) Without respiratory com- plications .. .. .	1	132	—	133	—
12. Cholera .. .. .	—	—	—	—	—
13. Dysentery:—					
(1) Amoebic (Liver abscess see item No. 97) .. .. .	—	31	1	31	1
(2) Bacillary .. .. .	—	20	5	20	1
(3) Undefined due to other causes .. .. .	—	23	3	23	1
14. Plague .. .. .	—	—	—	—	—
15. Erysipelas .. .. .	—	—	—	—	—
16. Acute Poliomyelitis .. .. .	—	—	—	—	—
17. Encephalitis Lethargica .. .. .	—	—	—	—	—
18. Cerebro-spinal fever .. .. .	—	2	—	2	—
19. Glanders .. .. .	—	—	—	—	—
20. Anthrax .. .. .	—	—	—	—	—
21. Rabies .. .. .	—	—	—	—	—
22. Tetanus:—					
(1) Tetanus of newly born .. .. .	—	1	—	1	—
(2) Other form of tetanus .. .. .	—	—	—	—	—
23. Tuberculosis:—					
(1) Respiratory system .. .. .	9	89	32	98	7
(2) Central nervous system .. .. .	—	—	—	—	—
(3) Bones and joints .. .. .	—	2	—	2	—
(4) Lymphatic system .. .. .	—	2	—	2	—
(5) Intestines or Peritoneum .. .. .	—	—	—	—	—
24. Leprosy .. .. .	4	8	2	12	3
25. Syphilis:—					
(1) Primary .. .. .	2	13	—	15	—
(2) Secondary .. .. .	1	17	—	18	1
(3) Tertiary .. .. .	—	5	—	5	1
(4) Hereditary .. .. .	—	1	—	1	—
<i>Carried forward</i> .. .. .	21	370	46	391	17

## APPENDIX D.—(Contd.)

DISEASES.	Remaining in hospital at the end of 1939.	Yearly Total		Total Cases Treated.	Remaining in hospital at the end of 1940.
		Admissions.	Deaths.		
<i>Brought forward</i>	21	370	46	391	17
26. Other venereal diseases:—					
(1) Soft chancre	4	81	—	85	2
(2) Gonorrhoea and its complications	11	140	—	151	3
(3) Gonorrhoeal ophthalmia	—	5	—	5	—
(4) Gonorrhoeal Arthritis	2	60	—	62	5
(5) Lympho-granuloma venereum	1	16	—	17	—
27. Purulent infective septicaemia:—					
(1) Toxaemia	—	1	1	1	—
(2) Septicaemia	—	2	1	2	—
(3) Pyaemia	—	2	—	2	—
28. Yellow fever	—	—	—	—	—
29. Malaria:—					
(1) Tertian	1	241	—	242	5
(2) Quartan	—	51	—	51	—
(3) Aestivo Automnal (Subtertian)	2	441	20	443	6
(4) Mixed Infection	—	53	2	53	—
(5) Unclassified	12	272	1	284	1
(6) Cachexia	10	214	7	224	3
(7) Blackwater fever	1	11	2	12	—
30. Other diseases due to protozoa:—					
(1) Yaws (Frambosia)	8	65	—	73	4
(2) Spirochaetosis icterohaemorrhagica	—	—	—	—	—
31. Ankylostomiasis	2	51	—	53	1
32. Other diseases due to helminths:—					
Cestodes	—	—	—	—	—
Nematodes	—	—	—	—	—
(1) Ascaris	—	37	—	37	—
(2) Filaria	—	1	—	1	—
Trematodes	—	—	—	—	—
(3) Clonorchis Senensis	—	—	—	—	—
(4) Other helminths	—	1	—	1	—
33. Sprue	—	—	—	—	—
34. Other infectious or parasitic diseases:—					
(1) Rubella	—	—	—	—	—
(2) Varicella (Chicken Pox)	—	9	—	9	—
(3) Mumps and its complications	—	4	—	4	—
(4) Dengue	—	16	—	16	—
(5) Melioidosis	—	—	—	—	—
<b>II.—Cancer and other Tumours.</b>					
35. Sarcoma:—					
(1) Lower extremity	1	2	—	3	1
(2) Testis	1	—	—	1	—
(3) Periosteal Sarcoma	—	1	—	1	—
(4) Lympho Sarcoma	—	1	1	1	—
36. Cancer of the buccal cavity and pharynx	—	1	1	1	—
<i>Carried forward</i>	77	2,149	82	2,226	48

## APPENDIX D.—(Contd.)

DISEASES.	Remaining in hospital at the end of 1939.	Yearly Total		Total Cases Treated.	Remaining in hospital at the end of 1940.
		Admissions.	Deaths.		
<i>Brought forward</i>	77	2,149	82	2,226	48
37. Cancer of the Parotid gland	1	—	—	1	—
38. Cancer of the digestive organs and peritoneum:—					
Stomach	—	2	1	2	—
39. Cancer of the respiratory organs:—					
Lung	—	1	—	1	1
40. Cancer of other malignant tumours of the skin	—	2	—	2	—
41. Cancer or other malignant tumours of organs not specified	—	1	—	1	—
42. Tumours non-malignant:—					
(1) Of female genital organs	1	—	—	1	—
(2) Of other sites	1	6	—	7	—
<b>III.—Rheumatism, Diseases of Nutri- tion and of Endocrine Organs and other General Diseases.</b>					
43. Rheumatic fever	—	2	—	2	—
44. Chronic rheumatism and osteo arthritis	3	32	—	35	1
45. Gout	—	—	—	—	—
46. Diabetes (not including diabetes insipidus)	1	7	1	8	—
47. Scurvy including Barlow's Disease	—	—	—	—	—
48. Beri-Beri including epidemic dropsy	12	61	4	73	5
49. Pellagra	—	—	—	—	—
50. Debility (General)	1	12	—	13	—
51. Diseases of the thyroid and parathyroid gland	—	1	—	1	—
52. Diseases of the Thymus	—	—	—	—	—
53. Other General Diseases:—					
(1) Glycosuria	1	1	—	2	—
(2) Progressive Muscular Atrophy	—	1	—	1	—
(3) Other diseases of metabolism	—	3	—	3	—
<b>IV.—Diseases of the Blood and Blood Forming Organs.</b>					
54. Anaemia and Chlorosis:—					
(1) Pernicious Anaemia	—	3	1	3	—
(2) Secondary Anaemia	2	23	—	25	—
(3) Chlorosis	—	—	—	—	—
55. Haemorrhagic Conditions:—					
Purpura	—	—	—	—	—
56. Hodgkin's Diseases	—	—	—	—	—
<b>V.—Chronic Poisoning.</b>					
57. Alcoholism (Acute or Chronic)	—	2	—	2	—
58. Chronic poisoning by other organic substances:—					
(1) Opium Addiction	1	32	—	33	—
(2) Others	—	2	1	2	—
59. Chronic poisoning by mineral substances	—	—	—	—	—
<i>Carried forward</i>	101	2,343	90	2,444	55

## APPENDIX D.—(Contd.)

DISEASES.	Remaining in hospital at the end of 1939.	Yearly Total		Total Cases Treated.	Remaining in hospital at the end of 1940.
		Admissions.	Deaths.		
<i>Brought forward</i> ..	101	2,343	90	2,444	55
<b>VI.—Diseases of the Nervous System and Sense Organs.</b>					
60. Encephalitis (not including encephalitis lethargica) ..	—	—	—	—	—
61. Meningitis (not including tuberculosis meningitis or cerebro-spinal meningitis) ..	—	2	2	2	—
62. Tabes Dorsalis ..	—	—	—	—	—
63. Apoplexy and paralysis:—					
(1) Cerebral haemorrhage and paralysis ..	—	2	1	2	—
(2) Haemiplegia cause not determined ..	3	1	1	4	1
(3) Other paralysis ..	—	2	—	2	—
64. Insanity:—					
(1) Under observation ..	32	69	—	101	23
(2) Insanity ..	—	16	—	16	—
65. Epilepsy ..	—	—	—	—	—
66. Infantile Convulsion (age under five years) ..	1	—	—	1	—
67. Other diseases of the nervous system:—					
(1) Neuritis and Neuralgia ..	—	6	—	6	2
(2) Hysteria ..	—	1	—	1	1
(3) Migrane ..	—	2	—	2	—
(4) Sciatica ..	—	2	—	2	—
(5) Others ..	—	2	1	2	—
68. Diseases of the eye:—					
(1) Conjunctivitis ..	—	40	—	40	2
(2) Iritis ..	—	3	—	3	—
(3) Keratitis ..	—	1	—	1	—
(4) Corneal Ulcer ..	—	2	—	2	—
(5) Styte ..	—	1	—	1	1
(6) Cataract ..	—	5	—	5	3
(7) Irido-cyclitis ..	—	1	—	1	1
(8) Other diseases of the eye ..	—	5	—	5	—
69. Diseases of the ear and Mastoid Sinus:—					
(1) Otitis Media ..	—	6	—	6	—
(2) Mastoiditis ..	—	4	—	4	—
(3) Other diseases of the ear ..	—	4	—	4	—
<b>VII.—Diseases of the Circulatory System.</b>					
70. Chronic Endocarditis and Valvular Diseases:—					
(1) Mitral Valve disease ..	1	4	1	5	—
(2) Aortic Valve disease ..	—	1	—	1	—
(3) Chronic Endocarditis ..	—	1	—	1	—
71. Diseases of myocardium:—					
Myocarditis (Acute or chronic) ..	—	8	3	8	1
72. Pericarditis ..	—	—	—	—	—
<i>Carried forward</i> ..	138	2,534	99	2,672	90

## APPENDIX D.—(Contd.)

DISEASES.	Remaining in hospital at the end of 1939.	Yearly Total		Total Cases Treated.	Remaining in hospital at the end of 1940.
		Admissions.	Deaths.		
<i>Brought forward</i>	138	2,534	99	2,672	90
73. Arterio-Sclerosis	—	—	—	—	—
74. Gangrene	—	1	—	1	—
75. Diseases of the Veins:—					
(1) Haemorrhoids	—	12	—	12	—
(2) Thrombosis	—	2	1	2	—
76. Diseases of the lymphatic system:—					
(1) Lymphangitis	—	3	—	3	—
(2) Lymphadenitis	—	1	—	1	—
(3) Adenitis	—	11	—	11	—
(4) Bubo non-specified	—	4	—	4	—
77. Other diseases of the respiratory system	—	1	—	1	—
<b>VIII.—Diseases of the Respiratory                     System.</b>					
78. Diseases of the nasal fossae and its annexa:—					
Diseases of the nose	—	1	—	1	—
79. Diseases of the larynx	—	—	—	—	—
80. Bronchitis:—					
(1) Acute	2	40	—	42	1
(2) Chronic	2	43	—	45	2
81. Broncho Pneumonia	2	26	6	28	—
82. Lobar Pneumonia	—	15	2	15	1
83. Pneumonia (Not otherwise defined)	—	8	—	8	2
84. Pleurisy:—					
(1) Empyema	—	1	—	1	—
(2) Other pleurisy	—	5	—	5	—
85. Asthma	2	38	—	40	1
86. Other diseases of the Respiratory System:—					
(1) Pulmonary Embolism	—	2	2	2	—
(2) Bronchiectasis	—	1	1	1	—
(3) Others	—	1	—	1	—
<b>IX.—Diseases of the Digestive                     System.</b>					
87. Diseases of the buccal cavity Pharynx etc:—					
(1) Pyorrhoea	1	1	—	2	—
(2) Stomatitis	—	4	—	4	—
(3) Alveolar Abscess	—	11	—	11	—
(4) Dental Caries	—	4	—	4	—
(5) Diseases of the tonsils	1	14	—	15	—
(6) Pharyngitis	—	4	—	4	—
(7) Thrush	—	1	—	1	—
(8) Vincents Angina	—	1	—	1	—
(9) Others	—	1	—	1	—
88. Ulcer of the stomach or duodenum:—					
(1) Gastric ulcer	—	14	1	14	1
(2) Duodenal ulcer	—	—	—	—	—
<i>Carried forward</i>	148	2,805	112	2,953	98

## APPENDIX D.—(Contd.)

DISEASES.	Remaining in hospital at the end of 1939.	Yearly Total		Total Cases Treated.	Remaining in hospital at the end of 1940.
		Admissions.	Deaths.		
<i>Brought forward</i>	148	2,805	112	2,953	98
89. Diseases of the stomach:—					
(1) Gastritis	—	20	—	20	—
(2) Others	1	20	—	21	—
90. Diarrhoea and enteritis (under two years)	—	10	1	10	—
91. Diarrhoea and enteritis (two years and over):—					
(1) Colitis	—	10	3	10	—
(2) Otherwise defined	—	39	0	39	2
92. Appendicitis:—					
(1) Acute Appendicitis	—	2	—	2	—
(2) Chronic Appendicitis	—	—	—	—	—
(3) Appendicular Abscess	—	2	—	2	—
93. Hernia; intestinal obstruction:—					
(1) Hernia	—	6	—	6	—
(2) Strangulated Hernia	1	—	—	1	—
94. Other diseases of the intestines:—					
(1) Constipation, intestinal otitis	—	4	—	4	—
(2) Others	—	8	—	8	—
95. Affection of the rectum & Anus:—					
(1) Fistula in Ano	—	3	—	3	—
(2) Ischio-rectal Abscess	—	1	—	1	—
(3) Perineal Abscess	—	4	—	4	—
(4) Torn Perineum	—	3	—	3	—
(5) Peri-Anal Abscess	—	1	—	1	—
(6) Recto-vesical Fistula	1	—	—	1	—
(7) Prolapsed Rectum	—	2	—	2	—
(8) Proctitis	—	1	—	1	—
(9) Haematoma anus	—	1	—	1	—
(10) Foreign Body in Rectum	—	2	—	2	—
96. Cirrhosis of the liver (Non- syphilitic):—					
(1) Alcoholic	—	—	—	—	—
(2) Not returned as alcoholic	2	7	5	9	2
97. Other diseases of the liver:—					
(1) Amoebic Abscess	—	4	—	4	—
(2) Acute Yellow Atrophy	—	1	1	1	—
98. Diseases of the gall bladder and ducts:—					
(1) Cholecystitis without record of calculi	—	1	—	1	—
(2) Catarrhal jaundice	1	3	—	4	—
(3) Others	—	1	1	1	—
X.—Diseases of the Genito-urinary System (Non-venereal).					
99. Acute Nephritis	—	6	1	6	—
100. Chronic Nephritis	2	22	6	24	4
101. Nephritis (undefined as Acute or Chronic)	—	2	—	2	—
<i>Carried forward</i>	156	2,991	130	3,147	106

## APPENDIX D.—(Contd.)

DISEASES.	Remaining in hospital at the end of 1939.	Yearly Total		Total Cases Treated.	Remaining in hospital at the end of 1940.
		Admissions.	Deaths.		
<i>Brought forward</i>	156	2,991	130	3,147	106
102. Other Diseases of the kidney and annexa:—					
(1) Pyelitis .. .. .	1	1	—	2	—
(2) Uraemia .. .. .	—	2	1	2	—
(3) Others .. .. .	1	2	—	3	—
103. Calculi of the urinary passages:—					
Renal Calculus .. .. .	—	1	—	1	—
104. Diseases of the bladder:—					
(1) Cystitis (Acute or Chronic) ..	—	7	—	7	—
(2) Others .. .. .	—	1	—	1	—
105. Diseases of the Urethra:—					
(1) Stricture .. .. .	—	1	—	1	—
(2) Peri-urethral Abscess .. .. .	—	1	—	1	—
(3) Urethritis .. .. .	—	1	—	1	—
106. Diseases of the prostate .. .. .	—	1	—	1	—
107. Diseases of the male genital organs:—					
(1) Balanitis .. .. .	—	1	—	1	—
(2) Hydrocele .. .. .	—	2	—	2	—
(3) Orchitis .. .. .	—	3	—	3	—
(4) Phimosis .. .. .	—	2	—	2	—
(5) Paraphimosis .. .. .	—	1	—	1	—
(6) Scrotal Abscess .. .. .	—	4	—	4	1
(7) Gangrene Scrotum .. .. .	1	—	—	1	—
(8) Scrotal fistula .. .. .	—	1	—	1	1
108. Diseases of the female genital organs:—					
(1) Amenorrhoea .. .. .	—	1	—	1	—
(2) Salpingitis .. .. .	—	5	—	5	1
(3) Ovarian Cyst .. .. .	—	2	—	2	—
(4) Diseases of the breast .. .. .	—	1	—	1	—
<b>XI.—Conditions Arising in Pregnancy, Childbirth and the Puerperal State.</b>					
109. Ante-natal .. .. .	—	13	—	13	—
110. Abortion not returned as Septic:—					
(1) Abortion without record of haemorrhage .. .. .	—	8	—	8	—
(2) Threatened Abortion .. .. .	—	1	—	1	—
111. Post Abortive Sepsis:—					
Septic Abortion .. .. .	—	1	1	1	—
112. Puerperal Haemorrhage:—					
(1) Ante-partum haemorrhage ..	—	3	—	3	—
(2) Post-partum haemorrhage ..	—	2	—	2	—
113. Puerperal Sepsis:—					
(1) Puerperal Septicaemia .. .. .	—	1	1	1	—
(2) Puerperal Sepsis, not in- cluding Septicaemia .. .. .	—	1	—	1	—
<i>Carried forward</i>	159	3,062	133	3,221	109

## APPENDIX D.—(Contd.)

DISEASES.	Remaining in hospital at the end of 1939.	Yearly Total		Total Cases Treated.	Remaining in hospital at the end of 1940.
		Admissions.	Deaths.		
<i>Brought forward</i>	159	3,062	133	3,221	109
114. Retained placenta	—	2	—	2	—
115. Toxaemia of Pregnancy:—					
(1) Ante-partum eclampsia	—	1	—	1	—
(2) Albuminuria of pregnancy	—	1	—	1	—
116. Hydatid Mole	1	—	—	1	—
117. Conditions associated with Labour:—					
(1) Normal labour	1	150	—	151	5
(2) Abnormal labour	—	18	1	18	—
118. Miscarriage	—	1	—	1	—
<b>XII.—Diseases of the Skin and Cellular Tissue.</b>					
119. Carbuncles, boils	—	10	—	10	—
120. Cellulitis, Acute Abscess:—					
(1) Cellulitis	—	28	—	28	—
(2) Acute Abscess	3	88	—	91	2
121. Ulcers	18	348	—	366	17
122. Whitlow	—	7	—	7	—
123. Dermal Mycosis	—	2	—	2	—
124. Eczema	1	10	—	11	—
125. Tinea	—	8	—	8	—
126. Herpes	1	1	—	2	—
127. Scabies	—	32	—	32	2
128. Sebaceous Cyst	—	4	—	4	—
129. Urticaria	—	8	—	8	—
130. Dermatitis	1	3	—	4	—
131. Cheiropompholyx	—	1	—	1	—
132. Onychia	—	1	—	1	—
133. Pyoderma	—	1	—	1	—
134. Others	—	7	—	7	—
				589	
<b>XIII.—Diseases of the Bones and Organs of Locomotion.</b>					
135. Arthritis	1	22	—	23	2
136. Synovitis	—	5	—	5	1
137. Osteomyelitis	—	7	1	7	2
138. Fibrositis	—	2	—	2	—
139. Bursitis	—	1	—	1	—
140. Periostitis	—	3	—	3	—
141. Myalgia	1	9	—	10	—
142. Ankylosis	—	1	—	1	—
143. Congenital Malformation:— Harelip	—	1	—	1	—
<b>XIV.—Diseases of Early Infancy.</b>					
144. Marasmus	—	4	—	4	—
<b>XV.—Conditions Associated with Old Age.</b>					
145. Senility	—	4	2	4	—
<i>Carried forward</i>	187	3,853	137	4,040	140

## APPENDIX D.—(Contd.)

DISEASES.	Remaining in hospital at the end of 1939.	Yearly Total		Total Cases Treated.	Remaining in hospital at the end of 1940.
		Admissions.	Deaths.		
<i>Brought forward</i> ..	187	3,853	137	4,040	140
<b>XVI.—Affections Produced by External Causes.</b>					
146. Attempted Suicide by poisoning (including corrosive poisoning) ..	—	1	1	1	—
147. Attacks by Venomous animals:—					
(1) Snake bite ..	—	1	—	1	—
(2) Insect bite ..	—	4	1	4	—
148. Accidental burns:—					
(1) Burn by fire ..	—	14	1	14	1
(2) Scald ..	—	7	—	7	—
149. Injury by cutting or piercing instruments ..	2	36	—	38	—
150. Injury by fall, crushing etc:—					
(1) By fall ..	1	30	—	31	—
(2) By rail vehicle ..	1	—	—	1	—
(3) By firearms ..	—	1	—	1	—
(4) By explosive ..	—	2	—	2	—
(5) By other means ..	—	73	—	73	—
151. Attacks by animals:— (Except poisoning by Venomous animals) Goring, bites, kicks etc.	—	8	—	8	3
152. Sprain ..	—	5	—	5	—
153. Fractures ..	6	32	2	38	—
154. Concussion of the brain ..	—	2	—	2	—
155. Amputation of left Index finger ..	—	1	—	1	—
156. Contracture of hands and feet ..	—	2	—	2	—
157. Circumcision ..	—	2	—	2	—
158. Suture of cut tendon and nerve left wrist ..	—	1	—	1	—
159. Dislocations ..	—	5	—	5	—
160. Other external injuries ..	—	44	—	44	—
<b>XVII.—Ill-defined Conditions.</b>					
161. Malingering ..	—	3	—	3	—
162. Fever unclassified ..	—	28	1	28	2
163. Persons admitted for observation ..	—	19	—	19	—
164. Persons accompanying patients ..	—	20	—	20	—
<b>Total</b> ..	197	4,194	143	4,391	146

## 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 tissue:—								
Abscess, boils, carbuncles cellulitis etc. . . . .	55	58	54	23	190	—	190	—
Sinuses excised & scraped . . . . .	1	—	—	—	1	—	1	—
Removal of Nails . . . . .	5	—	—	—	5	—	5	—
Suturing of wounds . . . . .	22	29	12	8	71	—	71	—
Cauterization of Sores, etc., (Thermo-Cautery) . . . . .	11	—	—	—	11	—	11	—
Incision made on site of snake bite . . . . .	—	—	2	—	2	—	2	—
Incision made on site of fish sting . . . . .	—	—	1	—	1	—	1	—
Removal of foreign bodies:—								
Ear . . . . .	3	—	—	—	3	—	3	—
Eye . . . . .	2	1	1	—	4	—	4	—
Nose . . . . .	1	—	1	—	2	—	2	—
Chest . . . . .	1	—	—	—	1	—	1	—
Upper Extremities . . . . .	5	1	2	—	8	—	8	—
Lower Extremities . . . . .	5	2	4	1	12	—	12	—
Rectum . . . . .	—	1	—	—	1	—	1	—
Removal of Cysts etc:—								
Sebaceous . . . . .	6	—	—	1	7	—	7	—
Retention . . . . .	1	—	—	—	1	—	1	—
Ganglion . . . . .	1	—	—	—	1	—	1	—
Tumours:—								
Sarcoma . . . . .	2	—	—	—	2	—	2	—
Fibroma . . . . .	2	—	—	—	2	—	2	—
Cavernous Angioma . . . . .	—	1	—	—	1	—	1	—
Lymphatic glands:—								
Incision of bubo, etc. . . . .	2	1	5	—	8	—	8	—
Lips, Eyes & Mouth:—								
Harelip repaired . . . . .	1	—	—	—	1	—	1	—
Evisceration of eye . . . . .	1	—	—	—	1	—	1	—
Extraction of teeth . . . . .	2,438	30	17	5	2,490	—	2,490	—
Aveolar Abscess . . . . .	—	1	2	—	3	—	3	—
Ear, Mastoid, etc:—								
Repairs of ear-ring holes and other plastic minor operations . . . . .	4	4	—	—	8	—	8	—
Spine & Meninges:—								
Diagnostic lumbar punctures . . . . .	—	1	—	—	1	1	—	—
Thorax:—								
Paracentesis Thoracis . . . . .	—	2	—	—	2	2	—	—
Aspiration of chest (carcinoma Lung) . . . . .	—	1	—	—	1	1	—	—
<i>Carried forward</i> . . . . .	2,569	133	101	38	2,841	4	2,837	—

## 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>	2,569	133	101	38	2,841	4	2,837	—
Abdomen:—								
Paracentesis Abdominis	12	2	1	—	15	15	—	—
Rectum & Anus:—								
Anal fissure	1	—	—	—	1	—	1	—
Ischio-rectal abscess	3	—	—	—	3	—	3	—
Sigmoidoscopy	5	—	—	—	5	—	—	—
Fistula in Ano	—	1	—	—	1	—	1	—
Perineal Abscess	—	—	1	—	1	—	1	—
Saucerisation-Perineal Sinus	—	1	—	—	1	—	1	—
Hernia:—								
Radical cure for oblique inguinal hernia	6	—	—	—	6	—	6	—
Male uro-genital organs:—								
Phimosis (dorsal slit)	3	—	2	—	5	—	5	—
Circumcision	7	—	1	—	8	—	8	—
Radical cure for Hydrocele	2	—	—	—	2	—	2	—
External Urethrotomy for stricture	1	—	—	—	1	—	1	—
Stenosis of external meatus	1	—	—	—	1	—	1	—
Dilatation of strictures	3	—	—	—	3	—	3	—
Peri-urethral Abscess	1	—	—	—	1	—	1	—
Scrotal Abscess	—	1	—	—	1	—	1	—
Gangrene Scrotum	—	1	—	—	1	—	1	—
Female uro-genital organs:—								
Perineorrhaphy	5	—	—	—	5	—	5	—
Forceps, Application of	1	4	—	—	5	—	5	—
Retained Placenta (Manual Removal Of)	—	2	—	—	2	—	2	—
Rupture of membrane and internal Version (accidental Haemorrhage)	—	1	—	—	1	—	1	—
Breech (Extraction of)	—	3	—	—	3	—	3	—
Bones:—								
Reduction of Fractures	3	8	2	—	13	—	13	—
Plaster of Paris, Application	4	—	—	—	4	—	4	—
Sequestrectomy	2	—	1	—	3	—	3	—
Wiring of fractured jaw	1	—	—	—	1	—	1	—
Joints:—								
Repairs of wounds involving joints and bones	4	—	—	—	4	—	4	—
Aspiration of knee joint	1	3	—	—	4	4	—	—
Stretching of ankylosed joint	1	—	—	—	1	—	1	—
Excision of Supra-patellar bursa	1	—	—	—	1	—	1	—
<i>Carried forward</i>	2,637	160	109	38	2,944	23	2,916	—

## 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>	2,637	160	109	38	2,944	23	2,916	—
Reduction of dislocations:—								
Elbow	—	1	—	—	1	—	1	—
Amputations:—								
Forearm	—	1	—	—	1	—	1	—
Fingers	1	1	—	—	2	—	2	—
Leg	2	—	—	—	2	—	2	—
Toes	—	1	—	—	1	—	1	—
Others:—								
Blood Transfusion	1	—	—	—	1	—	1	—
Biopsy	2	—	—	—	2	—	—	—
<b>Total</b>	<b>2,643</b>	<b>164</b>	<b>109</b>	<b>38</b>	<b>2,954</b>	<b>23</b>	<b>2,924</b>	<b>—</b>

# APPENDIX F.

## Details of Out-patients at the Various Dispensaries.

Dispensaries.	1939			1940				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	6,145	7,274	—	4,928	1,739	6,667	7,954	—	—	—
2. Travelling Dresser, Besut	5,137	5,283	5,137	5,008	1,814	6,822 *	6,969	5,008	1,814	6,822
3. Travelling Dresser, Setiu	3,313	3,400	3,313	—	—	—	—	—	—	—
4. Kuala Trengganu Town—Dispensary & Clinic	17,749	23,528	—	14,248	4,552	18,800	25,511	—	—	—
5. Kuala Trengganu Hospital Dispensary	4,902	8,874	—	4,539	1,259	5,798	9,606	—	—	—
6. Kuala Trengganu Travelling Dresser	28,110	31,061	28,110	10,168	4,452	14,620	18,177	10,168	4,452	14,620
7. Kuala Brang	8,557	9,154	3,007	5,803	2,590	8,393	9,002	1,497	812	2,309
8. Kuala Dungun	5,563	9,483	—	5,678	1,352	7,030	11,926	—	—	—
9. Kuala Dungun Travelling Dresser	3,070	3,318	3,070	1,420	685	2,105	2,251	1,420	685	2,105
10. Kemasek Travelling Dresser	5,866	6,395	1,813	3,061	983	4,044	4,873	609	132	741
11. Kemaman	3,981	5,676	—	2,935	597	3,532	4,492	—	—	—
12. Kemaman Travelling Dresser	2,151	3,141	2,151	2,140	587	2,727	4,107	2,140	587	2,727
13. Kampong Buloh Travelling Dresser	16,168	18,638	13,645	8,321	4,734	13,055	15,648	7,030	3,966	10,996
14. Vaccinators	15,778	16,001	15,778	11,754	6,366	18,120	18,240	11,754	6,366	18,120
15. Police, Customs etc.	499	499	499	609	76	685	685	609	76	685
Total	126,989	151,725	76,523	80,612	31,786	112,398	139,441	40,235	18,890	59,125

APPENDIX G.  
LABORATORY WORK.

	Kuala Trengganu.	Chukai Kemaman.	Kuala Dungun.	Kuala Brang.	Kampong Raja.	Total.
<b>BLOOD.</b>						
Microscopical examination for						
Protozoa:—						
Total number of films						
examined .. ..	2,919	886	914	65	84	4,868
Negatives .. ..	2,351	486	680	50	55	3,622
Positives .. ..	568	400	234	15	29	1,246
Plasmodium falciparum ..	282	252	68	5	20	672
Plasmodium Vivax ..	138	105	116	6	7	372
Plasmodium Malariae ..	33	19	24	—	—	76
Crescents .. ..	80	12	—	1	2	95
Plasmodium Vivax and						
falciparum .. ..	29	8	12	—	—	49
Plasmodium Malariae and						
falciparum .. ..	3	1	4	—	—	8
Plasmodium Vivax and						
Malariae .. ..	3	—	9	1	—	13
Plasmodium Vivax and						
Crescents .. ..	—	1	—	1	—	2
Plasmodium falciparum and						
Crescents .. ..	—	1	—	—	—	1
Plasmodium falciparum,						
Vivax and Malariae ..	—	1	1	1	—	3
Microscopic examination for						
Microfilaria:—						
Total No. of specimens						
examined .. ..	12	—	—	—	—	12
Positive for Microfilaria						
Bancrofti .. ..	1	—	—	—	—	1
Negative .. ..	11	—	—	—	—	11
Estimation of Haemoglobin	66	—	1	—	—	62
Enumeration of erythrocytes	61	3	1	—	—	65
Enumeration of leucocytes	27	11	1	—	—	39
Differential Counts for						
leucocytes .. ..	28	9	1	—	—	38
Widal Reaction:—						
Total performed ..	59	—	—	—	—	59
Positive .. ..	15	—	—	—	—	15
Negative .. ..	44	—	—	—	—	44
Weil-Felix Reaction:—						
Total performed ..	16	—	—	—	—	16
Positive (2 'K' & 1 'W'						
strains) .. ..	3	—	—	—	—	3
Negative .. ..	13	—	—	—	—	13
Kahn Test:—						
Total performed ..	122	—	—	—	—	122
Positive .. ..	18	—	—	—	—	18
Negative .. ..	104	—	—	—	—	104
"Dmelcos" skin test for soft-						
sore:—						
Total performed ..	71	5	—	—	—	76
Positive .. ..	32	1	—	—	—	33
Negative .. ..	39	4	—	—	—	43
Sputum .. ..						

## APPENDIX G.—(Contd.)

	Kuala Trengganu.	Chukai Kemaman.	Kuala Dungun.	Kuala Brang.	Kampong Raja.	Total.
Microscopic examination for B. Tuberculosis:—						
Total No. of specimens examined	346	51	15	1	1	414
Positive	64	20	3	1	1	89
Negative	282	31	12	—	—	325
Pus from elbow joint for A.F.B. (Negative)	—	1	—	—	—	1
Smears From Urethra, Cervix, Conjunctiva, etc.						
Microscopic examination for Gonococci:—						
Total No. examined	667	9	45	1	3	725
Positive	346	7	34	1	2	390
Negative	321	2	11	—	1	335
Fluid from aspirated knee for G.N.D. (Positive)	—	1	—	—	—	1
Smear from Throat						
Microscopic examination for K.L.B.:—						
Total No. examined (All Negative)	10	—	—	—	—	10
Microscopic examination for Vincent's Organism:—						
Total No. examined	6	—	—	—	—	6
Positive	5	—	—	—	—	5
Negative	1	—	—	—	—	1
Nose and Skin						
Microscopic examination for Lepra Bacillus						
Total No. of specimens examined	26	3	1	—	—	30
Positive	7	—	1	—	—	8
Negative	19	3	—	—	—	22
Fluid from Abdominis						
Paracentesis for microscopic examination for organisms etc.	—	1	—	—	—	1
Fluid from aspirated chest for microscopic examination for giant cell (Negative)	—	1	—	—	—	1
Van Den Bergh:—						
Total performed (Positive)	1	—	—	—	—	1
Cerebro-spinal fluid:—						
Total No. of specimens examined microscopically	2	2	—	—	—	4
Positive for pneumococcus	1	1	—	—	—	2
Negative	1	1	—	—	—	2
Gastric Analysis	15	—	—	—	—	15
Urine						
Chemical and Microscopical examination (excluding examination for Gonococci and routine examination in the wards)	913	236	55	27	51	1,282

## APPENDIX G.—(Contd.)

	Kuala Trengganu.	Chukai Kemaman.	Kuala Dungun.	Kuala Brang.	Kampong Raja.	Total.
Examination for occult Blood:—						
Total No. examined	2	2	—	—	4	8
Positive	2	—	—	—	2	4
Negative	—	2	—	—	2	4
No. of Police exhibits examined	23	—	3	—	—	26
FAECES.						
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 are occasionally observed, but there was no case in 1940.						
The following are the result of the examination:—						
Total No. of specimens examined	1,709	228	488	40	64	2,529
Positive	954	150	317	33	49	1,503
Negative	755	78	171	7	15	1,026
Ankylostoma	90	—	15	—	4	109
Ankylostoma & Ascaris	64	10	15	—	1	90
Ankylostoma & Trichuris	43	3	8	—	1	55
Ankylostoma, Ascaris and Trichuris	74	1	4	3	2	84
Ankylostoma, Ascaris and charcot Lyden Crystals	—	1	—	—	—	1
Ankylostoma & Strongyloids	—	1	—	—	1	2
Ankylostoma & Blood & Pus cells	—	2	—	—	—	2
Ankylostoma, Ascaris, & Intestinalis lamblia	—	—	—	—	1	1
Ascaris	187	63	93	5	2	350
Ascaris & Trichuris	240	31	110	16	27	424
Trichuris	114	3	40	5	3	165
Entamoeba histolytica	13	6	2	—	1	22
Strongyloids	8	—	—	—	—	8
Lamblia Intestinalis	6	—	—	—	—	6
Blood and pus cells	109	23	30	3	5	170
Pus Cells	6	5	—	1	1	13
Blood and Pus Cells and B. Coli	—	1	—	—	—	1
Culture for B. Typhosum:—						
Total performed (All Negative)	6	—	—	—	—	6

## APPENDIX H.

## New Cases of Hospital In-patients by Race for 1940.

	Malays.	Chinese.	Indians.	Others.	Total.
Kuala Trengganu Hospital .. ..	943	960	345	17	2,265
Chukai Kemaman Hospital .. ..	115	694	191	1	1,001
Kuala Dungun Hospital .. ..	136	290	476	26	928
Total .. ..	1,194	1,944	1,012	44	4,194
By Percentage .. ..	28.47%	46.35%	24.13%	1.05%	100%

## Outpatients treated by Department by Race.

	Malays.	Chinese.	Indians.	Others.	Total.
Kampong Raja Besut Dispensary ..	6,311	211	116	29	6,667
Kemaman Dispensary .. ..	2,142	947	406	37	3,532
Travelling Dresser, Kuala Trengganu ..	14,447	168	5	—	14,620
Kemasek Dispensary .. ..	2,751	949	335	9	4,044
Kuala Brang Dispensary .. ..	8,259	114	20	—	8,393
Town Dispensary & Clinic, K. Trengganu	15,250	3,212	285	53	18,800
Kampong Buloh Dispensary .. ..	12,795	210	40	10	13,055
Travelling Dresser, Kemaman .. ..	2,421	259	47	—	2,727
Travelling Dresser, Besut .. ..	6,657	86	71	8	6,822
Kuala Trengganu Hospital Dispensary ..	4,073	1,382	268	75	5,798
Dungun Dispensary .. ..	4,069	1,533	1,319	109	7,030
Vaccinator, Besut .. ..	3,623	8	6	—	3,637
Vaccinator, Kuala Trengganu .. ..	7,693	6	—	—	7,699
Vaccinator, Dungun .. ..	190	23	—	—	213
Travelling Dresser, Dungun .. ..	1,988	108	9	—	2,105
Customs and Police .. ..	643	40	2	—	685
Total .. ..	99,848	9,287	2,933	330	112,398
By Percentage .. ..	88.84%	8.26%	2.61%	0.29%	100%

Summary of the results of the experiments

Experiment		Results	
1	Control	100	100
2	10% NaOH	100	100
3	20% NaOH	100	100
4	30% NaOH	100	100
5	40% NaOH	100	100
6	50% NaOH	100	100
7	60% NaOH	100	100
8	70% NaOH	100	100
9	80% NaOH	100	100
10	90% NaOH	100	100
11	100% NaOH	100	100
12	Control	100	100
13	10% NaOH	100	100
14	20% NaOH	100	100
15	30% NaOH	100	100
16	40% NaOH	100	100
17	50% NaOH	100	100
18	60% NaOH	100	100
19	70% NaOH	100	100
20	80% NaOH	100	100
21	90% NaOH	100	100
22	100% NaOH	100	100
23	Control	100	100
24	10% NaOH	100	100
25	20% NaOH	100	100
26	30% NaOH	100	100
27	40% NaOH	100	100
28	50% NaOH	100	100
29	60% NaOH	100	100
30	70% NaOH	100	100
31	80% NaOH	100	100
32	90% NaOH	100	100
33	100% NaOH	100	100
34	Control	100	100
35	10% NaOH	100	100
36	20% NaOH	100	100
37	30% NaOH	100	100
38	40% NaOH	100	100
39	50% NaOH	100	100
40	60% NaOH	100	100
41	70% NaOH	100	100
42	80% NaOH	100	100
43	90% NaOH	100	100
44	100% NaOH	100	100
45	Control	100	100
46	10% NaOH	100	100
47	20% NaOH	100	100
48	30% NaOH	100	100
49	40% NaOH	100	100
50	50% NaOH	100	100
51	60% NaOH	100	100
52	70% NaOH	100	100
53	80% NaOH	100	100
54	90% NaOH	100	100
55	100% NaOH	100	100
56	Control	100	100
57	10% NaOH	100	100
58	20% NaOH	100	100
59	30% NaOH	100	100
60	40% NaOH	100	100
61	50% NaOH	100	100
62	60% NaOH	100	100
63	70% NaOH	100	100
64	80% NaOH	100	100
65	90% NaOH	100	100
66	100% NaOH	100	100
67	Control	100	100
68	10% NaOH	100	100
69	20% NaOH	100	100
70	30% NaOH	100	100
71	40% NaOH	100	100
72	50% NaOH	100	100
73	60% NaOH	100	100
74	70% NaOH	100	100
75	80% NaOH	100	100
76	90% NaOH	100	100
77	100% NaOH	100	100
78	Control	100	100
79	10% NaOH	100	100
80	20% NaOH	100	100
81	30% NaOH	100	100
82	40% NaOH	100	100
83	50% NaOH	100	100
84	60% NaOH	100	100
85	70% NaOH	100	100
86	80% NaOH	100	100
87	90% NaOH	100	100
88	100% NaOH	100	100
89	Control	100	100
90	10% NaOH	100	100
91	20% NaOH	100	100
92	30% NaOH	100	100
93	40% NaOH	100	100
94	50% NaOH	100	100
95	60% NaOH	100	100
96	70% NaOH	100	100
97	80% NaOH	100	100
98	90% NaOH	100	100
99	100% NaOH	100	100
100	Control	100	100



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