REPORT

OF THE

MEDICAL AND HEALTH DEPARTMENTS, KEDAH AND PERLIS.

FOR THE PERIOD FROM 1ST MOHARRAM TO 29TH REJAB,

1348 A.H.

(9TH JUNE TO 31ST DECEMBER, 1929 A.D.)

BY

DR. J. I. BAEZA,

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MEDICAL AND SANITARY REPORT, KEDAH.

For the period from 1st Moharram to 29th Rejab, 1348 A.H.

(9th June to 31st December, 1929 A.D.)

This report, covering a period of about seven months, is called for because of the adoption of the Christian Calendar, for the purposes of Medical Statistics, from 1st January, 1930 A.D. Future reports will follow the Christian Calendar.

I. ADMINISTRATION.

The principal appointments are:—

The State Surgeon.
The Senior Health Officer—stationed in Central Kedah.
3 Medical Officers, one in each centre.
1 Lady Medical Officer—stationed at Alor Star.
8 Assistant Surgeons.
3 European Nursing Sisters.
60 Dressers (including 5 Laboratory Assistants).
1 Dispenser Store-Keeper.
3 Asiatic Nurses.
7 Midwives.
4 Vaccinators.
4 Health Inspectors attached to Health Office.
13 Health Inspectors attached to various Sanitary Boards.
1 Laboratory Assistant attached to Health Office.

The appointment of a Health Officer has been approved and will be filled in the near future. The creation of the post of Pathologist is under consideration.

CHANGES IN THE STAFF.

Dr. J. W. A. Ebden, Medical Officer, North Kedah, retired on the expiration of his agreement on 7-10-29 (3-5-48), and was succeeded by Dr. L. F. Day from the Straits Settlements.

Dr. (Mrs.) K. M. Isaac, Lady Medical Officer, resigned on 1-8-29 (24-2-48), and the post was vacant until Dr. (Mrs.) M. E. Hopkins was appointed temporarily on 15-9-29 (10-4-48). Dr. (Mrs.) Hopkins was relieved by Dr. (Mrs.) M. G. Brodie on 24-11-29 (21-6-48).

Nursing Sister Miss. M. E. Dow was transferred to Alor Star Hospital from Penang General Hospital on 1-8-29 (24-2-48).

Nursing Sister Miss. R. E. Alcock was transferred from Hospital Alor Star to Hospital Sungei Patani on 7-10-29 (3-5-48).

Mr. M. Sundara Rajan was appointed as extra Assistant Surgeon on 1-12-29 (28-6-48).

4 Dressers were appointed.
1 Asiatic Nurse was appointed.
2 Dressers were dismissed.

RESULTS OF DRESSERS' AND HEALTH INSPECTORS' EXAMINATIONS.

	No. Candidates.	Results.
Dressers (Moharram: June, 1929)	I Grade—8	1 passed
		7 failed
	II Grade—1	1 ,,
	III Grade–18	8 passed
		10 failed
Dressers (Rejab: December, 1929)	I Grade—4	1 passed
		3 failed
	II Grade—2	1 passed
		1 failed
	III Grade–16	2 passed
		14 failed

Total Candidates 49—13 passed and 36 failed.

Out of the total number, 19 candidates were from Estates, of whom 6 passed.

	No. Candidates.	Results.
Health Inspectors (Moharram: June, 1929) ..	I Grade—5	4 passed
		1 failed
,, (Rejab: December, 1929) ..	I Grade—1	1 ,,
	II Grade—1	1 ,,

Total candidates 7—4 passed and 3 failed.

The question of regular classes for Dressers is under consideration.

One Health Inspector who was sent to Singapore for the Sanitary Inspestors' Course (May to November, 1929) failed in his examination for the Royal Sanitary Institute's Diploma.

POPULATION.

The estimated population of Kedah according to races is: Malays 282,076, Chinese 67,155, Indians 50,399, Europeans 402, Eurasians 160, Others 9,136, Total 409,328.

Appendix A gives the totals for the last 10 years.

Appendices B—H give details of births and deaths and appendix I shews the the principal causes of deaths.

DISTRICTS.

For administrative purposes the State is divided into three Districts—namely, North, Central and South Kedah.

North Kedah has an area of 1,549 square miles with an approximate population of 210,000. This area is mostly flat rice (paddy) land. The population for the most part is Malay.

Central Kedah has an area of 1,546 square miles, with a population of 131,1800.

South Kedah has an area of 553 square miles, with a population of 67,600.

The last two districts contain most of the Rubber Estates in Kedah, and a large proportion of the population is Indian.

MEDICAL INSTITUTIONS.

NORTH KEDAH (adjoining South Siam).

Hospital, Alor Star .. .. 364 beds
,, Langkawi Island .. .. .. 50 ,,
Outdoor Dispensary, Alor Star Town.
,, ,, Changloon.

CENTRAL KEDAH.

Hospital, Sungei Patani .. .. 400 beds
,, Kuala Ketil .. .. 150 ,,
,, Baling .. .. 28 ,,
Outdoor Dispensary, Sik.
,, ,, Yen.

SOUTH KEDAH

Hospital Kulim	260 beds
„ Serdang	80 „
Outdoor Dispensary, Bandar Bahru.	

The prisons at Alor Star, Sungei Patani and Kulim, the Centres of the respective districts, have each a sick ward.

Each centre is provided with a Travelling Dispensary which visits all schools and villages on the main roads.

BUILDINGS.

The following buildings were completed:—

1. Dispensary and Office, Hospital Langkawi.
2. Quarters for European Nursing Sister, Hospital Sungei Patani.
3. Two Dressers' quarters, Sungei Patani.
4. New kitchen, Hospital Kulim.
5. Isolation ward, Kulim.

FINANCIAL.

The financial accounts are still kept according to the Malay Calendar, and no remarks can be made under this head, as the period covered is not a complete year.

ORDINANCES.

A new Deleterious Drugs Enactment (No. 3 of 1348) was passed. This Enactment consolidates and amends all previous ordinances relating to Deleterious Drugs, and brings Kedah laws into line with the provisons of the Opium Conventions signed at Geneva in 1925 A.D.

The Health Board Enactment of 1346 A.H. was amended, so as to provide for the constitution of Group Associations.

II. PUBLIC HEALTH.

The health of the State has been good. The birth and death rates shewn in Appendix A for the seven months, if worked up to one year, will give 37.38 per mille for births and 21.98 per mille for deaths, being a slight fall in both the rates.

Appendices B—H give details of births and deaths, and Appendix I shews the main causes of deaths in the State.

COMMUNICABLE DISEASES.

Malaria: 1,272 deaths were returned as due to "malaria" and "fever unspecified". The deaths under these heads for the past 4 years were:—

1345	4,820
1346	4,283
1347	3,328
1348 (7 months)	1,272 (if worked up at this rate the number for one year will be 2,177)

It will be seen that the number of deaths due to malaria and fevers has decreased steadily.

Cholera and Small pox: No cases occurred.

Tropical Typhus: 3 deaths were reported from Dublin Estate as due to this disease.

Ankylostomiasis: 639 deaths were registered, (or 1,095 for 12 months at this rate), as against 964 in 1347 and 1,154 in 1346 A.H.

There was no out-break of any infectious disease in an epidemic form.

INFANT MORTALITY.

The mortality among infants up to 1 year was 137.88 per mille for the whole State, against 127.71 for 1347 and 158.66 for 1346 A.H. Though the death rate was higher than during the previous year it is much lower than the past 11 years' average of 153.99 per mille.

Appendices C and G shew the details.

OFFICIALS.

The following table gives the Health Statistics of Government Officials (other than subordinates) in Kedah.

	European.	Native.
The number of officials resident	68	70
Average number resident	52.87	59.65
Total number on sick list	13	22
Total number of days on sick list	146	204
Average daily number on sick list	.70	.99
Percentage of sick to average number resident	.24	.36
Average number of days on sick list for each patient ..	11.23	9.27
Average sick time to each resident	2.76	3.41
Total number invalided	..	..
Percentage of invalidings to total resident	..	..
Total deaths	..	..
Percentage of deaths to total resident	..	..
Percentage of deaths to average number resident	..	..
Number of cases of sickness contracted away from residence ..		..

III. HYGIENE AND SANITATION.

Anti-Malarial work was continued in the following areas:—

Sanitary Board area .. .. Alor Star.
Sungei Patani.
Kulim.

Bukit Kayu Hitam (on Siamese frontier).

Most of the European owned Rubber Estates have been carrying out definite anti-malarial schemes as a routine. The Health Department gave them all possible assistance by visiting and advising.

VACCINATIONS.

The number of vaccinations done during the period was as follows:—

North Kedah	3,320
Central Kedah	1,811
South Kedah	1,710
Total ..	6,841

4,604 of these were done by Dressers in Hospitals and Dispensaries and the rest by Vaccinators.

SCHOOLS.

60 schools were visited by the Health Staff, and 3,746 pupils were examined. 31 schools were regularly visited by the Travelling Dispensaries. The prevailing conditions are shewn in Appendix K. At the begining of the year, an effort was made to extend school examination work, but this had to be abandoned because of the lack of suitable Inspectors.

The visits of the Lady Medical Officer to Girls' Schools are not included in this total, but reported on separately under Section IV, Maternity and Childwelfare.

VISITS TO ESTATES.

A total of 331 visits were made by the Health Officer and Health Staff to estates. Appendices L—R give the usual estate figures.

QUARANTINE INSPECTION AT PADANG BESAR.

The number of passengers examined:—

1st Class	1,753
2nd ,,	1,962
3rd ,,	12,911
Total	16,626

A disinfecting plant was erected in the quarantine camp.

IV. MATERNITY AND CHILD WELFARE.

Though Dr. (Mrs.) Isaac, the Lady Medical Officer, was in Kedah service for the first two months of this period, she was on sick leave for almost the whole time and could not attend to her duties. Dr. (Mrs.) Hopkins came in the middle of September and acted for two months. Dr. (Mrs.) M. G. Brodie, the present Lady Medical Officer, took over in the last week of November.

It will thus be seen that, on account of these frequent changes of Lady Medical Officers, no work could be carried out in a systematic manner. The work under this heading includes indoor and outdoor maternity cases. There is no definite scheme of preventive health work among women and children in Kedah.

At Alor Star, the hospital and outdoor midwives form a definite nucleus for carrying out the antenatal work of Alor Star. Estate patients within a reasonable distance, who intend to be confined in hospital, could attend a clinic for regular antenatal examination. Such an arrangement, however, would be impracticable for more remote estates, but it is expected, that when the Estate Group Association Hospitals are opened, probably within the next 8 months, arrangements for conducting antenatal clinics in these hospitals will be carefully considered. Many women admitted to hospital suffer from some complication which affects adversely their pregnaney. Chronic constipation, worms, and, more seriously, albuminuria, are the commonest conditions met with.

It is hoped also to be able to induce outdoor cases, for whom the outdoor midwife has been booked, to undergo at least one physical examination.

It is not an easy matter at first to overcome the shyness and diffidence of the local women, but there is every confidence, that by patience and tact, women here, as elsewhere, will be persuaded to see the value of prevention.

Antenatal work, comfortable confinement, and supervision of the mother would also result in the return to natural feeding, and the discarding of the " comforter ".

In addition, with the establishment of post-natal clinics in suitable places, and an educational campaign in the houses, the infantile mortality rate should be lowered very materially, and a healthier standard of living inculcated.

It would not be possible to carry out such a scheme as has been briefly sketched without more trained help, nor would it be a wise measure to expend large sums in introducing such a scheme at once. The work must be extended gradually so that it can be readily modified to meet local conditions.

Since the period covered by this report, a Child Welfare Association has been formed in North Kedah, under the presidency of H. H. The Regent of Kedah.

With pecuniary aid provided by Government and the keenness shewn by all members of the Association, hopes of extending this particular type of work, with happy results, throughout the whole State, are predicted.

The following figures shew the work done:—

1. Maternity cases (Indoor) Hospital, Alor Star.

	Cases			Deaths
	Chinese	Indian	Total	
Normal-Labour	8	23	31	...
Twins	...	1	1	...
Still birth	2	4	6	...
Premature birth	...	1	1	...
Puerperal Sapræmia	1	...	1	1
Total ...	11	29	40	1

2. Maternity cases (Outdoor).

Malays	61
Chinese	2
Indians	5
Total ..	68

58 of these were natural labour.

3. Out-patient work (other than maternity):—

(*a*) Patients seen at the Hospital:—

Malays	69
Chinese	53
Tamils	39
Sikhs	22
Total ..	183

(*b*) Patients seen in their houses:—

Malays	61
Tamils	6
Chinese	4
Europeans	8
Total ..	79

(*c*) Injections for Yaws:—

Malays	143
Chinese	4
Tamils	4
Sikh	1
Total ..	152

It is satisfactory to note that the majority of outdoor cases of all kinds are Malays. The yaws clinics are attended by Malay women and children in larger numbers than before.

SCHOOL INSPECTIONS.

The girls' schools at Alor Star, Sebrang Perak, and Yen, were visited from time to time, and all the children attending these schools were examined. Dental caries is found to be a common complaint. The question of appointing a part time Dentist for schools, as an experimental measure, is under the consideration of the Government; but as there are no qualified practising dentists in Kedah, it may be some time before suitable arrangements can be made.

As soon as it is possible to give more attention to the medical examination of school children, more complete inspections including the recording of weights and heights, and the routine examination of stools and blood will be carried out.

Bad posture is a marked feature of many of the school children. The introduction of simple physical training, drill and healthy exercises, lessons in hygiene, either by posters, demonstrations or talks, the exhibition of suitable cinema films, and the tactful persuasion of parents to allow their children to receive appropriate treatment for remediable conditions, will be a step in the right direction.

A stock of simple medicines for the common ailments have been supplied to all schools with directions for their use.

V. HOSPITALS AND DISPENSARIES.

A total of 10,383 patients were treated in all Hospitals during the period under review. The deaths numbered 727, giving a percentage of 7.00.

There were 236 deaths which occurred within 48 hours of admission. Excluding these, the death rate was 4.69 per cent.

The following table gives the number treated and deaths for the past 5 years.

Year	No. treated	Deaths	Percentage of deaths
1344	21,336	1,503	7·04
1345	21,472	1,841	8·57
1346	24,432	1,987	8·13
1347	19,121	1,506	7·87
1348 (7 months) ...	10,383	727	7·00

The average number of admissions per month was about 100 less than last year's average, and the death rate also shews a fall. The reduction in these figures is due to fewer admissions from Estates.

The following return gives the number of Indoor Sick treated in the various hospitals.

Hospital	No. treated	Deaths	Percentage of deaths
Alor Star	2,777	131	4·71
Sungei Patani	3,194	268	8·39
Kulim	2,012	151	7·50
Kuala Ketil	937	102	10·89
Serdang	866	57	6·58
Baling	214	9	4·20
Langkawi	218	9	4·12
PRISON SICK WARDS.			
Alor Star	122	...	...
Sungei Patani	36	...	...
Kulim	7	...	...
Total ...	10,383	727	7·00

The Nationalities of Indoor Patients:—

Europeans	8
Eurasians	5
Chinese	3,479
Indians	6,039
Javanese	9
Malays	717
Others	126
Total ..	10,383

The average daily number of Sick Indoor in Kedah Hospitals for the past 5 years was as under:—

1344	975.23
1345	948.67
1346	1,002.94
1347	942.38
1348 (7 months)	879.54

Estate Coolies treated in Hospitals as Indoor Patients:—

2,368 coolies were admitted, of whom 239 died, the percentage of deaths being 10.09. The admissions shew a decrease of 105 per month in comparison with the previous year's figures. The death rate has come down from 12.02 to 10.09 shewing considerable improvement in Estate Health.

The following figures give a comparison of Indian Estate Coolies and other Indian coolies and Indian paupers admitted to Hospitals, during the past 5 years:—

	1344	1345	1346	1347	1348 (7 months)
Estate coolies	9,079	8,880	8,650	5,323	2,368
Other Indian coolies and paupers (including Railway, P.W.D. and Sanitary Board coolies)	5,008	5,407	8,153	5,160	2,523

The Indian population on Estates was 41,908, of whom the percentage admitted to Hospitals was 5.64, giving a monthly average of .80 per cent against a monthly average of 1.21 in 1347 and 1.63 in 1346 A.H. shewing the steady improvement of health among the Indian coolies on Estates.

PREVAILING DISEASES.

Diseases	1346			1347			1348 (7 months)		
	Cases	Deaths	Deaths %	Cases	Deaths	Deaths %	Cases	Deaths	Deaths %
Malaria	10,016	673	6·72	6,289	484	7·69	2,964	176	5·93
Dysentery, amœbic ...	431	117	27·15	330	59	17·87	160	21	13·12
,, bacillary...	465	147	31·61	236	76	32·20	136	40	29·41
Venereal Diseases ...	733	2	·27	917	16	1·74	469	8	1·70
Respiratory Diseases (other than Pulm. Tuber:)	1,206	279	23·13	1,098	249	22·68	680	160	23·52
Pulmonary Tuber: ...	255	114	44·71	252	108	42·85	155	44	28·38
Ankylostomiasis ...	2,246	188	8·37	1,916	138	7·20	889	41	4·61
Ulcers	1,587	7	·44	1,419	2	·14	834	...	...
Wounds & Injuries ...	920	8	·87	1,542	29	1·88	1,022	23	2·25
Other diseases ...	6,573	452	6·82	5,122	345	6·73	3,074	214	6·81
Total ...	24,432	1,987	8·13	19,121	1,506	7·87	10,383	727	7·00

MALARIA.

The number of blood films examined for malaria in the various hospitals was as follows:—

Hospital	B. T.	M. T.	Quartan	Mixed Infection	Negative	Total
Alor Star	301	139	27	5	1,381	1,853
Sungei Patani	338	269	29	61	2,172	2,869
Kulim	150	579	25	19	1,629	2,402
Kuala Ketil	132	56	5	...	675	868
Serdang	158	138	14	8	798	1,116
Baling	38	37	3	...	24	102
Langkawi	12	23	...	...	328	363
Total ...	1,129	1,241	103	93	7,007	9,573

There was a decrease of about a hundred cases in the monthly admissions for malaria, and the death rate also shews a slight decrease.

PULMONARY TUBERCULOSIS.

	Cases.	Deaths.
1343	225	113
1344	287	150
1345	251	136
1346	255	114
1347	252	108
1348 (7 months)	155	44

The death rate of 28.38 is the lowest ever recorded in Kedah. Deaths from Tuberculosis in the whole State numbered 110, (or 185 for a full year) againt 251 in 1347 and 235 in 1346.

10 cases were treated in the Phthisis Huts attached to the Hospital, Langkawi. 3 of these were discharged on shewing no signs of the disease, and 2 advanced cases died. The long course of treatment, which is necessary to ensure a cure, is the objection for many cases not availing themselves of the facilities offered.

DYSENTERY.

The death rate under Amoebic Dysentery was the lowest for 6 years. Bacillary Dysentery still gives a high rate of fatality, though some improvement is shewn.

VENEREAL DISEASES.

	Cases.	Deaths.
Gonorrhoea and Gonorrhoeal Sequelae	183	..
Syphillis and Syphilitic Sequelae	201	8
Bubo	55	..
Soft chancre	30	..
Total ..	469	8

There was a slight decrease in the rate of admissions. 4,873 injections of Neo-salvarsan were given for Syphilis both among Indoor and Outdoor patients.

Neo-salvarsan injections for Yaws (Puru).

Year.	Injections.
1343	5,995
1344	7,723
1345	8,653
1346	6,689
1347	9,641
1348 (7 months)	9,257

ANKYLOSTOMIASIS.

889 cases and 41 deaths for the seven months shew a further decrease in the rate of admissions and a very considerable fall in the rate of deaths among Indoor cases.

PREGNANCY AND ITS DISEASES.

205 cases connected with pregnancy were treated in the hospitals. There were 17 deaths, giving a percentage of 8.29 to the total treated.

In the whole state there were 117 deaths recorded under this heading, a percentage of 1.31 to total births.

The number of still births in the state amounted to 505; these are not counted as births.

MENTAL DISEASES.

181 Kedah patients were under treatment in Tanjong Rambutan Mental Hospital at the beginning of the year; 35 were admitted, 22 discharged as cured, 3 absconded, and 3 died, and the number remaining at the end of the period was 200, including 162 males and 38 females.

LEPROSY.

	Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining
Pulau Jerajak and Jelutong ...	99	25	124	...	...	2	14	108
Pangkor Laut (Malays only) ...	9	...	9	...	...	...	1	8
Kedah Hospitals	9	47	56	2	41	7	2	4

OTHER INFECTIVE DISEASES TREATED IN HOSPITALS.

	Cases.	Deaths.
Cerebro-spinal fever	1	1
Chicken pox	8	..
Enteric fever	12	7
Erysipelas	3	..
Influenza	136	1
Measles	27	..
Mumps	4	..
Phagedoena	2	..
Pyaemia	2	1
Pyrexia of uncertain origin	21	..
Rheumatism	19	..
Septicaemia	4	2
Tetanus	9	2
Yaws	34	..
Other infective diseases	17	..

ANTI-RABIC TREATMENT.

36 cases were admitted for dog-bite. Of these 18 were confirmed or suspected as bitten by rabid dogs, and received anti-rabic serum injections.

Cases treated with anti-rabic vaccine, grouped according to domicile and nationality:—

Course	Nationality	Kedah	Total
Complete Course	Malays	9	9
	Chinese	4	4
	Indians	5	5
	Total ...	18	18

RESULTS OF TREATMENT.

	I	II	III	IV	V	VI	Total	No. of deaths during or after treatment
Limbs and trunk unclothed	10	1	...	...	...	...	11	Nil
Limbs and trunk through clothing	4	2	...	...	1	...	7	Nil
Total ...	14	3	...	...	1	...	18	Nil

I. Cases bitten by animals proved rabid by Laboratory Examination.

II. Cases bitten by animals certified rabid by Medical or Veterinary Officer—no laboratory tests.

III. Cases bitten by animals almost certainly rabid according to history—no laboratory tests.

IV. Cases with recent abrasions contaminated with saliva of proved rabid animals.

V. Cases bitten by animals which were untraceable.

VI. Cases having abrasions contaminated with saliva in which laboratory tests were negative.

SURGICAL OPERATIONS.

127 operations under general anaesthetics were performed by the Medical Officers at the three Central Hospitals.

Minor operations numbered 789.

POST MORTEMS.

The number of post mortems done at the various hospitals was 146, including 81 medico-legal and 65 pathological cases.

Appendix S. shews the diseases of Indoor patients treated in all Hospitals.

OUT-DOOR PATIENTS.

The following figures give the total number of patients treated at the out-door department attached to the various Hospitals, the Government Dispensaries at Alor Star, Changloon, Yen, Sik and Bandar Bahru, and by the three Travelling Dispensaries.

	1347.	1348 (7 months).
New Cases	55,197	33,945
Repetitions	6,363	4,426
Total ..	61,560	38,371

The monthly average of attendances was about the same for both the periods.

VI. PRISONS.

Each of the three prisons, at Alor Star, Sungei Patani and Kulim, has a sick ward.

The Central Prison, Alor Star, has a whole-time dresser. The sick wards in the other prisons are daily attended by a dresser from the hospital. The Medical Officer in each place pays routine daily visits. All serious cases are transferred to the hospitals for treatment.

The following return shews the admissions to the sick wards for the past 5 years:—

Year	No. treated	Deaths	Percentage of deaths
1344	249	6	2·40
1345	239	12	5·02
1346	225	13	5·77
1347	269	4	1·49
1348	165	4	2·42

PREVAILING DISEASES (1348—7 MONTHS).

	Total treated	Deaths	Percentage of deaths
Malaria	34	...	...
Dysentery Amœbic	1	...	...
„ Bacillary	6	...	...
Other Bowel diseases	24	1	2·50
Venereal diseases	7	...	...
Respiratory diseases (other than Pulm. Tuber.)	12	1	8·33
Pulmonary Tuberculosis	2	1	50·00
Ankylostomiasis	6	...	...
Other diseases	73	1	1·36
Total ...	165	4	2·42

All the deaths occurred after the transfer of the cases to Hospitals and these deaths are included among the hospital deaths.

The daily average of prisoners and inpatients for the past three years was as follows:—

	1346		1347		1348	
	Prisoners	Patients	Prisoners	Patients	Prisoners	Patients
Alor Star	295	7·81	255·00	7·00	226·40	6·00
Sungei Patani ...	47	1·10	59·56	·13	37·83	2·08
Kulim	32	1·07	34·31	·79	24·60	·49
Total ...	374	9·98	348·87	7·92	288·83	8.57

OUT-DOOR ATTENDANCES.

The dispensary attendances numbered 1,296 new cases and 932 repetitions.

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VITAL STATISTICS.

"A"

The population of Kedah for the period from Moharram to Rejab, 1348 A.H. is estimated at 409,328 against 405,650 for 1347 A.H.

The following is a comparative table for the last 12 years:—

Year	Estimated Population	Births	Birth-rate per mille	Deaths	Death-rate per mille	
1329 ...	245,813	...	...	...	...	Census figure
1336 ...	290,000	7,902	27·25	6,299	21·72	
1337 ...	300,000	9,102	30·34	11,548	38·49	
1338 ...	325,000	9,593	29·51	8,557	26·14	
1339 ...	338,558	10,153	29·99	8,718	25·75	Census figure
1340 ...	340,000	10,305	30·30	8,656	25·40	
1341 ...	341,596	9,454	27·73	7,834	23·41	
1342 ...	350,000	11,095	31·70	7,877	22·41	
1343 ...	375,500	11,152	29·69	8,647	23·02	
1344 ...	384,124	11,342	29·52	9,910	25·75	
1345 ...	398,222	13,738	34·40	10,723	26·92	
1346 ...	399,864	13,066	32·68	11,424	28·57	
1347 ...	405,650	15,347	37·83	9,561	23·57	
1348 ...	409,328	8,928	21·81	5,250	12·83	for 7 months

"B"

Population according to races with deaths and death-rate for the period from Moharram to Rejab, 1348 A.H.

Races	Approximate Population	Deaths	Death-rate per mille
Europeans	402	1	2·49
Eurasians	160	...	...
Malays	282,076	3,078	10·91
Chinese	67,155	1,068	15.90
Indians	50,399	1,004	19·92
Others	9,136	99	10·84
Total ...	409,328	5,250	12·83

"C"

Infantile death rate for the last 10 years.

Year.	Deaths.	Rate per mille.
1338	1,312	136.76
1339	1,980	194.98
1340	1,704	165.35
1341	1,530	161.73
1342	1,401	126.27
1343	1,689	151.45
1344	1,924	169.24
1345	2,248	163.64
1346	2,073	158.66
1347	1,963	127.91
1348	1,231	137.88 for 7 months.

"D"

Distribution of deaths according to Sex and Nationality, for the period from Moharram to Rejab, 1348 A.H.

Nationality	Male	Female	Total
European	1	...	1
Eurasian	...	...	...
Malays	1,636	1,442	3,078
Chinese	797	271	1,068
S. Indians	568	418	986
N. Indians	17	1	18
Others	47	52	99
Total ...	3,066	2,184	5,250

"E"

Births according to Sex and Nationality for the period from Moharram to Rejab, 1348 A.H.

Nationality	Male	Female	Total
Europeans	2	...	2
Eurasian	...	...	...
Malays	3,147	3,002	6,149
Chinese	843	745	1,588
S. Indians	531	519	1,050
N. Indians	7	4	11
Others	61	67	128
Total ...	4,591	4,337	8,928

"F"

Still Births according to Sex and Nationality for the period from Moharram to Rejab, 1348 A.H.

Nationality	Male	Female	Total
European	...	...	...
Eurasian	...	...	...
Malays	184	152	336
Chinese	34	28	62
S. Indians	45	57	102
N. Indians	...	...	...
Others	3	2	5
Total ...	266	239	505

"G"

The Infantile death rate per thousand births, amongst the principal Nationalities was:—

Malays.	Chinese.	Indians.
117.25	141.06	255.43

"H"

Incidence of deaths according to ages and Nationality, for the period from Moharram to Rejab, 1348 A.H.

Ages	European	Eurasian	Malays	Chinese	S. Indians	N. Indians	Others	Total
Under 1 year	...	...	721	224	268	3	15	1,231
1 to 4 years	...	...	505	77	141	3	11	737
5 „ 14 „	...	...	287	56	66	...	9	418
15 „ 24 „	...	...	131	73	78	1	3	286
25 „ 34 „	1	...	240	130	178	4	9	562
35 „ 44 „	...	...	227	157	116	4	7	511
45 „ 54 „	...	...	235	181	68	1	9	494
55 „ 64 „	...	...	236	116	34	...	16	402
65 „ 74 „	...	...	192	44	19	1	6	262
75 years and over	...	...	304	10	18	1	14	347
Total ...	1	...	3,078	1,068	986	18	99	5,250

"I"

Table shewing Principal Causes of Deaths (according to Register of Deaths) from Moharram to Rejab, 1348.

	Fever unspecified	1,044
	Malaria	228
	Tuberculosis	110
	Dysentery Amoebic	23
	„ Bacillary	40
	Ankylostomiasis	639
	Syphilis	8
	Lobar Pneumonia	96
	Septicaemia	2
	Influenza	1
	Yaws (Puru)	6
2,212,	Other Infective Diseases	15
	General Diseases, Death from:—	
	Digestive system	101
	Respiratory system	153
	Nervous system	22
	Circulatory system	28
	Urinary system	8
	Affections connected with Pregnancy and Parturition	117
	Tumours	15
	Infantile convulsion	1,384
3,038	General, accident, Old Age, Ill-defined conditions etc.	1,210
5,250	Total	5,250

"J"

Cases of Infectious Diseases from Moharram to Rejab, 1348, Reported to Health Office.

Chicken-Pox	14
Measles	13
Mumps	1
Tropical Typhus	3
Typhoid	3
Clinical Enteric Fever	3
Cerebro-Spinal Fever	1
Acute Cerebro-Spinal Meningitis	1
Total	39

"K"

SCHOOL FIGURES—MALAY.

1. Total in Register 3,788
2. Total inspected 3,353

No.	Diseases	Cases	Percentage
1	Spleen	139	4·14
2	Anæmia	86	2·56
3	Not Vaccinated	173	5·16
4	Eye Diseases	10	·30
5	Ear Diseases	3	·09
6	Scabies	27	2·54
7	Yaws	85	·81
8	Caries (Class I)	401	11·96
9	„ „ II)	348	10·38
10	„ „ III)	438	13·03

CHINESE.

1. Total in Register 435
2. Total inspected 393

No.	Diseases	Cases	Percentage
1	Spleen	41	10·43
2	Anæmia	11	2·80
3	Not Vaccinated	28	7·12
4	Scabies	3	·78
5	Caries (Class I)	73	18·32
6	" " II)	79	20·10
7	" " III)	97	24·68

Total schools visited 60

"L"

Population by nationalities of European holdings.

No.	Nationalities	Labourers		Dependents		Infants
		Males	Females	Adults	Children	
1	Malays	1,405	1,002	195	603	113
2	Indians	19,100	9,763	1,664	7,051	1,834
3	Chinese	1,517	17	56	28	6
4	Javanese	149	56	20	25	5
5	Others	337	2	27	22	4
	Total ...	22,508	10,840	1,962	7,729	1,962

"M"

Population by nationalities of Native holdings.

No.	Nationalities	Labourers		Dependents		Infants
		Males	Females	Adults	Children	
1	Malays	3,493	2,710	236	1,088	147
2	Indians	1,466	532	89	332	77
3	Chinese	3,004	177	112	183	23
4	Javanese	87	10	4	9	...
5	Others	25	3	3	3	...
	Total ...	8,075	3,432	444	1,615	247

Total visits to Estates by Health Officer and Staff, 331 visits.

"N"

Deaths by nationalities on Estates of European holdings.

No.	Nationalities	Labourers	Dependents		Infants
			Adults	Children	
1	Malays	2	1	4	2
2	Indians	26	26	12	113
3	Chinese	1	...	...	...
	Total ...	29	27	16	115

"O"

Total labourers and dependents admitted to Government Hospitals from European holdings with deaths.

1. Total Admissions 2,253
2. Total deaths 231

"P"

Deaths by nationalities on Estates of Native holdings.

No.	Nationalities	Labourers	Dependents		Infants
			Adults	Children	
1	Malays	6	1	2	3
2	Indians	3	2	1	2
3	Chinese	4	...	...	1
	Total ...	13	3	3	6

"Q"

Total labourers and dependents admitted to Government Hospitals from Native holdings with deaths.

1. Total admissions 115
2. Total deaths 8

"R"

Estate admissions to Government Hospitals with deaths, by diseases, according to Districts.

No.	Districts	Malaria		Ankylostomiasis		Dysentery		Other Bowel Diseases		Pneumonia		Other Diseases		Total	
		A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.
1	Alor Star	36	2	19	...	2	...	9	...	3	1	81	4	150	7
2	Sungei Patani	147	16	99	9	36	10	...	...	85	31	451	21	818	87
3	Kulim	91	10	40	2	8	1	...	...	17	7	175	14	331	34
4	Kuala Ketil	139	18	48	1	23	7	3	3	...	...	383	44	596	73
5	Serdang	93	6	28	...	21	4	...	...	13	5	179	18	334	33
6	Baling	5	...	2	...	...	...	...	...	...	...	14	...	21	...
7	Langkawi	27	...	13	...	...	...	1	...	19	5	58	...	118	5
	Total ...	538	52	249	12	90	22	13	3	137	49	1,341	101	2,368	239

1. (A). Total admissions ... 2,368 | 2. (D). Total deaths ... 239

APPENDIX—S.

ANNUAL RETURN OF INDOOR PATIENTS, TREATED IN HOSPITALS IN KEDAH,

for the period from 1st Moharram to 29th Rejab, 1348 A.H. (9th June to 31st December, 1929 A.D.)

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
INFECTIVE DISEASES.						
Cerebrospinal Fever ...	...	1	1	1	...	
Chicken-pox	1	7	...	8	...	
Dysentery Amœbic ...	21	139	21	160	12	
„ Bacillary ...	8	128	40	136	13	
Enteric Fever	...	12	7	12	...	
Erysipelas	...	3	...	3	...	
Gonorrhœa	16	135	...	151	12	
Gonorrhœal Rheumatism ...	2	20	...	22	4	
Gonorrhœal Conjunctivitis ...	1	9	...	10	2	
Influenza	15	121	1	136	11	
Leprosy	9	47	2	56	4	
Malaria :—						
(*a*) Benign Tertian ...	69	968	34	1,037	52	
(*b*) Quartan ...	3	92	7	95	5	
(*c*) Malignant Tertian ...	99	1,101	98	1,200	50	
(*d*) Mixed Infection ...	...	75	4	75	6	
(*e*) Type Undiagnosed ...	20	302	13	322	18	
(*f*) Malarial Cachexia ...	20	212	20	232	26	
(*g*) Blackwater Fever ...	...	3	...	3	...	
Measles	4	23	...	27	...	
Mumps	1	3	...	4	1	
Phagedoena	...	2	...	2	2	
Pneumonia	5	203	96	208	13	
Pyæmia	1	1	1	2	...	
Pyrexia of uncertain origin ...	...	21	...	21	4	
Rheumatism	2	17	...	19	...	
Septicæmia	...	4	2	4	...	
Syphilis :—						
(*a*) Primary ...	7	47	...	54	7	
(*b*) Secondary ...	18	106	6	124	2	
(*c*) Tertiary ...	6	17	2	23	...	
Tetanus	1	8	2	9	1	
Tuberculosis :—						
(*a*) General	...	5	1	5	1	
(*b*) Phthisis	26	129	44	155	24	
Yaws	2	32	...	34	1	
Other Infective Diseases ...	3	9	...	12	1	
INTOXICATIONS.						
Alcoholism	...	2	...	2	...	
Other Intoxications ...	...	6	3	6	...	
GENERAL DISEASES.						
Anæmia	1	11	2	12	2	
Beri-beri	7	21	2	28	7	
Osteo-arthritis	...	3	...	3	...	
Other General Diseases ...	9	50	26	59	8	

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
Certain Morbid Conditions Incident to Various Parts.						
Malformations	...	1	...	1	...	
New Growth, Non-malignant ...	...	9	...	9	1	
Do. Malignant ...	3	24	12	27	2	
Cyst	...	3	...	3	...	
Other Morbid Conditions ...	1	2	1	3	...	
Diseases of the Nervous System.						
Nerves :—						
Neuritis	1	12	...	13	...	
Multiple neuritis ...	...	5	...	5	...	
Other Diseases of the Nerves...	...	11	3	11	...	
Spinal Cord and Membranes :—						
Meningitis	...	2	1	2	...	
Myelitis	1	2	...	3	2	
Locomotor ataxia ...	1	3	...	4	2	
Other Diseases of the Spinal Cord and Membranes ...	...	4	...	...	1	
Brain and Membranes :—						
Diseases of Brain and Membranes	1	4	3	5	1	
Nervous Disorders :—						
Apoplexy	...	1	1	1	...	
Paraplegia	3	1	1	4	3	
Hemiplegia	3	2	...	5	1	
Convulsions	...	9	7	9	...	
Epilepsy	...	7	1	7	2	
Neuralgia	...	6	...	6	...	
Hysteria	...	1	...	1	...	
Other Nervous Disorders ...	1	7	1	8	...	
Mental Diseases :—						
Mania	...	23	...	23	...	
Melancholia	...	1	...	1	...	
Delusional insanity ...	...	1	...	1	1	
Dementia	...	6	...	6	1	
Other Mental Diseases ...	...	18	...	18	1	
Diseases of the Eye.						
Conjunctivitis	4	21	1	25	2	
Trachoma	...	1	...	1	...	
Keratitis	1	4	...	5	...	
Ulcer of Cornea	3	11	...	14	2	
Staphyloma	...	1	...	1	...	
Iritis	...	5	...	5	1	
Cataract	6	3	...	9	4	
Panophthalmitis	...	7	...	7	1	
Other Eye Diseases ...	7	11	2	18	8	
Diseases of the Ear.						
Inflammation	...	13	...	13	...	
Other Ear Diseases ...	2	8	...	10	...	

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
Diseases of the Nose.						
Nose Diseases	...	9	...	9	...	
Diseases of the Circulatory System.						
Pericarditis	...	3	2	3	...	
Endocarditis	...	1	...	1	...	
Valvular Disease	...	14	2	14	1	
Myocarditis	...	7	1	7	1	
Dilatation of heart ...	...	2	...	2	...	
Syncope	...	1	1	1	...	
Disordered action of heart ...	...	2	1	2	...	
Phlebitis	...	1	...	1	1	
Other Diseases of the System ...	...	16	2	16	1	
Diseases of the Respiratory System.						
Asthma	2	62	2	64	7	
Laryngitis	...	1	...	1	...	
Bronchitis	16	229	11	245	13	
Broncho-pneumonia ...	4	97	39	101	11	
Pleurisy	2	34	2	36	5	
Empyema	1	2	2	3	...	
Other Diseases of the System ...	...	22	8	22	...	
Diseases of the Digestive System.						
Stomatitis	...	1	...	1	...	
Ulceration of mouth ...	...	1	...	1	...	
Pyorrhœa alveolaris ...	...	1	...	1	...	
Caries of tooth	2	13	...	15	1	
Tonsillitis	...	8	...	8	1	
Inflammation of pharynx ...	...	4	...	4	1	
Gastritis	2	16	1	18	1	
Ulceration of stomach ...	...	3	...	3	1	
Dyspepsia	1	3	...	4	...	
Enteritis	1	13	5	14	3	
Appendicitis	1	14	2	15	2	
Colitis	...	3	1	3	...	
Ulceration of intestines ...	...	1	...	1	...	
Sprue	...	1	...	1	1	
Hernia	3	29	1	32	3	
Intestinal obstruction ...	...	9	5	9	...	
Diarrhœa	6	57	15	63	2	
Constipation	...	13	...	13	...	
Colic	2	16	...	18	1	
Ischio-rectal abscess ...	1	8	...	9	...	
Fissure of anus	...	1	...	1	...	
Fistula in ano	1	8	...	9	...	
Hemorrhoids	4	18	...	22	1	
Hepatitis	3	23	...	26	1	
Abscess of liver	2	16	2	18	...	
Cirrhosis of liver	5	20	11	25	2	
Congestion of liver ...	...	2	...	2	...	
Jaundice	2	3	2	5	...	
Gall stones	...	1	1	1	...	
Peritonitis	...	7	4	7	...	
Ascites of unknown origin ...	...	2	1	2	...	
Other Diseases of the System ...	3	41	8	44	3	

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
Diseases of the Lymphatic System.						
Spleen, Inflammation ...	1	1	...	2	...	
Bubo	5	50	...	55	6	
Suppuration of Glands ...	...	1	...	1	1	
Lymphangitis	...	2	...	2	...	
Other Diseases of the System ...	1	7	...	8	1	
Diseases of Thyroid Body ...	...	1	...	1	...	
Diseases of the Urinary System.						
Acute Nephritis	5	26	6	31	6	
Bright's Disease	1	3	1	4	2	
Cystitis	...	7	...	7	...	
Retention of Urine ...	...	6	...	6	...	
Incontinence of Urine ...	...	1	...	1	...	
Other Diseases of the System ...	...	10	1	10	...	
Diseases of the Generative System. Male.						
Stricture	...	12	...	12	...	
Urethral fistula	...	1	...	1	...	
Phimosis	1	13	...	14	1	
Ulcer Penis	...	3	...	3	...	
Soft chancre	2	28	...	30	1	
Hydrocele	1	22	...	23	...	
Orchitis	1	12	...	13	2	
Epididymitis	...	5	...	5	1	
Other Diseases, Male Organs ...	3	25	1	28	2	
Female.						
Erosion of cervix	1	...	...	1	1	
Vulva, Soft chancre ...	...	1	...	1	...	
Other Diseases, Female Organs...	2	24	2	26	...	
Affections Connected with Pregnancy and Parturition.						
Natural labour	8	83	...	91	8	
Difficult labour	...	18	4	18	...	
Abortion	...	8	...	8	...	
Rupture perineum ...	...	2	...	2	...	
Retention of placenta ...	...	4	...	4	...	
Premature birth	2	11	10	13	...	
Puerperal sapræmia ...	...	15	4	15	1	
Other affections	3	64	9	67	4	
Diseases of the Bones and Organs of Locomotion.						
Periostitis	...	3	...	3	...	
Caries of bones	...	2	...	2	...	
Necrosis of bones	...	4	...	4	2	
Arthritis	...	15	...	15	1	
Synovitis	2	31	...	33	7	
Caries of Spine	...	1	...	1	1	
Myalgia	...	29	...	29	...	
Other Diseases of the Organs of Locomotion	4	12	...	16	2	

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
DISEASES OF THE CONNECTIVE TISSUE.						
Abscess	7	143	...	150	9	
Cellulitis	9	62	4	71	5	
Gangrene	4	9	8	13	1	
Other Diseases of the Connective Tissue	1	14	...	15	1	
DISEASES OF THE SKIN.						
Urticaria	...	2	...	2	...	
Eczema	1	21	...	22	...	
Boil	...	6	...	6	1	
Carbuncle	...	6	...	6	2	
Herpes	...	4	...	4	...	
Psoriasis	...	1	...	1	...	
Ulcer	122	712	...	834	101	
Other Skin Diseases ...	2	23	4	25	6	
INJURIES.						
Wounds	36	545	6	581	37	
Sprains	...	9	...	9	...	
Fractures, simple	3	55	2	58	8	
Do. compound ...	2	30	5	32	11	
Dislocations	...	9	...	9	2	
Dog bite	6	36	...	42	1	
Snake bite	1	12	...	13	1	
Other injuries	11	267	10	278	6	
POISONS.						
Alcohol	...	4	...	4	...	
Opium	...	1	...	1	...	
Other Poisons	...	15	2	15	...	
PARASITES.						
Ascaris Lumbricoides ...	19	226	6	245	13	
Ankylostomiasis	89	800	41	889	63	
Filaria	1	6	...	7	1	
Other Nematoda	3	6	...	9	1	
Tinea Circinata	...	1	...	1	...	
Do. Cruris	...	1	...	1	...	
Do. Imbricata	...	5	...	5	1	
Scabies	12	63	...	75	5	
Other Animal parasites ...	2	40	...	42	10	
UNDER OBSERVATION ...	32	506	1	538	39	
NO DISCOVERABLE DISEASE ...	5	83	...	88	5	
TOTAL ...	890	9,493	727	10,383	769	

APPENDIX—T.

RETURN OF RAINFALL.

From 1st June, 1929 A.D. to 31st December, 1929 A.D.

Months, 1929 A.D.	Alor Star Ins.	Langkawi Ins.	Sungei Patani Ins.	Baling Ins.	Kuala Ketil Ins.	Kulim Ins.	Serdang Ins.	Bandar Bahru Ins.	Padang Besar Ins.	Perlis Ins.
June	6·39	5·03	4·02	4·79	4·23	2·64	·88	4·11	2·81	9·20
July	7·43	2·62	2·62	·80	1·41	·60	·17	·41	·78	2·21
August	10·49	3.91	7·72	3·50	4·88	4·61	1·56	5·49	3·14	3·94
September	15·85	11·96	10·10	12·82	9·67	18·06	6·45	9·78	9·98	14·33
October	5·74	3·98	8·11	4·91	8·09	9·74	3·35	4·66	5·29	5·85
November	3·78	5·88	8·78	7·70	8·76	22·16	6·31	13·89	9·89	6·64
December	1·42	2·21	1.10	1·25	4·98	6·42	1·40	4·02	1·23	·46
Total ...	51·10	35·59	42·45	35·77	42·02	44·23	20·12	42·36	33·12	42·63

APPENDIX—U.

METEOROLOGICAL RETURN OF HOSPITAL, ALOR STAR,

from 1st June, 1929 A.D. to 31st December, 1929 A.D.

Months, 1929 A.D.	Temperature				Hygrometer				Total Rainfall	Greatest Rainfall during 24 hours	
	Mean dry bulb	Maximum	Minimum	Range	Mean wet bulb	Vapour tension	Dew point	Humidity			
								%			
June	81·6	91·0	77·4	13·6	77·6	·865	74·9	80·3	6·39	1·40	Highest Shade Temperature—94·0 on 13.12.29. Lowest Shade Temperature—71·0 on 28.12.29.
July	80·6	90·7	77·1	13·6	77·5	·880	75·4	84·4	7·43	1·46	
August	80·7	87·7	74·4	13·3	75·9	·801	72·6	76·5	10·49	1·45	
September	79·2	87·3	75·8	11·5	76·3	·848	74·3	85·1	15·85	2·56	
October	81·9	89·3	74·5	14·8	76·9	·829	73·6	76·2	5·74	1·20	
November	80·7	88·7	76·9	11·8	76·6	·834	73·8	79·6	3·78	1·36	
December	80·7	90·3	74·0	16·3	75·1	·766	71·3	73·2	1·42	·75	

APPENDIX—V.

METEOROLOGICAL RETURN OF HOSPITAL, SUNGEI PATANI,

from 1st June, 1929 A.D. to 31st December, 1929 A.D.

Months, 1929 A.D.	Temperature				Hygrometer				Total Rainfall	Greatest Rainfall during 24 hours	
	Mean dry bulb	Maximum	Minimum	Range	Mean wet bulb	Vapour tension	Dew point	Humidity			
								%			
June	82·6	91·6	72·8	18·8	77·1	·823	73·4	73·8	4·02	·94	Highest Shade Temperature—102 on 12.7.29. Lowest Shade Temperature—67 on 8th, 10th and 24th December 1929.
July	82·4	92·1	72·1	20·0	76·7	·810	72·9	73·2	2·62	2·25	
August	81·7	91·5	72·5	19·1	77·1	·840	74·0	77·7	7·72	1·78	
September	80·3	89·0	72·7	16·3	76·5	·840	74·0	73·7	10·10	2·72	
October	81·9	89·9	72·4	17·5	77·3	·846	74·2	77·7	8·11	2·16	
November	82·1	90·4	72·5	18·3	76·4	·799	72·5	72·9	8·78	1·27	
December	81·1	91·6	71·6	19·8	74·1	·716	69·3	67·5	1·10	·53	

APPENDIX—W.

METEOROLOGICAL RETURN OF HOSPITAL, KULIM,

from 1st June, 1929 A.D. to 31st December, 1929 A.D.

Months, 1929 A.D.	Temperature				Hygrometer				Total Rainfall	Greatest Rainfall during 24 hours	
	Mean dry bulb	Maximum	Minimum	Range	Mean wet bulb	Vapour tension	Dew point	Humidity			
								%			
June	82·1	93·1	73·2	19·9	77·7	·860	74·7	78·5	2·64	1·05	Highest Shade Temperature—98 on 6th and 7th June, 22nd July and 3rd August, 1929. Lowest Shade Temperature—65 on 22nd December, 1929.
July	86·0	95·1	73·2	21·9	80.2	·909	76·4	73·2	·60	·50	
August	82·5	92·9	72·8	20·1	78·7	·903	76·2	81·4	4·61	1·25	
September	79·8	88·2	73.6	14·6	76·3	·834	73·8	82·1	18·06	3·10	
October	82·3	90·0	72·6	17·3	77·1	·829	73·6	75·1	9·74	1.66	
November	81·1	89·3	72·6	16·6	76·7	·832	73·7	78·5	22·16	2·74	
December	80·3	91·3	70·6	20·1	75·3	·782	71·9	75·7	6·42	1·83	

APPENDIX—X.

METEOROLOGICAL RETURN OF HOSPITAL, LANGKAWI,

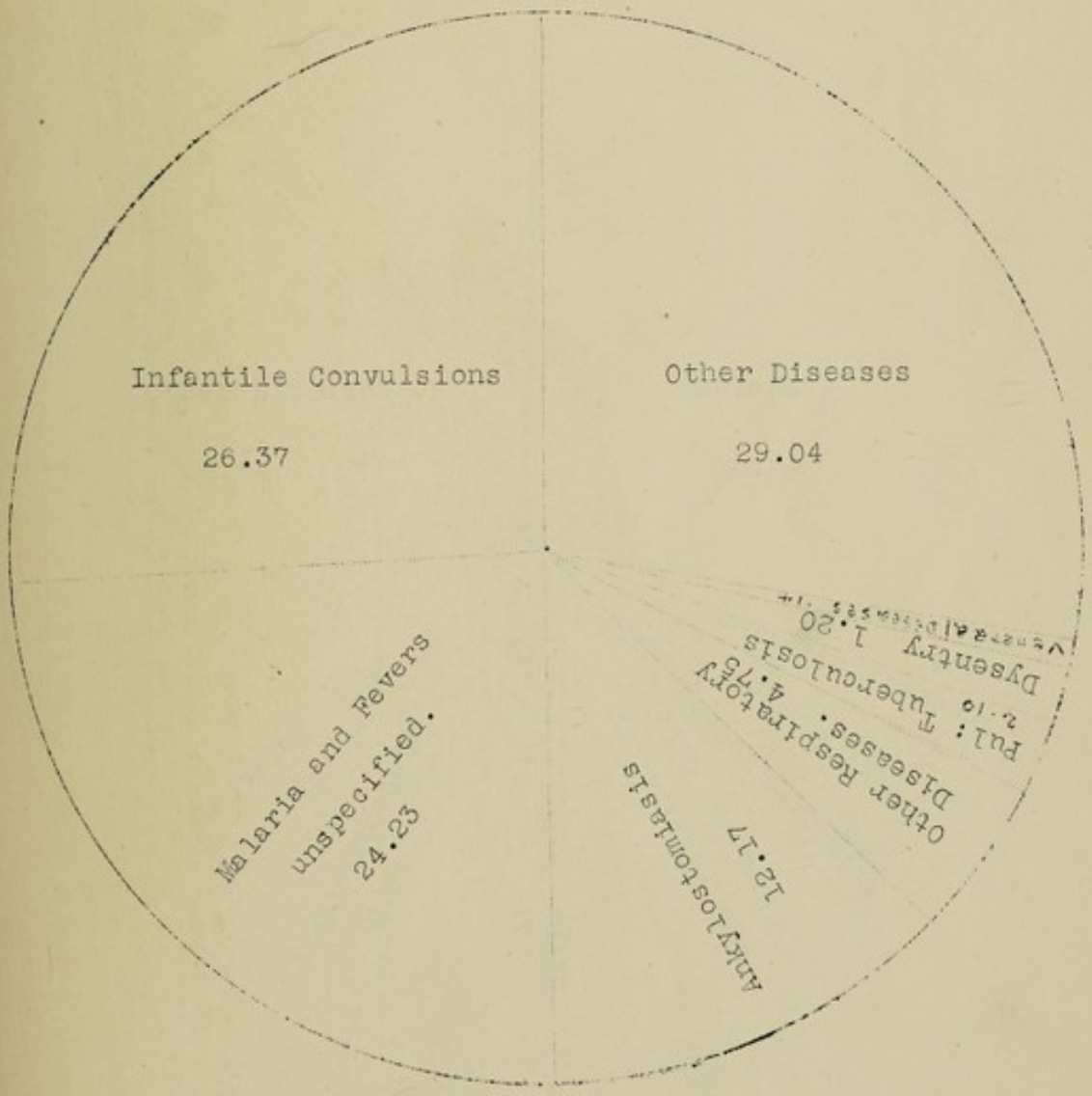
from 1st June, 1929 A.D. to 31st December, 1929 A.D.

Months, 1929 A.D.	Temperature				Hygrometer				Total Rainfall	Greatest Rainfall during 24 hours	
	Mean dry bulb	Maximum	Minimum	Range	Mean wet bulb	Vapour tension	Dew point	Humidity			
								%			
June	83·1	94·3	74·4	19·9	79·3	·918	76·7	86·0	5.03	1·32	Highest Shade Temperature = 101 on 7th July, 1929. Lowest Shade Temperature = 70 on 4th September and 9th December, 1929.
July	84·3	96·3	74·1	22·2	80·7	·968	78·3	82·3	2·62	·59	
August	84·9	92·5	74·0	18·8	79·6	·903	76·2	75·3	3·91	1·15	
September	81·9	91·5	74·3	17·2	78·5	·906	76·3	83·3	11·96	1·71	
October	84·7	91·1	74·0	17·1	78·0	·829	73·6	69·5	3·98	1·28	
November	84·1	91·2	74·3	16·9	77·0	·779	71·8	66·6	5·88	1·07	
December	84·1	92·2	73·2	19·0	75·2	·718	69·4	61·4	2·21	1·87	

PERCENTAGE OF DEATHS FROM CERTAIN DISEASES TO

TOTAL DEATHS IN THE STATE.

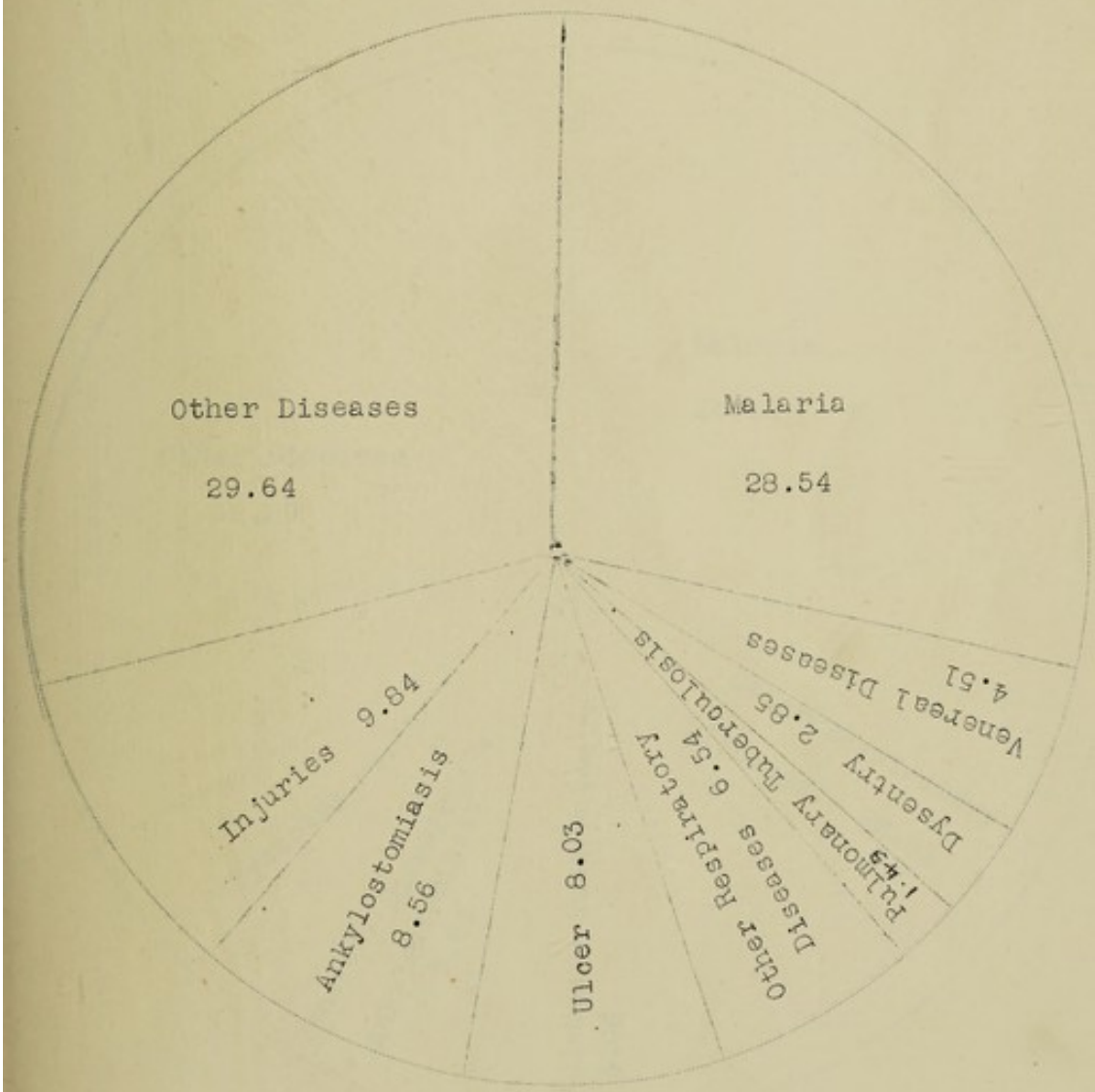
TOTAL DEATHS IN THE STATE - 5,250.



PERCENTAGE OF CASES OF CERTAIN DISEASES TO

TOTAL TREATED IN HOSPITALS.

TOTAL TREATED - 10,3 83 CASES.



PERCENTAGE OF DEATHS OF CERTAIN DISEASES TO

TOTAL DEATHS IN HOSPITALS.

TOTAL DEATHS IN HOSPITALS - 727.

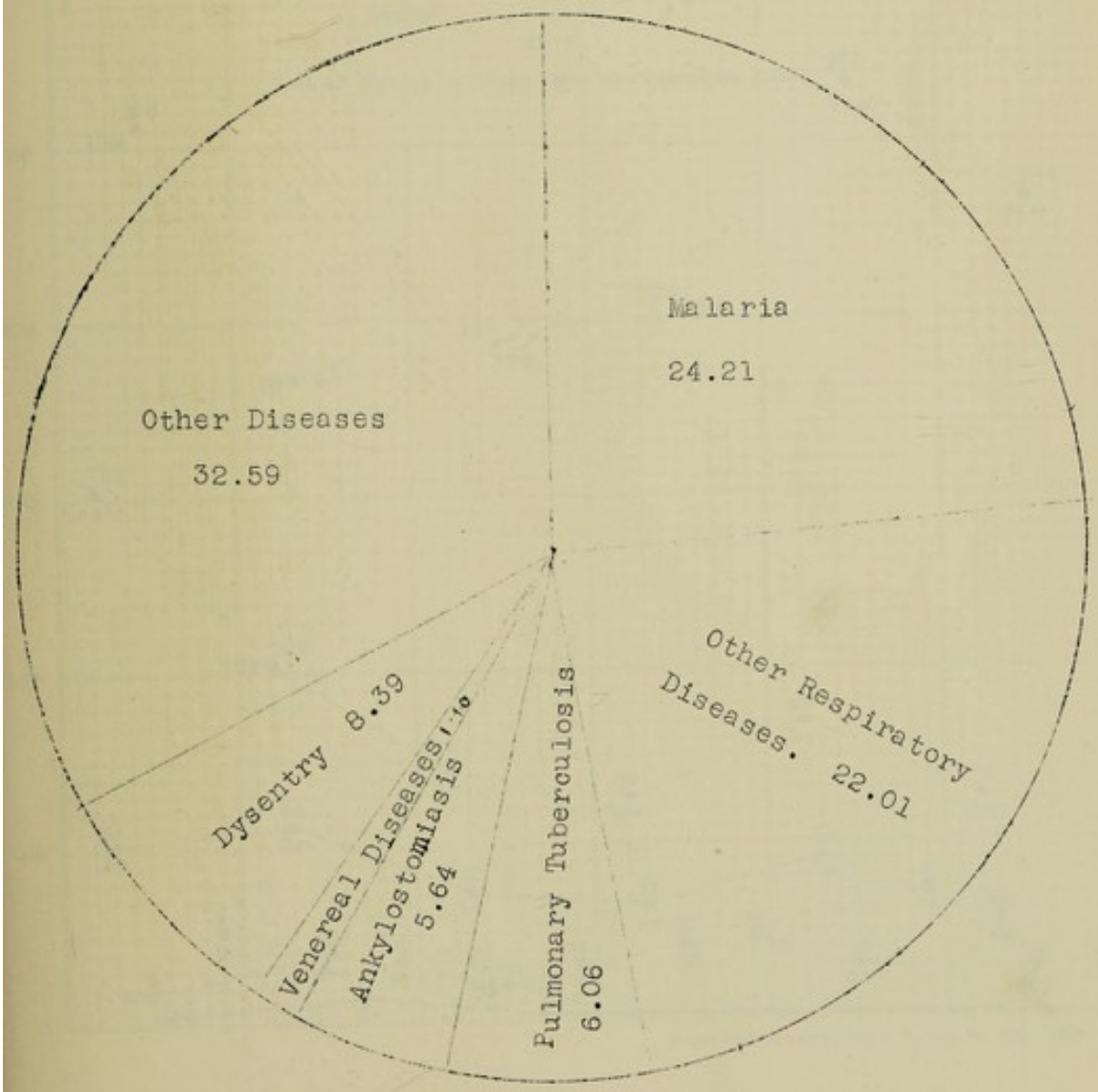
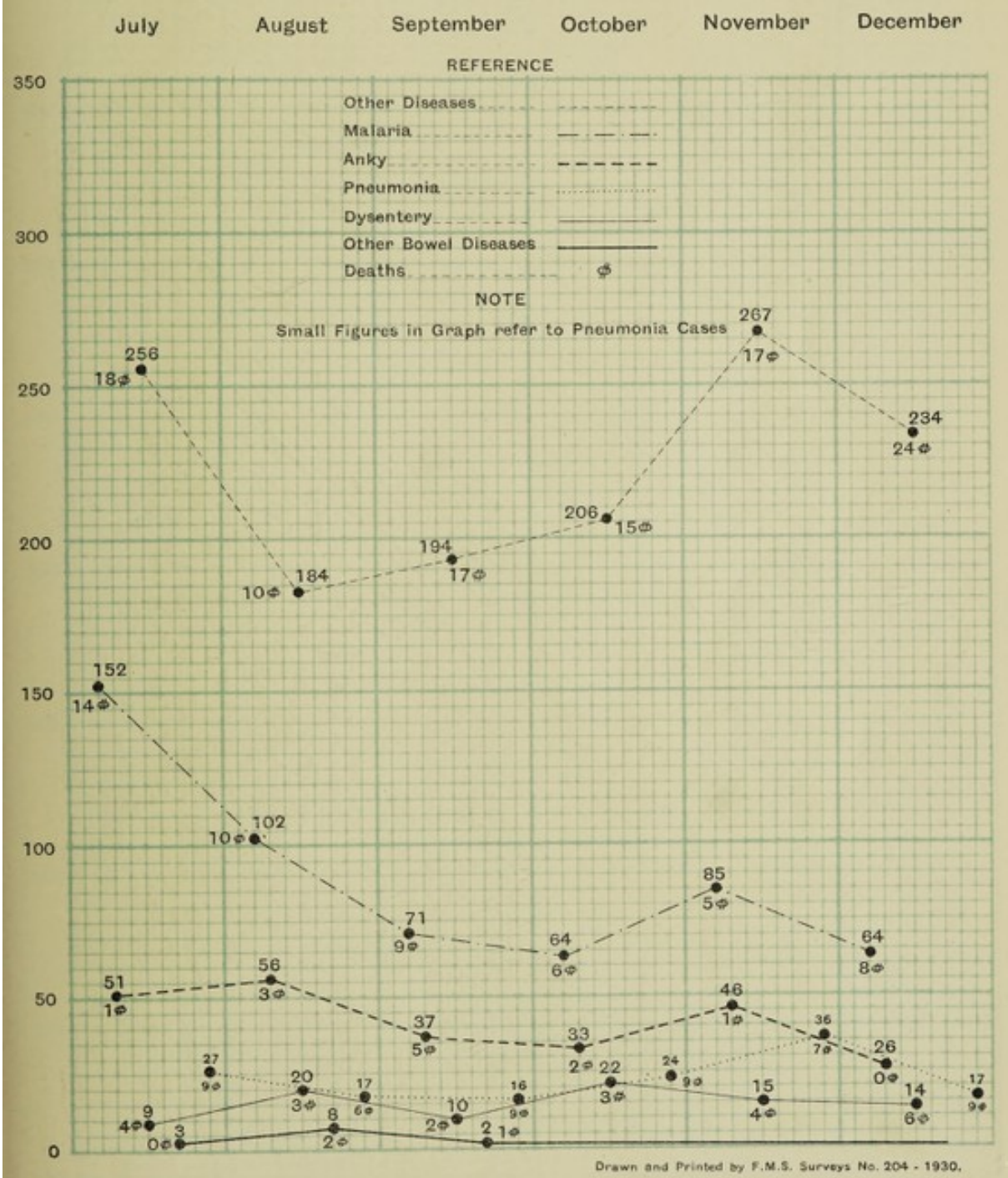
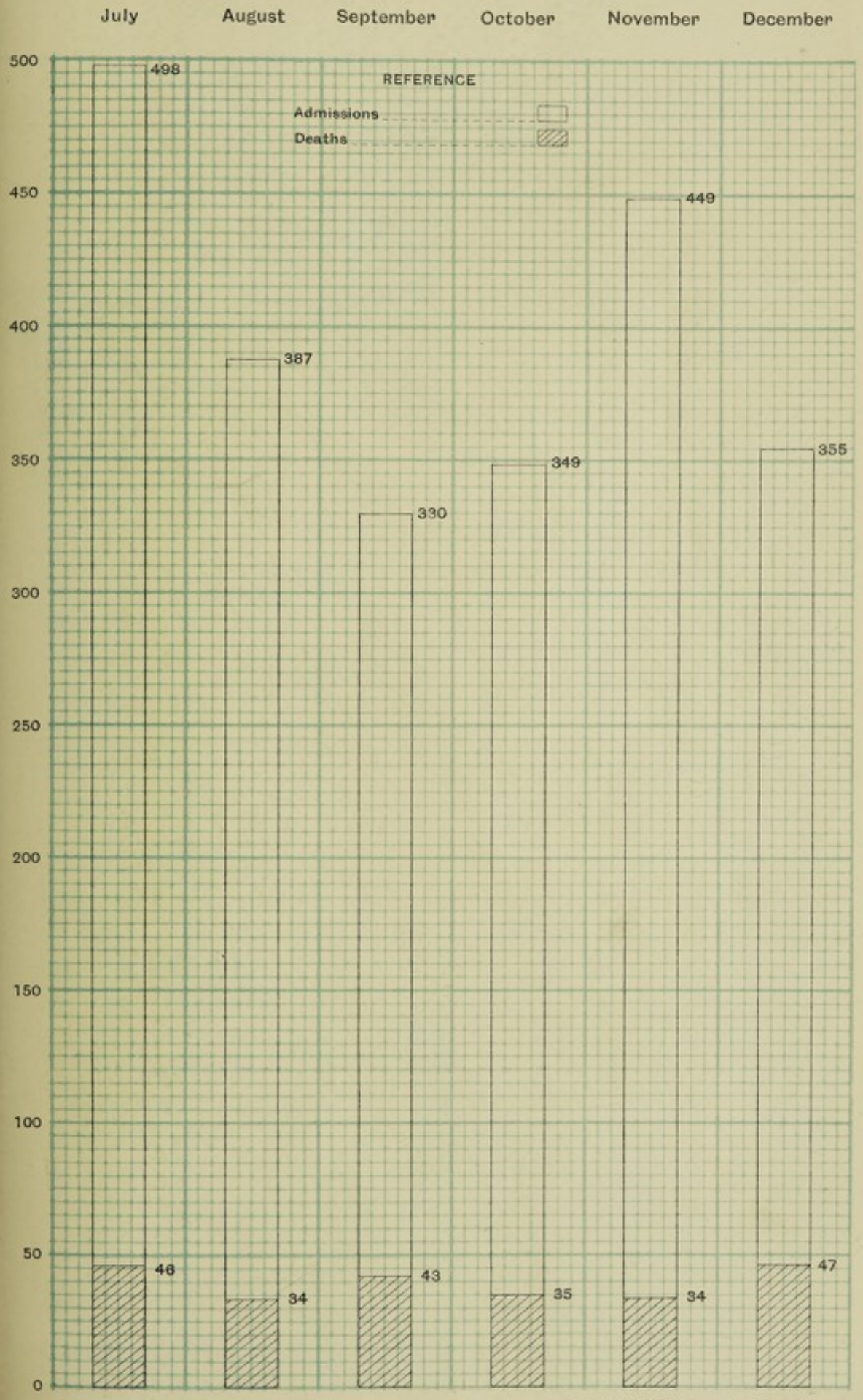


CHART SHOWING PREVAILING DISEASES AMONG ESTATE.
ADMISSIONS TO HOSPITAL WITH DEATHS FOR THE PERIOD
JULY 1929 TO DECEMBER 1929.



Drawn and Printed by F.M.S. Surveys No. 204 - 1930.

GRAPH SHOWING TOTAL ESTATE LABOURERS AND DEPENDENTS ADMITTED INTO GOVERNMENT HOSPITAL WITH DEATHS BY MONTHS FROM JULY 1929 TO DECEMBER 1929.



Drawn and Printed by F.M.S. Surveys No. 204 - 1930.

KEDAH

Scale, 12 Miles to 1 Inch

REFERENCE

Metalled Road........ ━━━

F. M. S. Surveys No. 246 - 1929

MEDICAL AND SANITARY REPORT, PERLIS.

For the period from 1st Moharram to 29th Rejab, 1348.

(9th June to 31st December, 1929).

I. ADMINISTRATION.

STAFF.

The appointments in the Medical Department are as follows:—

The State Surgeon, Kedah, who visits once a month, and oftener if required.
1 Assistant Surgeon.
1 Hospital Assistant, Grade I.
1 Dresser Grade III.
1 Vaccinator.
1 Dispensary Assistant.

The hospital was in charge of Assistant Surgeon, R. Sivasambandan.

ORDINANCES.

The Perlis Labour Code was amended, giving a new interpretation to the term "Health Officer," and under which the State Surgeon, Kedah, was appointed "Health Officer, Perlis," in addition to his duties as State Surgeon, Perlis.

FINANCIAL.

The total revenue collected during the time was $1,353.20.

The total expenditure was $14,525.38.

II. PUBLIC HEALTH.

Two cases of chicken-pox occurred at Kangar.

Three cases of Enteric Fever (with one death) were admitted into hospital, of which two were Chinese Mining Coolies from Khaki Bukit, and one was a Malay Warder at Kangar Gaol. The source of infection could not be traced in any of these cases.

A few cases of influenza occurred during Rabialakhir and Jemadialawal. Fevers still continue to take the greatest toll of life, and are responsible for nearly half the number of deaths in the State.

Though the number of cases, admitted into hospital for fevers showed a decrease, the mortality among them was higher than in the previous years. The largest numbers were admitted during Safar and Rejab. Khaki Bukit is still the most malarial place in Perlis.

There has been a slight increase in the number of cases admitted into hospital for lung complaints.

Infantile convulsions were a frequent cause of death.

Infantile mortality was greatest in Padang Malau and Arau.

Admissions for ankylostomiasis shew a slight decrease. The incidence of ankylostomiasis among Estate Coolies was high. Arrangements have been made for frequent inspection of the Estates. As soon as a more suitable site can be obtained, the night soil trenching ground at Kangar will be closed. There was no case of rabies during the period.

The health of the Government Servants was satisfactory. All of them were examined for signs of pulmonary tuberculosis, and were found to be free from the disease except one clerk.

OFFICIALS.

The following table gives the Health Statistics of Government Officials (including subordinates) in Perlis.

	Europeans.	Asiatics.
Total number of officials resident	2	370
Average number resident	2	370
Total number on sick list	2	73
Total number of days on sick list	5	504
Average daily number on sick list	0.02	2.39
Percentage of sick to average number resident ..	100	19.73
Average number of days on sick list for ench patient..	2.50 days	6.90 days
Average sick time to each resident	2.50 days	1.36 days
Total number invalided	nil	nil
Percentage of invalidings to total resident ..	nil	nil
Total deaths	nil	2
Percentage of deaths to total resident	nil	0.54
Percentage of deaths to average number resident ..	nil	0.54
Number of cases of sickness contracted away from residence	nil	nil

SCHOOLS.

Regular fortnightly visits were made to 13 schools by the Travelling Dispensary.

Of the Malay Vernacular Schools in Perlis (3 Girls' schools and 18 boys' schools) 10 boys' schools were visited by the Assistant Surgeon with the following results.

		Percentage.
Total pupils on register	954	..
Total seen	853	..
Enlarged spleen	236	27.7
Pupils showing no vaccination marks	32	3.8
Yaws (Puru)	10	1.2

Beserie school had the greatest number of enlarged spleens: 52 out of 75.

VACCINATION.

1,114 vaccinations were done, against 1,996 during 1347, and 139¼ tubes of lymph were used.

Malays	977
Chinese	119
Indians	7
Siamese	11
Total ..	1,114

From the reports received from the Penghulus, 51 cases were unsuccessful out of a total of 567.

$466.36 were spent on vaccination, roughly 41.86 cents per case.

VITAL STATISTICS.

(A) The population of Perlis for the period from 1st Moharram to 29th Rejab, 1348, is estimated at 47,192 against 46,916 in 1347 A.H.

The following is a comparative table for the last five years:—

Year	Estimated Population	Births	Birth rate per mille	Deaths	Death rate per mille
1344 ...	44,600	809	18·13	767	17·19
1345 ...	45,500	948	20·83	829	18·22
1346 ...	46,400	940	24·26	722	15·56
1347 ...	46,916	1,315	28·03	767	16·35
1348 ...	47,192	728	15·43	452	9·56 (for 7 months)

(B) Population according to races with deaths and death rate.

Races	Approximate Population	Deaths	Death rate per mille
Eurasians	9	...	...
Europeans	4	...	...
Chinese	4,103	79	19·25
Malays	40,459	335	8·28
Indians	920	14	15·22
Siamese	1,697	24	14·14

The number of deaths among Siamese exceeded their births.

(C) Infantile death rate for the last five years was:—

Year	Death	Rate per mille	Corrected rate
1344	105	129·79	133·59
1345	129	136·08	140·22
1346	94	100·00	103·75
1347	146	111·03	113·80
1348	69	90·55	94·78 (for 7 months)

The infantile death rate per thousand births among the principal nationalities was:—

	Malays	Chinese	Indians	Siamese
Crude	82·79	110·09	130·43	230·76
Corrected	86·29	113·21	166·66	250·00

(D) Births according to nationality.

European	..
Eurasian	1
Chinese	106
Malays	591
Indians	18
Siamese	12
Total ..	728
Males	386
Females	342
Total ..	728

(E) Still births according to sex and nationality.

Nationality	Males	Females	Total
European	...	...	...
Eurasian	...	...	...
Chinese	1	2	3
Malays	13	12	25
Indians	1	4	5
Siamese	1	...	1
Total ...	16	18	34

(F) Distribution of deaths according to Nationality and Diseases.

Diseases	European	Eurasian	Malays	Chinese	Indians	Siamese	Total
Fevers	...	...	152	46	1	12	211
Convulsions infantile ...	...	...	48	7	2	2	59
Old age	...	...	34	3	...	...	37
Resp. Diseases	...	...	44	12	7	7	70
Oedema (Basal)	...	...	24	3	...	1	28
Diarrhœa, Dysentery, etc. ...	...	...	6	1	...	1	8
Death after abortion or labour .	...	...	14	...	2	1	17
Injuries and accidents ...	...	...	2	3	...	...	5
Other causes	...	...	11	4	2	...	17
Total ...	...	...	335	79	14	24	452

(G) Deaths according to Sex and Nationality.

Nationality	Males	Females	Total
Malays	180	155	335
Chinese	61	18	79
Indians	5	9	14
Siamese	13	11	24
Total ...	259	183	452

(H) Incidence of deaths according to ages and nationality.

Ages	Malays	Chinese	Indians	Siamese	Total
1 year and under	59	12	3	4	78
5 years and under	40	3	2	3	48
15 do	27	2	...	2	31
25 do	25	7	5	2	39
35 do	31	9	4	2	46
45 do	34	15	...	4	53
50 do	25	8	...	1	34
55 do	13	6	...	...	19
65 do	28	11	...	5	44
75 do	28	2	...	...	30
100 do	22	4	...	1	27
Above 100 years	3	...	...	...	3
Total ...	335	79	14	24	452

94 deaths occurred of persons over 50 years of age.

III. PORT HEALTH WORK ETC.

All vessels arriving from Siamese ports were inspected during the first six months owing to Cholera in Siam.

IV. HOSPITALS AND DISPENSARIES.

The number of Indoor cases treated during the period was 642. There were 36 deaths, being a percentage of 5.61 to total treated. Excluding 14 deaths which occurred within 48 hours of admission, the death rate was 3.43.

The daily average number of inpatients was 48.74. The largest number of inpatients on one day was 65 on 26-2-48.

The percentage of deaths for 1347 A.H. was 5.16; and the daily average 43.76.

Indoor patients according to nationalities.

Nationality	No. treated	Deaths	Percentage of deaths	Deaths within 24 hours
Chinese	337	24	7·12	7
Indians	183	9	4·92	...
Malays	111	3	2.70	1
Javanese	3	...	...	...
Siamese	7	...	...	...
Eurasian	1	...	...	...
Total ...	642	36	5.61	8

The total number of Malays treated in the hospital was 111 or slightly more than one-sixth of the total number of admissions.

ADMISSIONS FROM ESTATES AND MINES.

The total number of patients from Estates and Mines was 145 with 10 deaths (6.90%).

Nationalities of Estate Coolies	Total treated	Died	Percentage of deaths
Indians	48	1	2·08
Chinese	97	9	9·28
Total ...	145	10	6·90

The deaths included 2 cases of Pneumonia, one case of Broncho-Pneumonia, one case of Tetanus, and 6 cases of Malaria.

PREVAILING DISEASES.

Diseases	1346			1347			1348 (for 7 months)			Deaths within 24 hours
	Cases	Deaths	Percentage	Cases	Deaths	Percentage	Cases	Deaths	Percentage	
Malaria	356	14	3·93	439	10	2·28	191	12	6·28	5
Dysentery Amœbic ...	27	3	11·11	21	3	14·29	12	...	...	...
„ Bacilliary ...	1	...	...	...	...	...	...	...	...	...
Ankylostomiasis ...	83	5	6·02	36	4	11·11	15	1	6·66	...
Syphilis	28	...	...	20	...	...	14	...	...	...
Pulmonary Tuberculosis	30	10	33·33	28	9	32·14	12	2	16·66	...
Other Lung Complaints	56	9	16·07	68	17	25·00	64	11	17·19	2
Ulcers	49	...	...	62	...	...	29	...	...	...
Injuries	51	2	4·00	90	2	2·22	56	...	...	...
Other Diseases ...	406	25	6·15	340	12	3·53	249	10	4·02	1
Total ...	1,087	68	6·20	1,104	57	5·16	642	36	5·61	8

There was an increase in the number of cases admitted for lung complaints other than Pulmonary Tuberculosis; and a slight fall in the number of cases admitted for Malaria, Ankylostomiasis, Pulmonary Tuberculosis, and Ulcers. All the Dysentery cases were mild; but the mortality from Malaria was high.

INFECTIOUS DISEASES WITH DEATHS.

Diseases	Total treated	Died	Percentage of deaths
Chicken Pox	2	...	...
Dysentery	12	...	...
Enteric Fever	4	1	25·00
Influenza	9	...	...
Pneumonia	23	9	39·13
Tuberculosis-(Phthisis)	12	2	16·66
Total ...	62	12	19·35

The death rate from Pneumonia was high, though much lower than during the previous year.

SURGICAL OPERATIONS.

2 Major and 320 Minor Operations were performed.

LABORATORY WORK.

Blood films were examined in 1,397 instances with the following results:—

Malaria, B.T.	197
„ M.T.	171
„ Quartan	4
„ Mixed	54
Negative	971
Total ..	1,397

Other specimens examined totalled 1,873 (for details vide Appendix).

Post mortem Examination.

Medicolegal	5
Pathological	8
Total ..	13

OUT-DOOR DEPARTMENT.

Number of new cases	3,378
Repetitions	1,407

The Nationalities who received treatment were:—

Chinese	623
Indians	584
Javanese	1
Malays	2,091
Siamese	27
Europeans	18
Eurasians	31
Japanese	3
Total ..	3,378

In addition to those treated at the hospital dispensary, 79 cases were treated in the Kangar Gaol.

Neosalvarsan injections numbered 2,065, of which 1,873 were for Yaws and 192 for other conditions. 10 of these injections were given to Indoor patients for Yaws, and the rest to Out-door cases.

The Travelling Dispensary did most useful work, and attended to 1,018 cases, excluding visits to cooly lines, schools and police stations. It is much appreciated by the working classes.

Two mental cases, both male Chinese, were transferred to the Central Mental Hospital, Tanjong Rambutan, during the period under review. There were 17 Perlis patients (12 males and 5 females) in that Institution at the end of the period.

One Tamil leper was transferred to the Leper Asylum, Pulau Jerejak. One of the leper patients, a Chinese male, died at the Asylum, and the number remaining at the end of the period was two.

4 serious Indoor cases were transferred to the General Hospital, Alor Star, for treatment. A few outdoor cases were also sent there for operation.

BUILDINGS.

A new hospital kitchen was built. A few alterations were made in the latrine; the cement floor of the male ward was renewed. Some of the buildings were painted.

APPENDICES.

A. Return of Sick Indoor Patients.

B. Return of Laboratory Work.

C. Return of Deaths in Perlis State according to Mukims and Nationality.

D. Return of Deaths in Perlis State according to Mukims and Diseases.

E. Return of infantile mortality according to Mukims and Nationality.

F. Return of Births and Still births according to Mukims and Nationality.

G. Return showing distribution of births, deaths, infant mortality and still births according to Mukims.

H. Return of Rainfall and Meteorology.

APPENDIX—A.

RETURN OF SICK OF THE INDOOR PATIENTS OF THE GENERAL HOSPITAL, PERLIS,

for the period from 1st Moharram to 29th Rejab, 1348 A.H.

Specific Diseases	Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Remarks
INFECTIVE DISEASES.									
Chicken Pox	...	2	2	2	...	...	...	...	
Dysentery	...	12	12	12	...	...	...	...	
Enteric Fever	1	3	4	1	...	...	1	2	
Gonorrhœa	...	8	8	6	...	...	...	2	
Gonorrhœal Rheumatism ...	1	2	3	3	...	...	...	...	
Gonorrhœal Conjunctivitis ...	...	2	2	2	...	...	...	...	
Influenza	...	9	9	8	...	1	...	...	
Malaria :—									
(*a*) Benign Tertian ...	2	92	94	89	...	...	2	3	
(*b*) Quartan ...	...	1	1	1	...	...	...	...	
(*c*) Malignant Tertian ...	8	72	80	64	...	1	7	8	
(*d*) Mixed Infection ...	3	32	35	30	...	1	2	2	
(*e*) Type undiagnosed ...	...	6	6	5	...	...	1	...	
(*f*) Malaria cachexia ...	...	3	3	2	...	...	...	1	
Pneumonia	...	23	23	14	...	...	9	...	
Syphillis :—									
(*a*) Primary	...	2	2	2	...	...	...	...	
(*b*) Tertiary-ulcers ...	2	10	12	12	...	...	...	...	
Tetanus	...	1	1	...	...	...	1	...	
Tuberculosis :—									
Phthisis	...	12	12	8	...	...	2	2	
Incipient Phthisis	...	1	1	1	...	...	...	...	
Yaws	...	10	10	10	...	...	...	...	
Infective Granuloma ...	1	...	1	1	...	...	...	...	
INTOXICATIONS.									
Opium Intoxication ...	1	3	4	4	...	...	...	...	
DISEASES OF THE NERVOUS SYSTEM.									
Nerves : Double facial Paralysis (Specific)	...	1	1	1	...	...	...	...	
Brain and Membranes :—									
Encephalitis lethargica ...	...	1	1	1	...	...	...	...	
Cerebral Hæmorrhage ...	...	1	1	...	...	...	1	...	
Nervous Disorders :—									
Paraplegia	...	2	2	...	...	...	...	2	
Hemiplegia	1	1	2	1	...	...	...	1	

Specific Diseases	Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Remarks
Mental Diseases.									
Idiocy	...	1	1	...	...	...	...	1	
Mania	2	...	2	2	...	...	...	...	
Melancholia	1	1	2	...	1	...	1	...	
Dementia	...	1	1	...	1	...	...	...	
Diseases of the Eye.									
Conjunctivitis	...	2	2	2	...	...	...	...	
Ulcer of cornea	1	3	4	3	...	...	...	1	
Diseases of the Ear.									
Otitis media	...	2	2	2	...	...	...	...	
Otitis externa	...	1	1	1	...	...	...	...	
Diseases of the Circulatory System.									
Mitral Regurgitation ...	...	3	3	2	...	...	...	1	
Double Mitral	...	1	1	...	...	...	1	...	
Myocarditis	...	6	6	4	...	...	1	1	
Diseases of the Respiratory System.									
Asthma	2	9	11	10	...	...	...	1	
Laryngitis	...	1	1	1	...	...	...	...	
Bronchitis	...	6	6	6	...	...	...	...	
Broncho-pneumonia ...	2	13	15	9	...	...	2	4	
Pleurisy	...	8	8	8	...	...	...	...	
Diseases of the Digestive System.									
Caries of tooth	...	1	1	1	...	...	...	...	
Inflammation of Pharynx ...	...	7	7	7	...	...	...	...	
Atonic Dyspepsia	...	1	1	1	...	...	...	...	
Enteritis	...	8	8	6	...	1	...	1	
Appendicitis	...	1	1	...	1	...	...	...	
Hernia Right Inguinal ...	...	1	1	1	...	...	...	...	
Diarrhœa Infantile ...	...	1	1	1	...	...	...	...	
Colic Intestinal	...	10	10	10	...	...	...	...	
Hæmorrhoids	...	3	3	3	...	...	...	...	
Hepatitis	...	2	2	2	...	...	...	...	
Jaundice	...	2	2	2	...	...	...	...	
Duodenal ulcer	...	2	2	1	...	1	...	...	
Acute abdomen, Ruptured Liver Abscess	...	1	1	...	1	...	...	...	
Diseases of the Lymphatic System.									
Bubo	...	2	2	2	...	...	...	...	
Adenitis	...	1	1	1	...	...	...	...	
Diseases of the Urinary System.									
Nephritis	1	1	2	1	...	...	1	...	
Subacute Nephritis ...	...	1	1	1	...	...	...	...	
Retention of urine ...	...	1	1	1	...	...	...	...	

Specific Diseases	Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Remarks
Diseases of the Generative System.									
Phimosis	...	1	1	1	...	...	...	...	
Stricture urethra	...	2	2	1	1	...	...	...	
Gon : Epididymitis ...	...	2	2	2	...	...	...	...	
Affections connected with Pregnancy and Parturition.									
Difficult Labour	...	2	2	1	...	...	1	...	
Labour prolonged ...	...	1	1	1	...	...	...	...	
Natural labour	...	6	6	6	...	...	...	...	
Pregnancy-waiting case ...	...	1	1	1	...	...	...	...	
Albuminuria complicating pregnancy	...	2	2	2	...	...	...	...	
Puerperal Sepsis	...	1	1	1	...	...	...	...	
Diseases of the Organs of Locomotion.									
Osteomyelitis	1	2	3	2	...	...	...	1	
Necrosis of bones	1	2	3	2	...	1	...	...	
Arthritis	1	...	1	1	...	...	...	...	
Synovitis	...	2	2	1	...	...	...	1	
Gon : Fibrositis	...	1	1	1	...	...	...	...	
Myositis	...	1	1	1	...	...	...	...	
Diseases of the Connective Tissue.									
Cellulitis	2	5	7	4	...	...	1	2	
Abscess	3	16	19	18	...	...	1	...	
Gangrene dry	...	1	1	...	...	...	...	1	
Sinus gluteal Region ...	...	1	1	...	...	...	...	1	
Diseases of the Skin.									
Eczema	...	1	1	1	...	...	...	...	
Boils	1	4	5	5	...	...	...	...	
Carbuncle	...	1	1	1	...	...	...	...	
Herpes Zoster	...	1	1	1	...	...	...	...	
Ulcer	5	24	29	28	...	...	...	1	
Purpuric Eruptions ...	...	2	2	2	...	...	...	...	
Arsenical Dermatitis ...	1	...	1	1	...	...	...	...	
Injuries.									
(*a*) Wounds	5	36	41	38	...	...	...	3	
(*b*) Contusions	...	6	6	6	...	...	...	...	
(*c*) Sprains	...	1	1	1	...	...	...	...	
(*d*) Fractures simple ...	...	3	3	2	1	...	...	...	
(*e*) Fractures compound ...	...	1	1	1	...	...	...	...	
(*f*) Dislocation, right clavicle	...	1	1	1	...	...	...	...	
(*g*) Dog-bite	1	...	1	1	...	...	...	...	
Burns	...	2	2	2	...	...	...	...	
Parasites.									
Tænia Solium	...	2	2	2	...	...	...	...	
Ascaris Lumbricoides ...	...	5	5	5	...	...	...	...	
Ankylostomiasis	...	15	15	13	...	...	1	1	
Helminthiasis	...	3	3	3	...	...	...	...	
Scabies	...	1	1	1	...	...	...	...	
Under observation	1	9	10	9	...	1	...	...	
For the sake of child ...	...	7	7	6	...	...	...	1	
For the sake of mother ...	...	1	1	1	...	...	...	...	
Total ...	51	591	642	548	6	7	36	45	

Nationalities.	Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Remarks
Chinese	30	307	337	267	4	4	24	38	
Indians	10	173	183	169	2	...	9	3	
Malays	8	103	111	101	...	3	3	4	
Javanese	1	2	3	3	...	...	...	...	
Siamese	2	5	7	7	...	...	...	...	
Eurasian	...	1	1	1	...	...	...	...	
Total ...	51	591	642	548	6	7	36	45	

Percentage of deaths to total treated 5·6%.

Total number of cases which proved fatal within 48 hours of admission 14.

Percentage of deaths to total treated excluding deaths occurring within 48 hours of admission 3·4%.

Total number of cases which proved fatal within 24 hours of admission 8.

APPENDIX—B.

Laboratory Work.

Nos.	Specimen	RESULT	Numbers Examined	Total
1	Blood	Malaria B.T.	197	
		Malaria M.T.	171	
		Malaria Quartan	4	
		Malaria Mixed	54	
		Negative	971	1,397
2	Pus	Gonococcus	23	
		Negative	24	47
3	Eye Smear	Diplo Bacillus (Morax and Axenfeld)	1	
		Kochweeks Bacillus	2	
		Gonococcus	1	
		Pneumococcos	1	
		Negative	11	16
4	Nasal Smear	Lepra Bacillus	2	
		Negative	4	6
5	Cerebro-spinal fluid ...	Negative	2	2
6	Sputum	Tuber Bacillus	17	
		Pneumococcus	24	
		Pneumo-Strept-Staphyl	27	
		Streptho-Staphylo	13	
		Negative	93	174
7	Stool	Amœba Hystolytica	8	
		Amœbic Cysts	6	
		Ankylostome	267	
		Ankyl-Ascaris	153	
		Ankyl-Whipworm	33	
		Ankyl-Ascaris-Whipworm ...	41	
		Ascaris	127	
		Ascaris-Whipworm	20	
		Whipworm	51	
		Oxyuris	3	
		Tænia Solium	3	
		Tænia Saginata	2	
		Negative	265	979
8	Urine	Albumen	98	
		Bile	9	
		Sugar	1	
		Negative	541	649

Total number of specimens examined 3,270.

APPENDIX—C.

Deaths in Perlis according to Mukims and Nationality.

No.	Mukim	Malays		Chinese		Indians		Siamese		Total		Total
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
1	Abi ...	9	7	...	...	...	...	...	...	9	7	16
2	Arau ...	45	37	2	1	...	...	6	5	53	43	96
3	Bintong ...	4	5	...	...	...	...	...	...	4	5	9
4	Chuping ...	5	11	1	1	...	1	6	5	12	18	30
5	Kuala Perlis ...	6	5	3	1	...	...	...	...	9	6	15
6	Oran ...	6	4	...	...	1	1	...	...	7	5	12
7	Padang Malau ...	19	19	14	6	...	1	...	1	33	27	60
8	Paya ...	39	28	32	6	4	6	1	...	76	40	116
9	Sanglang ...	14	19	7	2	...	...	...	...	21	21	42
10	Utan Aji ...	14	9	...	...	...	...	...	...	14	9	23
11	Utan Gelam ...	19	11	2	1	...	...	...	...	21	12	33
	Total ...	180	155	61	18	5	9	13	11	259	193	452

APPENDIX—D.

Distribution of deaths according to Mukims and Diseases.

Mukims	Fever	Respiratory Disease	Diarrhœa, Dysentry, etc.	Oedema (Basal)	Old Age	Infantile Convulsions	Deaths after abortion or child birth	Injuries and accidents	Other Causes	Total
Abi	15	...	...	...	...	1	...	...	...	16
Arau	43	17	1	4	9	15	7	...	...	96
Bintong	5	...	...	...	1	2	1	...	...	9
Chuping	13	10	1	1	1	2	...	1	1	30
Kuala Perlis	6	...	...	1	2	4	1	...	1	15
Oran	2	1	...	1	4	3	1	...	...	12
Padang Malau	27	7	1	7	4	5	3	1	5	60
Paya	49	28	2	6	7	11	2	3	8	116
Sanglang	25	3	1	4	3	5	...	...	1	42
Utan Aji	12	1	2	3	1	3	1	...	...	23
Utan Gelam	14	3	...	1	5	8	1	...	1	33
Total ...	211	70	8	28	37	59	17	5	17	452

APPENDIX—E.

Infantile Mortality in Perlis.

Mukims	Malays		Chinese		Indians		Siamese		Total
	M.	F.	M.	F.	M.	F.	M.	F.	
Abi	1	...	...	...	...	...	...	...	1
Arau	11	2	1	...	...	...	1	...	15
Bintong	1	1	...	...	...	...	...	...	2
Chuping	1	2	...	1	...	1	1	1	7
Kuala Perlis	2	2	...	...	...	...	...	...	4
Oran	2	1	...	...	...	...	...	...	3
Padang Malau	3	2	2	1	...	...	...	...	8
Paya	1	2	3	2	1	1	...	...	10
Sanglang	...	5	1	1	...	...	...	...	7
Utan Aji	4	2	...	...	...	...	...	...	6
Utan Gelam	4	2	...	...	...	...	...	...	6
Total ...	30	21	7	5	1	2	2	1	69

Males	40
Females	29
Total ...	69

APPENDIX—F.

Births and Still-Births in Perlis.

Mukims	Births						Still Births				
	Malays	Chinese	Indians	Siamese	Others	Total	Malays	Chinese	Indians	Siamese	Total
Abi	21	...	...	...	...	21	...	...	...	...	...
Arau	92	15	1	5	...	113	6	...	...	1	7
Bintong	21	1	...	...	...	22	1	...	1	...	2
Chuping	41	1	3	5	...	50	1	...	...	...	1
Kuala Perlis ...	42	18	...	...	...	60	3	...	...	...	3
Oran	25	3	7	...	...	35	2	...	...	...	2
Padang Malau ...	35	21	...	...	...	56	3	...	2	...	5
Paya	76	20	7	...	1	104	3	2	2	...	7
Sanglang	96	14	...	1	...	111	4	1	...	...	5
Utan Aji	42	4	...	...	...	46	...	...	...	...	...
Utan Gelam	100	9	...	1	...	110	2	...	...	...	2
Total ...	591	106	18	12	1	728	25	3	5	1	34

Males	386	Males	16
Females	342	Females	18
Total Births ...	728	Total Still-Births ...	34

APPENDIX—G.

Distribution of births, infantile mortality and total deaths according to Mukims.

Mukims	Total Deaths	Births (excludes Still-births)	Infantile mortality	Still-births
Abi	16	21	1	...
Arau	96	113	15	7
Bintong	9	22	2	2
Chuping	30	50	7	1
Kuala Perlis	15	60	4	3
Oran	12	35	3	2
Padang Malau ...	60	56	8	5
Paya	116	104	10	7
Sanglang	42	111	7	5
Utan Aji	23	46	6	...
Utan Gelam	33	110	6	2
Total ...	452	728	69	34

APPENDIX—H.

METEOROLOGICAL RETURN OF HOSPITAL, PERLIS,

from 1st June, 1929 A.D. to 31st December, 1929 A.D.

Months, 1929 A.D.	Temperature				Hygrometer				Total Rainfall	Greatest Rainfall during 24 hours	
	Mean dry bulb	Maximum	Minimum	Range	Mean wet bulb	Vapour tension	Dew point	Humidity			
								%			
June	82·0	89·2	73·3	15·9	77·9	·871	75·1	78·8	9·20	3·72	Highest Shade Temperature—94 on 21st, 22nd, 24th, 25th and 26th October, 1929. Lowest Shade Temperature—66 on 22nd and 29th December, 1929.
July	82·3	89·9	72·8	17·1	78·2	·880	75·4	79·8	2·21	·84	
August	82·8	89·4	72·6	16·8	77·5	·840	74·0	74·9	3·94	1·19	
September	81·2	87·7	73·3	14·4	76·9	·840	74·0	78·9	14·33	1·69	
October	82·3	89·0	72·6	16·4	77·3	·837	73·9	75·9	5·85	2·43	
November	81·8	88·4	72·4	16·0	77·1	·837	73·9	77·2	6·64	1·28	
December	81·8	89·4	70·3	19·1	75·7	·774	71·6	71·4	·46	·38	