

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

### **Contributors**

Terengganu. Medical Department.

### **Publication/Creation**

Singapore : Govt. Printer., [1927]

### **Persistent URL**

<https://wellcomecollection.org/works/sgf629bv>

### **License and attribution**

This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.



Wellcome Collection  
183 Euston Road  
London NW1 2BE UK  
T +44 (0)20 7611 8722  
E [library@wellcomecollection.org](mailto:library@wellcomecollection.org)  
<https://wellcomecollection.org>

INSTITUTE  
ROSS  
HOSPITAL

SCHOOL OF MEDICINE  
AND  
TROPICAL MEDICINE  
LIBRARY

Property of the ROSS INSTITUTE.  
Case No. 30

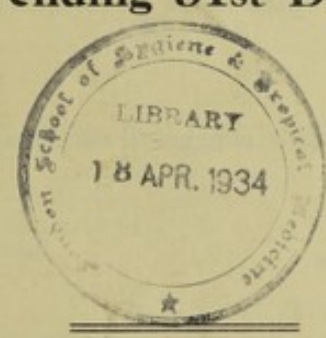


Government of Trengganu



# The Annual Medical and Sanitary Report

for the year ending 31st December, 1927.



226

SINGAPORE :  
FRASER & NEAVE, LTD., PRINTERS.  
1928.

LIBRARY  
TROPICAL MEDICINE  
AND  
BACTERIOLOGY



30046

Government of Tanganyika

# The Annual Medical and Sanitary Report

for the year ending 31st December, 1957.







## TRENGGANU

### The Annual Medical and Sanitary Report

for the year ending 31st December, 1927.

#### I.—ADMINISTRATION.

##### (a) Staff.

Dr. N. H. Harrison remained in charge as medical officer throughout the year.

Haji Sulaiman bin Narsudin acted as assistant surgeon in charge of the Town Dispensary, Kuala Trengganu, until 16-7-27, when he was retired on account of ill health. The appointment remained vacant to the end of the year.

The retirement of acting assistant surgeon Haji Sulaiman and the transfer of a senior dresser, the only responsible travelling dresser, Shaikh Ali, to the civil service caused a shortage of two important officers. Owing to the difficulty of obtaining suitable men these two appointments have remained vacant to the end of the year.

The Government of the Straits Settlements have generously seconded 2 experienced dressers to take charge of the dispensaries to be opened at Dungun, Kuala Brang, and Besut and it is hoped that the other two vacancies for senior dressers on the establishment will be filled early in 1928.

A scheme for dressers, on lines similar with regard to pay and privileges to those obtaining in the Straits Settlements and Federated Malay States, has been submitted to Government.

##### (b) List of Ordinances affecting public health enacted during the year. Nil.

##### (c) Financial.

The financial year of the Trengganu Government closed on A. H. 29.12.45 (29-6-27).

Headings.	Year A. H. 1344.		Year A. H. 1345.	
	\$	cts.	\$	cts.
Revenue from sale of medicines and hospital fees .. .. .	890	00	1,372	95
Expenditure .. .. .	31,387	80	41,081	81
The total revenue of the State .. ..	1,302,008	00	1,364,104	68
The total medical and sanitary expenditure .. .. .	32,677	80	70,000	00

The total medical and sanitary expenditure for 1345 includes sanitary expenditure not allocated in the estimates under specific sanitary headings. This was not included for the year 1344.



## II.—PUBLIC HEALTH.

## (a) General Remarks.

The enactment for the registration of births and deaths has been in force for 1 year and 6 months. The registers are recorded according to the Mohammedan date and the figures for the year A. H. 1345 i.e., from 11-7-26 to 29-6-27 are used as a basis for the estimation of vital statistics.

The prevailing diseases recorded during the year compared with 1926 are given in the table following:—

	1926	1927
Yaws .. .. .	4,828	2,168
Diseases of Digestive system ..	1,641	2,590
Diseases of the skin .. ..	1,578	2,997
Diseases due to Intestinal Parasites..	1,396	1,324
Fever unspecified .. ..	1,236	574
Malaria .. .. .	1,007	2,016
Influenza .. .. .	831	1,173
Diseases of the respiratory system ..	400	512
Beri Beri .. .. .	260	536

Whilst diagnoses of diseases made by members of the subordinate staff are open to criticism yet an effort has been made to make them as accurate as possible. The above figures may be taken to represent the relative incidence of the more common diseases in the State.

Comparative graphs for the year 1926 and 1927 of the diseases which are commonly accepted as showing a seasonal incidence are given as an appendix to this report.

## (I) General Diseases.

*Skin diseases* are conspicuous in the list of general diseases as in former years. It is unusual to find a peasant without skin disease. The principles of personal hygiene are filtering slowly through the town dwellers with the result that skin diseases amongst them are diminishing.

*Beri Beri* assumed serious proportions this year due to the exceptionally severe North East Moonsoon with unprecedented floods. It is during this moonsoon that communications are cut and in consequence supplies are low. The peasants in the interior grow their own paddy and in spite of the moonsoon and floods beri beri is practically unknown amongst them. The town dwellers along the sea board are dependent on polished rice and it is amongst them that the disease is seen. The seasonal incidence of this disease (see graph) appears to be constant. From comparison with 1926 it will be seen that beri beri is prevalent during the months January to April i.e., the latter half of the North East Moonsoon. If it were practicable prohibition of the importation of polished rice into the State would probably lower if not abolish the incidence of this disease.

## (II) Communicable Diseases.

*Mosquito or Insect-borne.*

Malaria is a menace only to the dwellers inland. The medical officer has not yet seen a case of malaria contracted along the sea board. Fortunately the principal towns lie on the sea board. The cases of malaria treated in the hospital and dispensaries all give histories pointing to infection in the interior or in the case of new immigrants to having brought the infection with them. The increased number of cases of malaria may be partly accounted for by more accurate diagnosis and partly by the probable increase in the incidence of malaria this year. Many cases diagnosed in previous years as unspecified fever were undoubtedly malaria. The death returns offer no criterion by which a just estimate of the ravages of this disease may be made. The returns simply give "fever" as a cause of disease and although the returns in this category are the highest it would be unwise to draw deductions from them.

The seasonal incidence is indicated on the graph.



*Filariasis.* Thirteen cases of filariasis have been recorded this year comprising 13 Malays and 1 Indian. Cases of elephantiasis are occasionally to be seen in the towns. The Ulu Paka has the reputation of containing a number of cases of elephantiasis. It is hoped that this reputation may be enquired into as opportunities arise.

*Infectious Diseases.*

*Dysentery.* Reports of small epidemics have come in from various districts during the year. These epidemics appear to subside quickly being confined to the particular kampongs in which they arise. Free communication between kampong and kampong is not encouraged by the native and spread of the disease is thus prevented.

The seasonal incidence is indicated on the graph.

*Influenza.* Under this heading are included all cases usually designated common cold. There has been an increase in the number of cases coming for treatment. The disease affects both Europeans and natives alike. The disease is present throughout the year as will be seen from the graph. Complications are rare. Of the cases admitted to hospital seven showed prostration three of them developing broncho pneumonia later.

*Yaws.* Of all the diseases met with in the State yaws is the most conspicuous by reason of the gross lesions it causes as well as by reason of the disabilities it leaves. In addition to this the disease, which usually declares itself first in infancy or childhood, continues to exert a debilitating influence throughout life, unless treated, although all obvious lesions may have disappeared. This is demonstrated in the middle aged who have received treatment for the so called tertiary lesions. After treatment it is not uncommon to be told that "I have never felt so strong in my life." Further observation supports the view that in Trengganu yaws is a disease affecting the dwellers living along the sea board. The further inland one travels the fewer, proportionately, are cases of yaws met with.

Systematic treatment has been continued at the Town Dispensary Kuala Trengganu. Treatment has been taken by the medical officer during his too few visits to the areas known to be heavily infected. The number of cases treated show a big decrease. Three factors were at work to bring this about (1) Treatment at the Dispensary Kemaman received a serious setback due to a death immediately following an injection by the dresser in charge. The result of this is shown in the return for the treatment of yaws from this station. Only 16 cases are recorded. (2) The only dresser who could be trusted with the technique of intra muscular injections, and at the same time understood the contra-indication to administering the drug used, was transferred to the Civil Service. (3) In Kuala Trengganu district the results of 2½ years intensive treatment are manifest in the diminishing number of patients attending for treatment. The natives are enthusiastic in their appreciation of the results of treatment, and it appears to be justifiable to make the foregoing statement. The result of these three factors is that the campaign against the disease has of necessity been restricted to Kuala Trengganu.

Next year should show a great advance in the campaign against yaws. Three new dispensaries are to be opened at strategical points in the State. From these points treatment will be taken to the various infected villages in addition to the work of a trained travelling dresser who will visit districts not covered by these new dispensaries.

Treatment has again been almost exclusively by intra muscular injection of Bismuth Sodium Tartrate. The dose used has been from 1—4 grains. Intravenous injection of Neosalvarsan and Sulfarsenol has been reserved for the chronic tertiary cases in hospital which are refractory to Bismuth Sodium Tartrate.

The total number of new cases treated during the year was 2,168 with total attendances of 4,009 compared with 4,828 and 6,196 respectively for 1926.

An analysis of cases under treatment during the last two years is given below. These cases include only those treated at the Town Dispensary and Hospital where cases may be observed and the number of treatments for each patient recorded during long periods. In Kuala



Trengganu and district it may be allowed that patients attend for treatment until all lesions disappear. The analysis therefore may be accepted as an indication of the therapeutic value of Bismuth Sodium Tartrate in the treatment of yaws.

Treatment of 4,295 cases of Yaws by Bismuth Sodium Tartrate.

Number of injections.	Number of cases.	Percentage of cases.
1	2,950	68.68
2	970	22.58
3	195	4.54
4	92	2.14
5	43	1.00
6 and over	45	1.06

Observation during the year confirmed what was written on this subject in last year's report. A few further clinical remarks may not be out of place here.

The intra muscular injection of Bismuth Sodium Tartrate is usually followed by pyrexia ranging from  $101^{\circ}$ — $102^{\circ}$  lasting variously from one to three days. Observation of hospital cases indicate that this is the rule.

Tenderness at the site of injection viz., the buttock is complained of lasting from 1—7 days.

More than 5 injections are useless and unnecessary in the treatment of the so-called tertiary lesions where there are large ulcers or ulcers with subjacent bone erosion. Secondary pyogenic infection is invariable in these cases. Local treatment and general treatment by the injection of Sulfarsenal and Neosalvarsan is helpful in these cases stimulating the natural reparative processes.

The etiology of this disease is not clear. With a view to ascertaining facts concerning the etiology of yaws detailed histories and clinical manifestations for the most part of children have been collected during the year to the number of 175. The data thus collected over a period of 3 or 4 years should form an interesting contribution to the clinical aspect of yaws as seen in Trengganu.

*Helminthic Diseases.*

The number of cases shown under the heading of diseases due to intestinal parasites have all been sufficiently infected to produce symptoms. The symptoms are sometimes alarming. It is noted that collapse due to toxæmia, acute abdominal conditions with a point of greatest pain and tenderness situated in the neighbourhood of the caecum, dyspnoea, and persistent vomiting are symptoms either one or in combination of two or three or more which have come under treatment. Clinically it would appear that *ascaris lumbricoides* is responsible. With appropriate treatment even the severe cases recovered quickly.

It may be that many of the deaths of children otherwise not accounted for may be due to toxæmia from an intestine inhabited by *ascaris lumbricoides*.

With the arrival of the health officer it is confidently expected that a system of town and rural sanitation will be devised to lessen the diseases due to intestinal parasites.

The positive results of the microscopic examinations of 955 stools revealed the ova of the various worms as follows:—

<i>Ankylostomum duodenale</i> ..	..	..	18
<i>Ascaris lumbricoides</i> ..	..	..	84
<i>Trichocephalus dispar</i> ..	..	..	71
Anky. <i>Ascaris</i> and <i>Tricho</i> ..	..	..	292
Anky and <i>Ascaris</i> ..	..	..	70
Anky and <i>Tricho</i> ..	..	..	96
<i>Ascaris</i> and <i>Tricho</i> ..	..	..	324
Total ..	..	..	1,955



(b) *Vital Statistics.*

(1) *General Native Population.* No means of even approximately estimating the fluctuation of population from year to year is available. The population at the last census in 1921 was 153,765 divided by race into Malays 145,523 Chinese 7,246 Indians 211 Europeans 34 and other nationalities 751. Vital statistics are based on this.

Registration of births and deaths has been compulsory since 1.1.45 (11-7-26). Statistics taken from the registers of births and deaths can be relied on as being only approximately accurate. It is certain that many births and deaths occur which are not registered even in districts where a sub-registrar is reasonably accessible. In districts where there is no sub-registrar the enactment for registration is probably unknown.

The officers in charge of the police stations act as sub-registrars and returns come in regularly from them.

*Births* 3,940 births were registered giving a birth rate of 25.62 per mille per annum.

*Deaths* 4,980 deaths were registered giving a death rate of 32.38 per mille per annum.

Table Showing Causes of Death.

Fever .. .. .	1,909
Convulsions .. .. .	690
Beri Beri .. .. .	541
Malaria .. .. .	481
Bowel complaints other than dysentery .. .. .	416
Old age .. .. .	195
Dysentery .. .. .	136
Respiratory diseases .. .. .	132
Still born .. .. .	78
Puerperal fever .. .. .	65
Cardiac diseases .. .. .	40
Accidents .. .. .	19
Other causes .. .. .	278

Table Showing Deaths According to Race.

Indians.	Chinese.	Japanese.	Javanese.	Malays.
10	337	10	2	4621

*Infant mortality.* There were 1,403 deaths of children under one year. The infant mortality rate or rate per annum per 1,000 births was 356.00. The infant mortality rate per annum per 1,000 births for the 4 more important districts is as follows:—

Districts.	Infant mortality rate per mille.
Besut .. .. .	142.14
Kuala Trengganu .. .. .	363.68
Dungun .. .. .	495.53
Kemaman .. .. .	592.02

With the opening of an infant welfare clinic under a trained nurse at Kuala Trengganu a unit of great importance will be directed towards the reduction of the very high infant mortality rate.

(2) *General European Population.* The health of the Europeans in the State has been satisfactory. It is hoped that sick returns from the mines and rubber estates where Europeans are employed will be available for 1928 with the result that sick rates will be recorded. Malaria is present in the principal tin mines situated in the interior along the Kemaman River as well as on the large rubber and coconut plantation at Kretay. The total number of Europeans in the State on 31-12-27 was 59 including 9 children.

(3) *European Officials.* European Officials reside in the towns along the sea board which provides excellent health conditions. One official was granted 14 days leave to proceed to Singapore for dental treatment and one official was invalided from the service on account of malaria and temperamental unsuitability. Apart from this no sick leave was necessary. Minor ailments were negligible and did not cause incapacity for duty.

(4) *Native Officials.*

A register of native officials is not available. The total number of native officials treated during the year was 1,487 including 794 Police.

Three native officials were invalided from the service during the year.



### III.—HYGIENE AND SANITATION.

#### (A) *General review of work done and progress made.*

There is still no organized health department in the State. The appointment of a European health officer has been approved by Government. His arrival is expected in the course of the next few months.

During the year under review the work of the Town Board at Kuala Trengganu and Chukai has been maintained.

The standard of living is rising in the town areas and with it the general level of personal hygiene. This is gratifying and will most certainly reduce the incidence of such preventable diseases as skin diseases, yaws etc. Inculcation of the elementary principles of hygiene and domestic sanitation will be the first line of attack launched by the new health department.

With a view to introducing a pipe borne system of water supply to Kuala Trengganu a preliminary analysis of water from the River Nerus above possible contamination has been made. The analysis is favourable but further investigation is proceeding.

An appointment of a sanitary inspector for Kemaman has been approved making a total of 2 sanitary inspectors for the State.

Public latrines are in course of construction for Kuala Trengganu and Kemaman.

(I) *Preventive Measures.* A serious outbreak of malaria occurred on the road construction work on the Kuala Trengganu to Besut Road. The question was discussed with the State Engineer and it was decided that the most suitable form of anti malarial work was the erection of screened cooly lines which could be moved from place to place as the work progressed. This was adopted and the number of cases contracting malaria was reduced. Hospital returns show 37 admissions for malaria from this district.

The Medical Officer was invited early in the year to visit the Kretay Plantations to investigate and advise on the health of the estate. It was soon discovered that malaria was the chief cause of sickness. General followed by intensive mosquito surveys were carried out. An examination of the labour force was undertaken to estimate the spleen rate. The manager and European assistants co-operated enthusiastically with the Medical Officer. What was considered urgent anti malarial work, consisting of oiling and drainage, was instituted without delay. The result of these measures is not yet available. Further investigation is necessary and will be undertaken in course of time. What was found at Kretay is probably what will be found generally in the interior of Trengganu as the topographical conformation of the land is more or less constant for the entire State. The experience gained at Kretay will be of help in future anti malarial work in Trengganu.

There were 6,270 vaccinations performed during the year.

#### (II) *General Measures of Sanitation.*

The provision of a system of night soil collection for Kuala Trengganu has been under consideration for some time. It has not yet been found practicable to introduce such a system owing to the lack of conformation of buildings to the Town plan. Until back lanes are made, rendering approach convenient, collection of night soil is a matter of difficulty. The unrestricted use of land in the neighbourhood of dwelling and shop houses for the purposes of obeying the calls of nature is fraught with potential danger of epidemics of the enteric group of fevers, cholera, and other sewage borne diseases. The business area of Kuala Trengganu is congested and the land is badly fouled by the accumulation of excreta and rubbish.

Scavenging in the more important towns has been systematically carried out. Cleanliness and a certain degree of order is being insisted on in these places. Refuse is collected and dumped being burnt in dry weather and buried in wet weather.

The water supply is by wells. The quality of the water is good but wells in the congested business areas have been proved to be contaminated. As this area is mostly occupied by Chinese who boil water before using for drinking purposes some of the danger is eliminated but there are Malays and Indians in the same area who are not so careful.



The Sanitary Inspector in Kuala Trengganu supervises scavenging, drain cleaning, disposal of refuse etc. He also inspects the food in the markets and carries out house to house inspection from time to time.

(III) *School Hygiene.* There is no systematic inspection of schools.

(IV) *Labour Conditions.* There is no labour code in force in the State. The Health Officer will be expected to investigate labour conditions on the various estates and mines.

(V) *Housing and Town Planning.* Town planning is proceeding at Kuala Trengganu, Chukai, Dungun and Kampong Raja Besut.

(VI) *Food in relation to Health and Diseases.* Daily inspections of markets and slaughter houses are made by the Sanitary Inspector.

(B) *Measures taken to spread the knowledge of Hygiene and Sanitation.* District Officers are in possession of a small hand book on Hygiene and Sanitation. It is hoped that elementary knowledge is spread through these channels.

(C) *Training of Sanitary Personnel.*—Nil.

(D) *Recommendations for future work.*

With the establishment of a State Health Department under the direction of a health officer the following important requirements amongst others will be investigated and considered and the necessary data submitted to Government for deliberation.

1. The introduction of a system of bucket latrines and night soil collection for Kuala Trengganu and Chukai and in due course of time for the other smaller towns.

2. The necessity of a pipe borne system of water supply for Kuala Trengganu.

3. The provision of adequate public latrine accommodation in the large towns.

4. The provision of adequate bathing facilities.

5. The desirability of the incineration of town refuse.

6. The erection of and supervision of sanitary abattoirs.

7. The practicability of introducing a system of rural sanitation.

8. The necessity of urging the responsibilities of sanitation on the District Officers.

#### IV.—PORT HEALTH WORK AND ADMINISTRATION.

Since the outbreak of Cholera in Siam last year there has been no occasion to impose quarantine.

#### V.—MATERNITY AND CHILD WELFARE.

Government has approved the establishment of an ante natal and infant welfare clinic in Trengganu. A shop house adjacent to the Town Dispensary has been rented for this purpose. The necessary alterations are being done and the clinic should be ready for occupation early in 1928. A fully trained nurse will be in charge. She will live in quarters over the clinic and will be available for district maternity work. The clinic will be part of an effort to reduce the high mortality of both mothers and children and will be worked in connection with the maternity ward now being erected at the hospital. Hope is entertained that the clinic will prove a beneficent influence amongst the women and children in Trengganu.

#### VI.—HOSPITALS, DISPENSARIES AND VENEREAL CLINICS.

*Hospital.* The only Government Hospital in Trengganu is situated at Kuala Trengganu and consists of:—

Administration block with offices, dispensary, laboratory, and operating theatre.

1 ward of 20 beds	for males
1 ward of 20 beds	for females
1 ward of 20 beds	for vagrants
1 ward of 8 beds	for lepers

During the year a central drug and equipment store, and quarters for dressers, attendants and watchman were completed and are now occupied. One ward of 20 beds was nearly completed and will be ready for occupation in January 1928.



A maternity ward of 6 beds was approved for the year 1346. Plans have been drawn up and approved. The site is now being prepared and building will commence shortly.

An electric light plant for the hospital was installed in June and is working satisfactorily.

Hospitals are needed for the important districts of Kemaman and Besut. The hospital for Kemaman was not sanctioned for the year 1346 but it is understood that Government will consider the necessity of including it in the estimates for 1347.

There were 892 admissions to the hospital during the year with 57 remaining from 31-12-26 giving a total of 949 compared with 763 admissions and 23 remaining from 31-12-25 giving a total of 786 for 1926.

There were 31 deaths giving a percentage death rate to the number of admissions of 3.69 compared with 29 deaths and a percentage of 3.80 in 1926.

The following diseases were most in evidence:—

Yaws .. .. .	152	No deaths
Malaria .. .. .	84	3 "
Bowel Diseases .. .. .	185	2 "
Beri Beri .. .. .	45	2 "
Influenza .. .. .	65	No deaths
Venereal Diseases .. .. .	96	No deaths
Pulmonary tuberculosis .. .. .	17	7 deaths

The causes of deaths in the hospital were:—

Typhoid fever .. .. .	1
Malaria .. .. .	3
Dysentery Amoebic .. .. .	1
Tetanus .. .. .	1
Pulmonary tuberculosis .. .. .	7
Cancer of large intestine .. .. .	1
Cancer of stomach .. .. .	1
Beri Beri .. .. .	2
Chronic opium poisoning .. .. .	1
Epilepsy .. .. .	1
Cerebral abscess .. .. .	1
Cardiac Diseases .. .. .	7
Pneumonia .. .. .	2
Cirrhosis of the Liver .. .. .	1
Senility .. .. .	1

*Maternity.* Eleven normal labours were conducted in the General ward at the hospital during the year compared with three during 1926. A maternity ward is now in course of construction.

*Surgical.* 130 surgical operations were performed during the year classified as 24 major operations and 106 minor operations compared with 105 operations classified as 19 major operations and 86 minor operations in 1926.

The major operations were:—

Diagnosis.	Operation.	Anæsthetic.	Result.
1. Chronic Otitis media	Radical mastoid	General	Cured
2. Cholesteatoma and cerebral abscess	Radical mastoid with exposure and evacuation of abscess	General	Died
3. Gunshot wound of the abdomen	Laparotomy and repair	General	Cured
4. Chronic Otitis media	Radical mastoid	General	Cured
5. Duodenal ulcer	Anterior Gastrojejunostomy	General	Complete disappearance of symptoms
6. Appendicitis	Appendicectomy	Local	Cured
7. Cancer of Colon	Cæcostomy	General	Died 3 weeks after operation
8. Cancrum oris	Excision of lower lip and skin covering chin	Local	Cured
9. Elephantiasis of scrotum	Removal and plastic repair	Local & Spinal	Cured

10.	Large Fibroma over right external malleolus	Excision	Local	Cured
11.	Appendicitis	Appendicectomy	Local	Cured
12.	Case No. 9	Plastic reconstruction of the skin of penis	General	Healed with good function
13.	Tumour of the scalp	Excision	Local	Cured
14.	Large fibroma beneath latissimus dorsi	Excision	Local	Cured
15.	Case No. 8	Sliding grafts from the Cheeks to form lower lip	General	Fair
16.	Osteomyelitis of tibia	Sequestrectomy	General	Cured
17.	Inguinal hernia	Radical cure Bassini's operation	Local	Cured
18.	Inguinal hernia	Radical cure Bassini's operation	Spinal & Local	Cured
19.	Hydrocele	Radical cure	Spinal	Cured
20.	Duodenal ulcer	Posterior no loop gastro-jejunostomy	General	Complete disappearance of symptoms
21.	Appendicitis	Appendicectomy	Local	Cured
22.	Gangrene of appendix	Appendicectomy without drainage	Local & General	Abscess to the right of ascending Colon developed 3 weeks later
23.	Abscess in the right umbilical region	Laparotomy and drainage	General	Cured
24.	Inguinal hernia	Modified Bassini's operation	General	Cured

*Dispensaries.* There are two dispensaries in the State one at Kuala Trengganu and one at Kemaman.

Dispensaries at Dungun, Kuala Brang and Besut are now ready for occupation and only await the arrival of suitable dressers to take charge.

One travelling dresser has been at work when it was convenient for him to be spared from the hospital.

A motor boat dispensary has been included in the proposed estimates for 1927. It was not possible for financial reasons to provide one this year as was expected.

The total number of patients treated during the year amounted to 20,147 compared with 18,965 for 1926. The total attendances amounted to 28,418 compared with 27,005 for 1926.

#### VII.—PRISONS AND ASYLUMS.

There is one prison at Kuala Trengganu. Every police station is provided with a "lock up." The prison buildings are for the most part antiquated and do not come up to modern standards in the matter of sanitation. A new prison is needed. Reconstruction of one building containing cells for male prisoners has been completed together with the erection of a new female detention ward. A mental ward for males and females has been sanctioned and should be completed in 1928. This ward will prove a great benefit. At present lunatics are detained in the prison in circumstances which militate against treatment. The sanitation of the prison has been attended to carefully and the sick returns enumerated below bear witness to its efficiency.

During the year there were 136 admissions to the prison hospital with 1 death giving a death rate of 0.73% compared with 224 admissions and 6 deaths giving a death rate of 2.67% for 1926 and 161 admissions and 20 deaths giving a death rate of 12.4% for 1925.

The cause of death was acute mania.

The total number of out-patients treated was 946 with total attendances of 2,327 compared with a total treated of 869 with total attendances of 2,523 for 1926.



The prevailing diseases were:—

	1926	1927
Influenza .. ..	123	125
Skin diseases .. ..	156	252
Bowel complaints .. ..	96	164
Intestinal worms .. ..	41	8
Malaria .. ..	12	8
Dysentery .. ..	18	1
Respiratory diseases .. ..	66	75

#### VIII.—METEOROLOGY.

The total rainfall for 1927 was 91.30 inches compared with 137.04 for 1926 and 110.95 for 1925. The year has been comparatively dry although there were no long periods of drought. The average monthly humidity amounted to 70.33%. The Barometric readings show only a very slight variation during the year the range being between 29.12 inches and 29.81 inches. A set of meteorological instruments consisting of a rain gauge, maximum and minimum thermometers, dry and wet bulbs, aneroid barometer, and black bulb in vacuo have been in use since 1-2-28. Records from these instruments are given in Table IV.

#### IX.—SCIENTIFIC.

Three cases regarded as of sufficient interest are recorded as an appendix to this report.

Case I. Elephantiasis of the scrotum with reconstruction of the skin of the penis from the skin of the abdominal wall one segment being obtained by tunnelling and the other by a sliding graft.

Case II. Cancrum oris. Reconstruction of the lower lip and skin covering the chin by sliding grafts from the cheeks with the formation of a natural mucous lining to the new lower lip.

Case III. Benign cystic Epithelioma of the scalp.

#### REGISTER OF EUROPEAN OFFICIAL RESIDENTS.

District. <i>Trengganu.</i> .. ..					Period 1927.	
No.	Name.	Rank.	Date of Arrival.	Date of Departure.	No. of days Resident.	Remarks.
1.	J. W. Simmons	B.A.	1/1/27	16/10/27	289	
2.	W. M. Millington	Ag. B.A.	26/12/27	31/12/27	6	
3.	G. A. de C. de Moubray	C. of L.	1/1/27	31/12/27	365	
4.	H. P. Bryson	Asst. C.L.	25/9/27	31/12/27	98	
5.	P. Trump	S.E.	8/4/27	31/12/27	268	
6.	W. W. Davidson	E.E.	1/1/27	31/12/27	365	
7.	D. M. McDiarmid	A.E.	1/1/27	31/12/27	365	Besut
8.	J. V. T. Campbell	A.E.	24/9/27	31/12/27	99	K. Trengganu
9.	G. O. Dorrity	A.E.	30/7/27	31/12/27	155	
10.	L. L. Mills	C. of P.	26/9/27	31/12/27	97	
11.	N. H. Harrison	M.O.	1/1/27	31/12/27	365	
12.	H. E. Savage	Asst. Geol.	1/1/27	31/12/27	365	
13.	L. D. Meyer	S. of S.	2/9/27	31/12/27	121	
14.	Major C. E. Bone	S. of S.	1/1/27	9/9/27	252	
15.	M. Ll. Wynne	C. of P.	1/1/27	25/9/27	268	
16.	J. J. O'Dwyer	Surveyor	1/1/27	11/10/27	284	Dungun
17.	W. F. N. Churchill	A.A.T.	12/1/27	17/11/27	310	K. Trengganu
18.	J. G. Black	A.A.T.	20/11/27	31/12/27	42	
19.	M. C. Hay	A.A.K.	1/1/27	31/12/27	365	Kemaman
20.	P. A. B. McKerron	A.A.B.	1/1/27	31/12/27	365	Besut

#### REGISTER OF NATIVE OFFICIAL RESIDENTS.

Not available.

#### TABLE.—I.

##### Medical Staff.

Medical Officer

Dr. N. H. Harrison remained in charge throughout the year.

Assistant Surgeon

Haji Sulaiman bin Narsudin acted as assistant surgeon in charge of the Town Dispensary until 16-7-27 when he was retired on account of ill-health.

## Principal Members of Subordinate Staff.

Dresser in Charge, Town Dispensary Kuala Trengganu	Mr. T. A. Menon.
Dresser in Charge, Dispensary Chukai	Mr. T. K. Maurice.
Dresser in Charge, Hospital	Mr. C. L. Fernandez.
Dressers	{ Shaikh Ali transferred to Civil Service on 13-7-27. Mr. K. M. Pillai.
Probationer travelling dresser	{ Inche Yazib bin Haji Mohamed. Inche Hassan bin Busu.
Probationer dressers	{ Inche Yunus bin Sibi. Inche Din bin Hassan. Mr. Lim Jit Teok. Mr. D. L. Gomez.
Steward	Mr. Ng Teng Kiat.
Chief Clerk	Inche Abdullah bin Alias.
Clerk Grade III	Inche Jusoh bin Hitam.
Clerk Grade III	Inche Muda bin Abdullah.

## Principal Changes.

Haji Sulaiman retired	Appointment vacant.
Shaikh Ali transferred to Civil Service	Appointment vacant.

TABLE.—II.

## Financial.

Estimates 1345	..	..	..	..	\$53,654	00
Expenditure						
Personal Emoluments	..	..	..	..	22,067	89
Annually Recurrent	..	..	..	..	16,845	05
Special Expenditure	..	..	..	..	2,168	87
				Total	..	\$41,081 81
Receipts	..	..	..	..	\$	1,372 95

TABLE.—III.

Return of statistics of population for the year not available.



TABLE—IV.  
Meteorological Return for the Year 1927.

	Solar Maximum.	Minimum on Grass.	Shade Maximum.	Shade Minimum.	Range.	Mean.	Amount in Inches.	Decrease of Humidity.	Average Force.	Remarks.
January	..	..	..	..	..	..	7.40	..	..	..
February	..	138.06	83.51	76.89	6.62	80.20	15.64	69	..	..
March	..	152.58	86.15	78.66	7.49	82.40	8.76	80	..	..
April	..	156.71	88.24	79.99	8.25	84.11	4.44	72	..	..
May	..	149.14	88.19	80.34	7.85	84.26	3.74	69	..	..
June	..	132.08	87.89	79.64	8.25	79.26	8.36	85	..	..
July	..	124.16	87.97	77.62	10.35	82.79	3.67	65	..	..
August	..	138.87	87.49	77.63	9.86	82.56	2.90	72	..	..
September	..	139.07	87.92	74.46	13.46	81.19	2.53	76	..	..
October	..	122.51	85.11	73.97	11.14	79.54	13.47	90	..	..
November	..	124.43	83.66	73.92	9.74	78.79	15.86	90	..	..
December	..	122.77	83.30	75.41	7.89	79.35	4.53	76	..	..



