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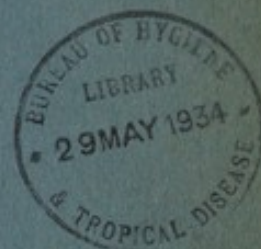
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SOUTHERN RHODESIA.



Report

on

The Public Health

For the Year 1933.


Presented to the Legislative Assembly,
1934.

Salisbury, Rhodesia :
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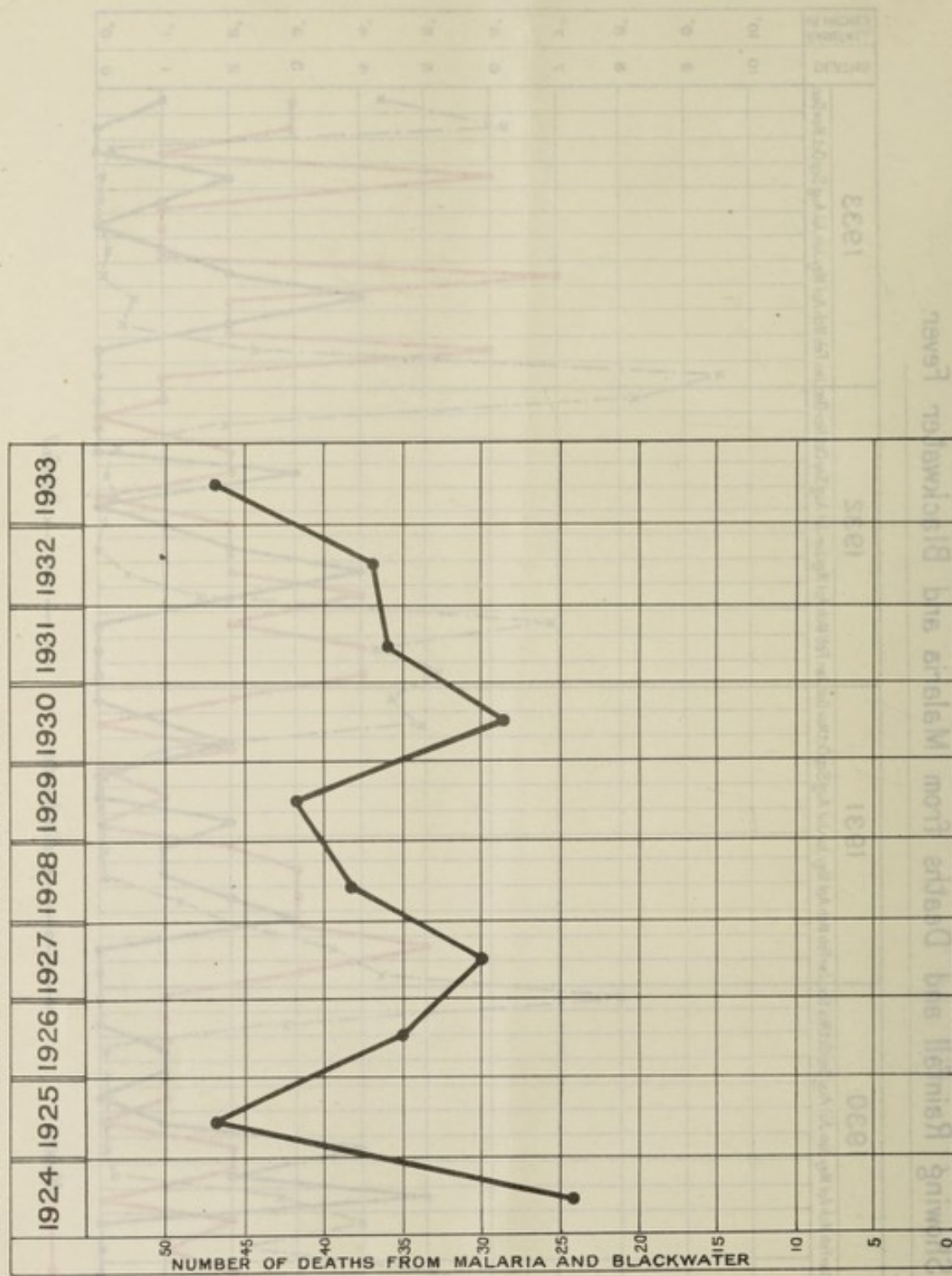
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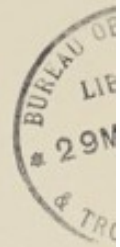


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Number of Deaths from Malaria and Blackwater Fever, 1924-33.



Report on the Public Health for the Year 1933.



Introductory.—A high birth rate, a death rate approximating the lowest in the world,* and an infant mortality rate fourteen per cent. below that of England; such are the principal vital statistics of Southern Rhodesia for the year 1933, and from a health point of view they entitle the Colony to rank high as a place for European visiting and settlement.

During the year a block containing a children's ward and seven private wards was opened at Salisbury hospital. The building of Gwelo new native hospital was nearly finished, and the first portion of the large medical unit to be erected at Bulawayo was completed in the form of the Lady Rodwell Maternity Hospital.

Measures have been taken with a view to combating malaria. The re-organisation of the Government mental hospital was commenced, and the treatment of natives in reserves in large numbers was started in two areas of the Colony. Special reference is made to these matters in this report, and also to the need for hospital development, the problem of maternal mortality and the prevention of diphtheria.

CHAPTER I.—VITAL STATISTICS.

(1) POPULATION.

The estimated European population for 1933 was 52,000, while the native population, in regard to which we have not accurate figures, is considered to be 1,103,050. The European rate of natural increase (excess of births over deaths) though falling with a diminishing birth rate is still satisfactorily high, being 13.04 for the year.

(2) BIRTHS.

There were 1,119 European births in 1933 corresponding to an annual birth rate of 21.52 per 1,000 of the population. Of these 21 or 1.9 per cent. were illegitimate—a very low proportion of illegitimate births. The birth rate of Southern Rhodesia, which previously had been nearly stationary, has been falling sharply since 1930, and it is probable that this fall will continue.

The birth rate is still a high one, partly owing to the fact that the Colony contains a large proportion of persons of child-bearing age when compared with older countries. The birth rates of recent years are given below and compared with those of the Union of South Africa and England and Wales.

European Birth Rates, 1921-33.

	Southern Rhodesia.	Union of South Africa.	England and Wales.
1921-30 (average)	24.6	26.6	18.3
1930	24.2	26.4	16.3
1931	23.6	25.4	15.8
1932	22.8	24.2	15.3
1933	21.5	Not available	14.4

It will be noted that Southern Rhodesia has a somewhat lower birth rate than the Union of South Africa and a much higher one than England and Wales.

(3) DEATHS.

A. Number of Deaths.—There were 441 European deaths in 1933, corresponding to an annual death rate of 8.48 per 1,000. This is a very low death rate and is only slightly above that of 1931, the lowest on record in the Colony.

The death rates of recent years are given below and compared with those of the Union of South Africa and England and Wales, the standardised rates being those altered to allow for the difference of age and sex distribution in the countries concerned. This is the most reliable figure for comparing the health of the Colony, and it shows that the death rate of Southern Rhodesia

* New Zealand, Australia and Southern Rhodesia have lower death rates than any other British or foreign countries for which figures are available. The latest records are as follows:
 New Zealand: Death rate, 1932 8.0
 Australia: Death rate, 1932 8.7
 Southern Rhodesia: Death rate, 1933 8.5

in 1933 was lower than that usually obtaining in England or the Union of South Africa.

European Death Rates, 1921-33.

	Crude death rate, Southern Rhodesia.	Standardised death rate.		
		Southern Rhodesia.	Union of South Africa.	England and Wales.
1921-30 (average)	9.5	11.2	10.4	10.6
1930	9.2	10.0	10.1	10.8
1931	8.3	8.8	9.6	10.2
1932	9.5	11.3	10.1	9.7
1933	8.5	9.2	Not available	10*

* Provisional figure for England and Wales.

B. Causes of European Deaths.—The following table shows the causes of European deaths in Southern Rhodesia during the last five years. Further details are given in Table 1 at the end of this report.

Causes of European Deaths, 1929-1933.

Name of disease.	1933.	1932.	1931.	1930.	1929.	Totals.	Percentage of total deaths, 1929-33
1. Malaria and blackwater fever ...	47	37	36	28	42	190	8.42
2. Violence (all forms)	38	43	53	44	45	223	9.89
3. Cancer	37	49	23	52	32	193	8.56
4. Heart diseases	36	43	49	39	43	210	9.31
5. Pneumonia and bronchitis ...	31	42	42	50	36	201	8.91
6. Premature birth and diseases of early infancy	31	24	24	23	26	128	5.67
7. Nervous diseases	29	37	27	23	27	143	6.34
8. Tuberculosis (all forms)... ..	14	17	15	19	16	81	3.59
9. Dysentery	13	4	6	8	3	34	1.51
10. Diarrhoea and enteritis	11	14	14	16	17	72	3.19
11. Old age	11	10	5	10	11	47	2.09
12. Influenza	8	17	10	11	15	61	2.71
13. Diphtheria	8	6	2	3	5	24	1.06
14. Whooping cough	6	4	1	2	6	19	.84
15. Enteric fever	4	6	2	6	13	31	1.38
16. Measles ... ..	...	...	...	...	1	1	.04
17. Scarlet fever ... ..	...	...	...	...	...	...	...
18. Other causes	117	132	108	109	131	597	26.49
Totals	441	485	417	443	469	2,255	100.00

1. *Malaria and Blackwater Fever.*—Malaria and blackwater fever head the list of causes of death in 1933. This most important public health problem is considered in detail under the section dealing with malaria, Chapter II.

2. *Violence.*—Death from violence commonly ranks high in young countries. The two deaths from motor accidents give a satisfactorily low proportion when compared with countries such as England.

3. *Cancer.*—Cancer occupies the second place among diseases as a cause of death; the position is the same in England.

4. *Heart Diseases.*—Heart diseases, which in England head the list of causes of death, come fourth in Southern Rhodesia, a country with a younger population.

5. *Pneumonia and Bronchitis.*—Pneumonia is responsible for a proportion of deaths in Southern Rhodesia very similar to that of England. Unfortunately, we know of no means of reducing its incidence among the European population.

6. *Tuberculosis.*—Tuberculosis is again seventh on the list of disease causing death, while in England it occupies the fifth place. It is generally considered that patients suffering from tuberculosis do well in the Colony, and this is borne out by our statistics over a long period of years. The absence of bovine disease is also an important asset.

4. INFANT MORTALITY.

There were 61 deaths of European infants under one year of age, corresponding to an infant mortality rate of 55 per 1,000 births—the same as last year. In addition 31 still births were registered. The fact that in Southern Rhodesia this rate is much lower than that of either the Union of South Africa or England and Wales is a strong indication of the healthiness of the Colony as a place for European residence.

European Infant Mortality Rates, 1921-33.

	Southern Rhodesia.	Union of South Africa.	England and Wales.
1921-30 (average)	63	70	72
1930	45	67	60
1931	45	63	66
1932	55	69	65
1933	55	Not available	64

Nevertheless a study of the causes of infant deaths as given in the table below will demonstrate clearly that these causes are in many cases preventable and that our infant mortality rate is still too high.

The reduction of the infant mortality rate of New Zealand to around 30 per 1,000 births is not due altogether to climatic or social conditions, and the work done by that Dominion in connection with maternity and child welfare serves as a brilliant example.

European Infant Deaths, Table I. Causes of Death, 1924-33.

Disease.	No. of deaths.	Percentage.
Premature birth and diseases of early infancy	246	40.26
Bronchitis and pneumonia	80	13.09
Diarrhoea and enteritis	73	11.95
Malaria	53	8.67
Measles, whooping cough, diphtheria, dysentery	40	6.55
Various, not classified above	119	19.48
Totals	611	100.00

European Infant Deaths, Table II.
Deaths during Different Months, 1924-33.

	No. of deaths.	Percentage.
First month	286	46.81
Two months to six months	193	31.59
Six months to twelve months	132	21.60
Totals	611	100.00

Nearly half the deaths of babies under one year occur during the first month of life, and these deaths are chiefly due to causes operating before birth, such as congenital defects and premature births. Further, the reduction during recent years in the deaths of babies under one month has not kept pace with the reduction during the remaining months of the first year of life. It is certain that increased antenatal and intranatal care can reduce the mortality from such causes. A wider knowledge of infant hygiene will save a number of babies from dying of pneumonia, diarrhoea and dysentery, while malaria and diseases such as diphtheria and whooping cough are capable of being prevented or avoided.

The Municipality of Salisbury made an important advance during the year in taking over the activities of the health visitor. This step is a progressive one and is recommended for the consideration of other Councils in the Colony. A substantial grant in aid is paid by the Government.

Valuable work is carried out by the Child Welfare Societies in the larger towns, and the formation of similar organisations elsewhere is to be strongly recommended.

With a view to disseminating information on child welfare a series of twelve letters to mothers, dealing with the general management of the baby till one year old, has been prepared and is being issued in the same way as similar letters to expectant mothers. These are specially intended for circulation in country areas, but are also available for issue in towns.

5. MATERNAL MORTALITY.

During 1933 there were seven deaths of European mothers directly due to pregnancy and childbirth—corresponding to a maternal mortality rate of 6.25 per 1,000 live births. Deaths associated with and possibly influenced by child-birth, such as those due to malaria and tuberculosis, are not included; with them the rate is 8.04. The following table compares the maternal mortality rate of Southern Rhodesia with those of the Union of South Africa and England and Wales:—

European Maternal Mortality Rate, 1921-1933.

	Southern Rhodesia.	Union of South Africa.	England and Wales.
1921-30 (average)	5.4	5.1	4.1
1930	6.0	5.3	4.4
1931	5.1	4.7	4.1
1932	6.0	5.3	4.2
1933	6.3	Not available	Not available

In marked contrast to our low infant death rate and our satisfactory general death rate, the maternal mortality rate of Southern Rhodesia is higher than that of the Union of South Africa and considerably above that of England and Wales.

It must be pointed out that a high maternal mortality rate not only means a loss of valuable lives. It also implies a high rate of illness, often serious and long even though not fatal, in mothers during and after child-birth. In addition, it causes a high proportion of still births and a high death rate of infants during the first few weeks of life, seeing that causes which lower the health of the mother affect also the child which she is about to bear.

The position in Southern Rhodesia is not as it should be. The rate of maternal mortality is properly regarded as a reliable index of communal enlightenment. From this point of view the rates for Southern Rhodesia should not be so high. England is straining every effort to reduce her maternal mortality rate, which is more than twenty-five per cent. lower than ours. The matter is therefore one requiring the most earnest consideration. A glance at the causes of maternal deaths in Southern Rhodesia, given in the table below, will demonstrate two facts:—(a) that these causes are very similar to those in England and that there is no special feature in Southern Rhodesia, but our proportion of deaths is higher; (b) that many of the causes are to a large extent preventable, for example, puerperal sepsis is responsible for approximately one-third of the deaths. Accidents associated with pregnancy and child-birth also rank high. Many of these can be foreseen and avoided. Albuminuria is a condition which lends itself to diagnosis and treatment in its early stages.

European Maternal Deaths, 1923-1933.

Cause of death.	No. of deaths.	Percentage of Total.
Puerperal sepsis	19	30.16
Accidents of pregnancy	13	20.63
Other accidents of child-birth	8	12.70
Puerperal hæmorrhage	8	12.70
Puerperal albuminuria and toxæmia	8	12.70
Other causes	7	11.11
	<hr style="width: 100%; border: 0.5px solid black;"/>	<hr style="width: 100%; border: 0.5px solid black;"/>
	63	100.00

Departmental Enquiry.—In order further to elucidate the factors operating in each case, it was decided to set up a departmental enquiry into all maternal deaths occurring after 1st January, 1933, on the lines so successfully carried out by the Government of England with the help of the medical profession. The most cordial co-operation has been received from the medical practitioners of Southern Rhodesia during the year in which this enquiry has been in operation and valuable information has been obtained, though the number of cases as yet investigated is too small to justify reliable conclusions.

The remarks of one experienced doctor on maternal deaths may be quoted as representing similar comments which were made in several other cases: "There is no need for a patient, as in this case, living within easy reach of skilled assistance, to call in an untrained handywoman who will have to work single-handed. Excellent facilities exist throughout the Colony and financial help is readily available, but certain classes of the population will insist on having such handywomen, to whom they not infrequently pay a fee which would cover the cost of a trained midwife for several days."

Our present information suggests that the following factors are contributing to our high maternal mortality rate:—

- (a) *Failure to obtain ante-natal care or to obtain medical assistance during child-birth.*

The need for and the value of skilled supervision during pregnancy, even in apparently normal cases, has so often been emphasised in these reports that the matter cannot be gone into in detail. The intensive study of maternal mortality conducted throughout the civilised world of recent years points definitely to the value of ante-natal supervision in preventing illness and death during child-birth. It is certain that many of our mothers do not seek this care and indeed are ignorant of the need of it. In other countries such knowledge has been spread by the agency of health visitors and societies interested in maternity and child welfare. Increased extension of such activities throughout the Colony would undoubtedly be of the greatest value.

With a view to spreading information of value to expectant mothers, a series of nine letters has been prepared and printed, which will be forwarded

each month to mothers who express the desire to receive them. These letters contain much appropriate information and are intended especially for mothers living in rural districts. The information contained in them is of what may be termed a "domestic character" and carefully avoids overlapping the function of the family doctor. They have been sent to Government Medical Officers and private practitioners in country districts, to child welfare societies and to various maternity homes, and their distribution will be effected through these agencies and also directly through the Public Health Department, Salisbury.

(b) *Lack of trained midwives.*

The services of a qualified midwife to act either as midwife or maternity nurse form an essential part of any satisfactory arrangement for child-birth. A definite advance in this direction was made by the opening of the Lady Rodwell Maternity Hospital in Bulawayo during September, 1933. This will form a portion of the new medical unit for Bulawayo, which will ultimately include also a maternity block for free patients, and for coloured and native women. Midwives cannot be trained in the absence of an institution affording patients in considerable numbers, and one of the important objects of this institution will be the initiation of such a school for Southern Rhodesia.

Provision of Hospital Beds.—The institutional treatment of confinements is in many cases necessary in a Colony such as Southern Rhodesia where long distances from medical facilities, combined with the lack of female assistance in the home, are serious factors. The wise generosity of the Beit Trustees has brought into existence a number of maternity homes in the Colony. With the hospital completed at Bulawayo in 1933, and the one at Sinoia at present under construction, hospital accommodation for confinements is now placed within the reach of a very large proportion of the European population.

In September the Lady Rodwell Maternity Hospital in Bulawayo was opened by His Excellency the Governor. This is a well-designed, well-equipped and well-staffed institution, which is situated on an excellent site within convenient distance of Bulawayo. It should prove a boon not only to the town but to the whole of Matabeleland.

Towards the end of the year building operations were commenced for the erection of a maternity wing, separate from but attached to Sinoia Hospital. This building is being provided chiefly by the Beit Trustees.

Government grants to maternity and nursing homes during the year amounted to £1,450, in addition to large grants for capital expenditure.

Inspection of Nursing and Maternity Homes.—The erection of the above homes now places the Government in a position to exact a proper standard in regard to nursing institutions. Legislative measures are therefore being framed with a view to carrying out supervision on the lines which have proved so beneficial to England since the passing of the Nursing Homes Registration Act of 1927.

Owing to lack of sufficient accommodation, cases of general medical and surgical illness have hitherto been admitted to the maternity homes of the Colony. This being no longer necessary, the Government and the Beit Trustees instituted during the year the policy of admitting only maternity and certain classes of gynaecological cases to maternity homes in receipt of their grants.

CHAPTER II.—INFECTIOUS AND COMMUNICABLE DISEASES.

(1) NOTIFICATION.

Notification of the more important infectious diseases is compulsory under the Public Health Act, but is very incomplete. The following figures are taken from various returns, and, though not representing the full number of cases, are of interest as giving some indication of the infectious diseases prevalent, especially among the European population.

Infectious Diseases, 1933.

Name of Disease.	European Cases.	Native Cases.
Scarlet fever	37	—
Whooping cough	109	36
Chickenpox	271	201
Enteric fever	30	13
Diphtheria	67	10
Measles	699	61
Rubella	8	1
Cerebro-spinal fever	4	26
Mumps	74	16
Erysipelas	8	—
Undulant fever	2	—
Trypanosomiasis	2	6
Smallpox	—	80
Anthrax	—	—
Puerperal septicæmia	4	2
Poliomyelitis	1	—

(2) MALARIA.

Malaria constitutes an important health problem in the Colony. In 1933 there were registered 47 deaths from malaria and blackwater fever, thus heading the list of causes of European deaths. Intermittent rains, allowing the larvæ to be hatched without being washed away, probably were responsible for the occurrence of the largest number of deaths from these diseases for eight years. Children were proportionately most affected by malaria, while 8 of 10 deaths from blackwater fever were those of males between 15 and 54 years of age. Deaths from both malaria and blackwater were relatively uncommon after the age of 55. It is recognised that illness due to malaria in non-fatal cases causes serious economic loss.

It must further be pointed out that during the last ten years we have made practically no progress against this disease, as is shown by the first chart on the adjoining page giving the number of deaths annually from malaria and blackwater. The Government are therefore determined to spare no effort in combating this ailment.

The problem is one chiefly of our rural areas and small villages. The process of civilisation has to a great extent deprived the malaria-carrying anophelines of their breeding places in the larger towns. No sovereign remedy is known whereby the disease can be prevented, and it lies in the power of no Government to eliminate malaria, as, for instance, a disease like smallpox can be eliminated. Measures against malaria depend upon individuals themselves, and the duty of the Government lies in placing at their disposal information as to the best means of avoiding the disease and in providing facilities for treatment.

The complex problem of malaria can be attacked from many angles. The age-long association of mosquito, parasite and man may be broken at a number of points, for example:—

(a) The parent mosquito may be deprived of the water which offers suitable opportunities for egg deposition; or larvæ may be destroyed in the water after they have been hatched out.

(b) The adult mosquito can be destroyed, especially in houses, and this is a measure which does not receive the attention its importance merits; while the individual can be protected from mosquitoes by various measures, including the suitable siting, construction and screening of houses.

(c) No causal prophylactic is known which can safely be taken over long periods. No drug is known which can be taken continually and which will protect the individual from infection if bitten by a suitable mosquito. In certain instances clinical prophylaxis, that is to say, the prevention of the occurrence of symptoms in spite of infection, is of value and can be effected by quinine and other drugs.

(d) Intensive research is being carried out in Europe to discover a drug which will have the power not only to protect from infection, but also to cure the infected patient so completely that no relapses will occur, and, in addition, so that infection cannot be carried to others. The results so far obtained justify our hoping that such a drug will ultimately be discovered. Local research is required with regard to the valuable drugs already in existence, seeing that drugs react differently to different strains of the parasite.

Having these points in mind, the Government have secured the services of Mr. H. S. Leeson, Medical Entomologist to the London School of Hygiene and Tropical Medicine, who is spending the present malaria season in the Colony in order to investigate accurately the breeding places of the malaria-carrying mosquitoes in the Colony, of which probably only two are of importance, *Anopheles gambiae* and *A. funestus*. An accurate knowledge of their breeding places narrows down the issue from one against all mosquitoes to one against two varieties only, which fortunately have strictly defined breeding places. At the completion of Mr. Leeson's researches the Government propose to issue detailed information in regard to the best methods for preventing malaria, not only as to depriving the vector of its breeding places but also in regard to protection in houses and in other directions outlined above.

In addition, the Director of the Public Health Laboratory, with the co-operation of local doctors, is carrying out an investigation for the purpose of ascertaining the best methods of employing the known drugs on local strains of the malaria parasite. A standard method of treatment has been drawn up for each drug, and the whole investigation is kept under strict laboratory control so that only those cases showing positive parasitological findings are included in the series.

It is hoped that the above measures will enable the Government to place at the disposal of individuals living in malarious districts accurate information in regard to what they should do to combat the disease.

While emphasising the importance of malaria, it is necessary to point out that Southern Rhodesia is far from being a highly malarious country. A large proportion of its inhabitants live in places where there is little or no danger of contracting the disease. It may further be stated that for many years we have been free from the grave epidemics of malaria which have occurred in other parts of Africa.

Quinine is imported by the Government and sold at approximately cost price through all post offices, 14,661 bottles of 100 five-grain tablets being issued during the year. It is supplied free of charge to various Government servants engaged in occupations which involve a risk of contracting malaria, e.g., to the Roads Department, Native Department, etc. The variety of quinine is chosen after consultation with malariologists of international repute, and each consignment is tested by a firm of London analysts for solubility, purity and content of the alkaloid.

The second chart on the adjoining page shows the relationship of rainfall and deaths from malaria and blackwater during recent years. The unusual occurrence of deaths in parts of the Colony where mosquitoes are not found during the dry season is credited to relapsed or neglected cases. These deaths are indicated on the chart in the months of May and September.

(3) DIPHTHERIA.

During the year 65 European cases of diphtheria were notified with 8 deaths, which constitutes a record for both morbidity and mortality in the Colony.

This is all the more to be regretted, since it is now known that diphtheria is a preventable disease, and that a simple and inexpensive process of three immunising injections will render the chance of an attack very remote and the risk of death negligible.

All the above cases were among children who had not been immunised, with the exception of one case, which is instructive. A non-immunised child contracted diphtheria and suffered a long and dangerous illness. His brother, who had been immunised, developed a slight sore throat on which were found diphtheria organisms, apparently unable to do him effective harm, and he recovered in a few days. All the deaths from diphtheria were among non-immunised children.

Progress of the Immunisation Campaign.—During 1932 special arrangements were made to bring the facts in regard to immunisation to the knowledge of the public and to secure that a supply of the immunising agent was readily available. During 1933, the campaign was extended by an agreement whereby the Government shares with the Municipalities the cost of anatoxin, the injections being done free of charge by the Medical Officers of Health in the case of indigent persons.

During the year, 1,497 sets and 90 ampoules of anatoxin were issued from the Public Health Laboratory, and it is estimated that 1,800 children were immunised. In addition, it is probable that a small number of children, estimated at 60, have been immunised with anatoxin imported direct from the South African Institute for Medical Research. The estimated European child population above the age of one year and below 16 is 14,450, of whom 1,860, or 12.9 per cent., can be presumed to have been immunised.

Research work in America has established the fact that a satisfactory diminution of the incidence of the disease cannot be expected till 45 per cent. of the pre-school children and 55 per cent. of the school population have been successfully immunised; so that great benefit to the Colony as a whole cannot be expected until at least another 5,500 children have been protected.

Reports from medical practitioners engaged in this work agree that reactions to injections are infrequent and mild in character, and that subsequent testing has shown that a full course of three injections has conveyed a high degree of immunity.

I would, therefore, take this opportunity again to urge all parents who have not already done so to have their children protected at the age of 9 to 12 months or as soon after as is possible. For this purpose they should consult their family doctor. Anatoxin is supplied by the Government at cost price, 7s. 9d. post free.

(4) LEPROSY.

The policy adopted by the Government of making their leprosy hospitals resemble voluntary institutions, but without repealing the Leprosy Repression Laws, is meeting with the response which was anticipated. Large numbers of cases are now coming in of their own accord in the early stage in which the disease lends itself to treatment, and before it has become highly infectious to others; and the fact that the number of cases treated in 1933 was 1,099, or more than double the figure of five years ago, in no sense means that the disease is increasing in the Colony.

These changes are reflected in the number of discharges each year, most of whom are dismissed without mutilation or scar of any kind. They are subjected to six-monthly re-examinations after leaving the hospital, those showing signs of recrudescence being re-admitted for further treatment.

The two Government leprosy hospitals each treated over 500 cases during the year. The older hospital at Ngomahuru is now a well organised and equipped institution. Mtemwa hospital is in course of development, and the Colony is greatly indebted to the British Empire Leprosy Association for adding to their previous gift of £500 a further donation of £400 for

this purpose in 1933. The existing satisfactory methods of treating leprosy in the Colony owe much to the practical help afforded by this Association during the last few years.

A smaller leprosy institution is attached to Mnene Mission and is subsidised by the Government, where 54 cases were treated during the year.

It is considered that the present policy of the Government is on right lines, having as its aim the ultimate eradication of the disease as well as the relief of immediate suffering. But its working cannot be fully effective until it is possible to multiply the system of medical units in the native reserves so as to bring much larger numbers of the indigenous population under medical supervision.

The Medical Superintendents of the leprosy hospitals report very favourably upon the results obtained by iodised ethyl esters. Brilliant green and crystal violet were employed towards the end of the year at Mtemwa with most encouraging results and will be given further trial.

The physical condition of a leper is of the first importance to his recovery and receives much attention. The exercise involved in making 300,000 bricks for the institution under the direction of Mr. Smith afforded marked benefit to able-bodied lepers at Mtemwa, who thoroughly enjoyed their work. At Ngomahuru most of their clothing was made and seventy new huts were built by the patients.

The following table shows the working of the above-mentioned institutions during the year.

Lepers Treated in 1933.

	In hospital, 1.1.33.	Admitted, 1933.	Discharged or dead.	In hospital, 31.12.33.	Total cases treated, 1933.
Ngomahuru	399	134*	55	478	533
Mtemwa (Mtoko)	371	141	52	460	512
Mnene Mission Hospital ...	43	11	13	41	54
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	813	286	120	979	1,099

* Includes 7 re-admissions.

(5) DYSENTERY.

There were registered 13 European deaths from dysentery in 1933, as compared with 4 in 1932 and an average of 5 per annum in the last few years. It is regretted that in most of the cases there is no record of bacteriological confirmation. It is important to point out that 10 of these 13 deaths from intestinal disease were reported from the section of a large town which is still unsewered, and that their scattered distribution points to fly-borne infection. Seven deaths were of children under five years of age. The matter is being investigated by the local authority.

The returns of the Public Health Laboratory, Salisbury, indicate (a) that the bacillary form of the disease continues to be most frequently met with, although amoebic dysentery is by no means uncommon. (b) In the majority of cases of bacillary dysentery the causal organism was a member of the paradysentery group producing a type of case clinically less severe than the classical Flexner and Shiga organisms. (c) During 1933 both *B. dysenteriae* Flexner and *B. dysenteriae* Shiga were isolated with greater frequency than in former years, and this applies especially to the Shiga organism.

There is little doubt that these organisms are being transmitted to Europeans from the native and Asiatic races, and probably in a state of enhanced virulence.

(6) HELMINTHIASIS.

Europeans.—Bilharzia disease, either intestinal or urinary, constitutes the chief helminthic manifestation met with amongst Europeans. Urinary bilharzia is much commoner than the intestinal form. The current report of the Public Health Laboratory shows an incidence of 6.8 per cent. based on examination of 903 specimens of urine received from the Salisbury Hospital. Bilharzial dysentery is encountered amongst children from time to time, while acute appendicitis, due to the presence of bilharzia eggs in

the wall of the appendix, occurred three times during the year. In a further case extensive bilharzial invasion of the pelvic organs was revealed by operation. Eighteen out of nineteen children were found infected with urinary bilharzia in one poor European school and were treated free of charge by the Government, but re-infection is feared.

Natives.—Bilharzia disease occurs with much greater frequency in natives than in Europeans. Urinary bilharziasis was met with in 24 per cent. of the specimens of urine examined at the Salisbury Laboratory during the year under review. The intestinal form in natives shows a tendency to go on to gross hepatic cirrhosis with splenomegaly, ascites and severe emaciation.

Dr. Catherine Murray examined the urine of 1,000 unselected natives at Gutu Mission. In 623 natives of both sexes under thirty years of age, over 80 per cent. showed signs of infection, males and females being affected in nearly equal numbers. In 377 natives above thirty years the incidence was just over 30 per cent., approximating to Dr. Blackie's figures for natives admitted to Salisbury Hospital; females were more heavily affected than males. Dr. Murray's research reveals a very high incidence of bilharzia in young people in her district.

Other forms of helminthiasis are summarised in the report of the Public Health Laboratory.

(7) HUMAN TRYPANOSOMIASIS.

A small increase in sleeping sickness occurred during the year in the western border of the *Glossina morsitans* tsetse fly belt which covers a considerable part of the Sebungwe district and spreads into the western portion of the Hartley district. Two European cases with one death and six native cases with two deaths were reported. The area concerned in this outbreak is not large, being approximately seventy miles by thirty miles. The fly belt in the Sebungwe and west Hartley districts has long been regarded as dangerous, and persons are warned against entering it. In spite of this, it is regretted that a small number of hunters and prospectors continue to go there.

The number of cases is small in comparison with outbreaks which occur in other parts of Africa. Nevertheless it is desirable to define accurately the limits of infection, to discover any further native cases and to adopt measures to prevent the occurrence of more. The Government has therefore decided, as soon as the rains have ceased and the ground has become passable, to send fully equipped medical expeditions into these districts to carry out investigations and to adopt all necessary measures for combating the disease.

(8) SMALLPOX.

Southern Rhodesia is in constant danger of infection by smallpox introduced by immigrant natives from the heavily infected neighbouring territories, and the numerous outbreaks which occur in the Colony every year require prompt and energetic measures to prevent the spread of the disease in epidemic form. A total of 80 native cases were reported with six deaths. Amongst the European population, which is well vaccinated, no case has occurred for three years, nor has any native epidemic become established during that period. £1,095 16s. was spent by the Government on lymph during 1933.

(9) PLAGUE.

The danger of plague being introduced into Southern Rhodesia was fully discussed in my last report. Constant vigilance is maintained by the officers of this department to detect the invasion of our veld rodents by a disease which, as far as we are aware, has never as yet occurred in the Colony, and which would be so grave a menace to human life and so difficult to eradicate if once introduced. It is satisfactory to state that reports from the Union of South Africa are much more reassuring than in 1932.

(10) VENEREAL DISEASE.

Venereal disease occurs among the European population, but probably not to an excessive extent. Opinions differ as to its incidence among the native population, and the liability to confuse the later stages of syphilis with yaws increases the difficulty of forming any accurate estimation of the

extent of the former. While popular opinion probably exaggerates the extent of venereal disease among the natives, it is certain that it is sufficiently common both in towns and in the kraals to justify all possible measures being taken to combat it.

Unfortunately treatment is expensive, and even with a considerable expenditure it is only possible to deal with a limited number of cases. It is unlikely that the incidence will be materially reduced until it is possible to increase medical units in native reserves so as to include a large proportion of the population.

The Government maintains a number of hospitals throughout the Colony to which cases can be sent for treatment, and, in addition, subsidises native venereal disease institutions maintained by the Municipalities. Grants are given to medical missions, who treat a large number of cases. Anti-venereal drugs are supplied free to all approved institutions. On these measures the Government spend about £6,000 a year.

(11) PSEUDO-TYPHUS FEVER.

This tick-borne disease continues to be much more common than it was some five or six years ago, when it was recognised in Salisbury only. Cases are now reported with increasing frequency in all parts of the Colony. It would appear to have many features in common with the tick bite fever which occurs in Pretoria and many other parts of the Transvaal, and also with the similar disease in Kenya. The experimental work which is being done on the disease is alluded to in the report of the Director of the Public Health Laboratory.

(12) TYPHUS FEVER, RABIES.

Southern Rhodesia has for some years been free from these dangerous diseases which are not uncommon in neighbouring territories.

(13) YAWS.

Although large numbers of cases are dealt with annually, there is little prospect of reducing the incidence of this chronic infection until such time as the Government scheme for the treatment of natives has been extended to the lower and hotter parts of the Colony. Yaws is a serious ailment which responds rapidly to treatment.

(14) UNDULANT FEVER.

Occasional cases are reported, the type being mild. European patients numbered only two, the same as last year.

(15) TUBERCULOSIS.

There were 14 European deaths from tuberculosis during 1933, as against 17 in the previous year. Tubercular disease is less prevalent in Southern Rhodesia than in many older countries. Nevertheless, there are sufficient cases in the Colony to render separate provision for tuberculosis a matter of urgent necessity, both from the point of view of the consumptive himself and of the other patients who may be accommodated in the wards of our general hospitals.

(16) ENTERIC FEVER.

There were reported 30 European cases of enteric fever and 4 deaths during the year. The disease is common among the native population.

(17) MEASLES AND WHOOPING COUGH.

An extensive epidemic of measles in 1933 emphasised the point, to which attention has been drawn in my previous reports, that the climate and social conditions of Southern Rhodesia appear to be favourable to measles cases—699 European cases being reported, fortunately without a single death.

There were 109 cases and one death from whooping cough, a disease which in Southern Rhodesia appears to affect children as gravely as it does in England. In contrast to the Colony, measles and whooping cough in England are nearly equally harmful. Every possible effort should be made by parents to prevent their children from contracting whooping cough or from spreading it to others.

(18) SCARLATINA, CHICKENPOX AND GERMAN MEASLES.

As elsewhere, scarlatina continues to be of a very mild type. Chickenpox is so common amongst natives that our comparatively heavy incidence appears to be inevitable. The number of cases of German measles in 1933 was, as in previous years, quite small.

(19) INFLUENZA.

Influenza did not visit the Colony in epidemic form in 1933, and the deaths registered as due to it fell to 8 from 17 in the previous year.

(20) CEREBRO-SPINAL MENINGITIS.

This disease occurs among the native population, not infrequently in epidemics. Four European cases with one death were reported during the year.

CHAPTER III.—GENERAL.

(1) MENTAL DISEASE.

The treatment of mentally disordered persons in the Colony is in process of reorganisation with a view to placing it upon a modern footing. A whole-time alienist of first-class English experience has been appointed to the Government Mental Hospital at Ingutsheni, replacing the part-time services of the Senior Government Medical Officer at Bulawayo. This change is being followed by a reorganisation of methods of treatment and of legal procedure.

The necessity for such an appointment may be gauged by the annual returns of the hospital, which show that 99 Europeans and 358 natives, a total of 457 cases, were treated during 1933, and that 78 Europeans and 292 natives remained under treatment at the end of the year. Dr. Rodger has also commenced an out-patient clinic for psychiatric patients at the Memorial Hospital, Bulawayo, where it is hoped that early advice and supervision will prevent borderline cases from progressing to a state when residential treatment becomes necessary. These figures do not indicate an excessive number of mentally disordered persons in Southern Rhodesia; indeed they are considerably below the ratios reported in older countries in Europe.

The annual increase in numbers, which is to be expected in an institution of this kind, is now leading to a stage where it is in danger of being filled to its utmost capacity, as may be judged from the fact that with 80 beds for European patients, the daily average number under treatment during 1933 was 75. Such a small margin makes it extremely difficult to segregate suitably the various types of patients and provide for the control and treatment appropriate to each. It is therefore proposed to provide during the coming year certain additional accommodation which is considered essential.

One of the most important factors in the recovery of mentally disordered patients is to preserve as much contact as possible between them and the occupations of the world from which they are segregated. For this purpose it is essential to keep each patient's time filled with such duties or amusements as are possible in the circumstances, and, avoiding that apathy which overcomes patients in an institution, to stimulate the will to recover.

For providing occupational therapy for the male patients, it is proposed to appoint a special attendant who has sufficient knowledge and experience to superintend work on minor repairs to the hospital furniture and fabric, on the breeding of poultry and small stock, as well as continuing the work already in progress in the gardens and in mattress making. The amusement side for the Europeans is fairly well catered for through the kindness of the Bulawayo branch of Toc H, which provides a fortnightly cinema and occasional concerts. There is also an excellent radio-gramophone. On the other hand, the supply of newspapers and of literature is meagre and precarious, though a selection of suitable books for individual patients is of very great help, especially in the convalescent stages.

On the legal aspect of mental disease, it is intended that the Mental Disorders Bill, now in active preparation for submission to the Government, will embody the recent alterations in outlook and procedure in dealing with

the insane. The present laws are embodied in an Ordinance of 1908, with practically no amendments. In phraseology and in scope it can only be described as a survival from an unenlightened and less humane age, and it fails to deal with the feeble-minded class of mental defective, for whom expert treatment and care holds out most hope.

Under the new Bill, which will largely follow the lines of the Mental Treatment Act, 1930, of England and Wales, and of the Mental Treatment Act, 1932, of Northern Ireland, provision will be made for these children. The Bill will also provide for the temporary treatment, without certification and the stigma it entails, of patients likely to benefit by such temporary treatment. The object of this latter provision is to ensure as far as is possible that all sufferers from mental infirmity may have the most appropriate treatment available at the earliest possible moment, without the barrier which certification has hitherto set up. The horror with which patients with insight, as well as their relatives and friends, regard certification can only be fully appreciated by those who have come into personal contact with cases of mental disorder and have had to face the problem for themselves. It is certain that many cases lose their best opportunity for successful treatment in the early stages of the disease because of this dread, and the procedure now proposed has been found successful in other countries in obviating this difficulty.

A further provision will be a complete reform in phraseology whereby it will no longer be legally correct to speak of a "lunatic in an asylum," but to use the more appropriate expression "a patient receiving treatment in a mental hospital."

In this way a more enlightened outlook on the whole subject will slowly pervade all sections of the community, which will come to realise that there is no more disgrace to be attached to a person afflicted with a mental disease than to one suffering from pulmonary tuberculosis or cancer.

(2) THE HEALTH OF THE NATIVE.

The medical needs of natives working in towns and in their neighbourhood are fully catered for in the native departments attached to Government hospitals. In addition, the Government have recently erected three small native hospitals in European villages which previously had no such accommodation. These buildings are quite cheap, but enable excellent work to be carried out.

A limited amount of treatment is supplied in native reserves by subsidised mission hospitals, which do valuable work, but are mostly small and are few in number. Apart from these, the native population living in reserves and on Crown lands, which constitute the vast bulk of the natives in the Colony, was devoid of any means of medical treatment until the Government recently initiated a scheme to establish medical units in native reserves. This has been commenced in two areas, Ndanga and Mtoko.

The native medical unit at Ndanga, which was nearly completed by the end of 1933, will serve as an illustration. An experienced Government Medical Officer is stationed at a central point between Ndanga, Bikita and Gutu Reserves, where he will be supplied with a simple hospital block, consisting of an operating theatre, sterilising room, out-patient department and dispensary. Attached to these is a number of huts, twelve feet square, each capable of accommodating eight patients. Subsidiary to this hospital in various parts of the reserve are placed three sub-hospitals or clinics at distances of from 30-60 miles from the central hospital. These consist of similar huts with a dispensary attached, and are capable of dealing with both in-patients and out-patients, differing from the central hospital in that there is no operating theatre where major work can be carried out. Trained native orderlies of excellent character and high efficiency are employed, and the doctor visits each once a fortnight by means of a circular route, the journey occupying about four days.

The above is a typical native medical unit, though the subsidiary clinics may exceed three in number. It is well known that the native will travel considerable distances even when ill, and by this method medical facilities can be brought within reasonable distance of 80,000 to 100,000 natives by means of a number of cheap buildings and the services of a European doctor with a staff of native orderlies. When in full working, it

is estimated that 15,000 to 20,000 patients will be treated per annum, at a total cost of about £3,600.

Dr. Kennedy reports as follows:—At Ndanga, 17 huts of Kimberley brick, thatched and with earthen floors, have been erected at a cost of £80, or less than £5 per hut, while 32 other huts were re-thatched and put in good condition at a cost of 5s. per hut. The three subsidiary clinics were erected free of charge by the native population of the district, each clinic having about ten huts. It may be stated that natives much prefer small huts of the type mentioned above to formal hospital wards.

Part of this unit was in working during the entire year and part only towards the end. The number of in-patients was 3,921, and out-patients 4,013. In these hospitals are to be found all types of medical, surgical and obstetric cases. Certain diseases deserve special mention. Yaws is widely endemic in the district. Many are tertiary cases in a serious condition. Malaria is very prevalent, and almost all children show splenic enlargement during the months of February, March and April. Syphilis is common, but gonorrhœa is comparatively rare. There is much bilharzia. Pulmonary tuberculosis, which was specially investigated, was found to be by no means uncommon, and typical advanced cases in women and children who had never left the reserve tended to confirm the suggestion made in my recent reports, that tubercular infection occurs more frequently amongst indigenous natives than has hitherto been assumed. Whooping cough is very prevalent and the ordinary infectious diseases also occur, but typical diphtheria has not been seen.

Noticeable features were the readiness with which natives submitted to operations, including major operations under anaesthetics, the readiness with which relief is sought in midwifery cases, and the willingness with which patients enter hospital. For example, 58 deaths of patients in hospital during the year did not in any way diminish their confidence.

A similar unit is being established at Mtoko, where Dr. Leggate combines the dual function of Medical Superintendent of the leprosy hospital, which contains 460 lepers, and of doctor to the native medical units in the Mtoko and surrounding reserves. A central hospital of the same simple character as that described at Ndanga has been erected, and a clinic has been in working at Mrewa during the year. Owing to the density of the population and the lack of in-patient accommodation, the proportion of out-patients is greater than that at Ndanga. It is hoped to add an additional clinic during the coming year.

The following are the figures of these two native medical units during the year 1933:—

<i>Patients Treated in 1933</i>			
(Part of Year only).			
	In-patients.	Out-patients.	Total.
Ndanga	3,921	4,013	7,934
Mtoko	601	5,540	6,141
	<hr style="width: 50px; margin: 0 auto;"/> 4,522	<hr style="width: 50px; margin: 0 auto;"/> 9,553	<hr style="width: 50px; margin: 0 auto;"/> 14,075

The entire work is carried out in the closest co-operation with the Native Department officers, both central and local. We are specially indebted to Mr. H. N. Watters, Native Commissioner, Bikita, who, with Mrs. Watters, has for many years been a pioneer of medical work amongst the natives. His knowledge, ability and enthusiasm have proved invaluable, and his advice has been sought and given with equal readiness.

(3) NATIVE LABOUR ON MINES.

The Colony may justly be proud of the facts, shown in the following table, that the death rate from diseases among natives in mines has fallen steadily to less than half of what it was five years ago, and this point has been reached during the year in which the number of natives employed was the largest on record.

Table I.—Natives on Mines.
Death Rates from Diseases, 1929-1933.

Death Rate per 1,000 Employed.	1929	1930	1931	1932	1933
Pneumonia	10.32	8.34	5.97	4.63	3.98
Other diseases	8.37	6.85	6.64	4.88	5.22
Total disease death rate	18.69	15.19	12.61	9.51	9.20

The principal factor in this fall is the drop of 61 per cent. in the death rate from pneumonia, the chief and most intractable enemy of the native miner. The recent increase in small workings means smaller congregations of natives, with diminished risk of infection, and also operations at a lesser depth. But the accompanying drop of 38 per cent. in other diseases supports the view that this steadily falling death rate reflects a real improvement in hygienic conditions, and much credit is due to the able officers of the Native Department seconded to my staff for the purpose of supervising the health of these natives.

The death rate from accidents remains the same as it was five years ago, 2.3 per 1,000 natives employed. Every such death is carefully enquired into, and while this loss is regretted, it is doubtful whether much reduction is possible.

The following tables, prepared by the Government Statistician, give further details in regard to the morbidity and mortality amongst natives employed on mines, the average number of whom was 48,242, or 1,261 more than 1929, the next highest year. The figures in these tables are provisional, but it is not anticipated that the final returns will differ to any important extent.

Table II.—Natives on Mines.
Cases of Sickness, Deaths and Death Rates, 1933.

Disease.	Total sick.	Total deaths.	Death rate per mille per annum.
Malaria	3,022	19	0.39
Scurvy	124	13	0.27
Syphilis	468	13	0.27
Pneumonia	781	192	3.98
Phthisis	71	41	0.85
Other diseases of chest	957	16	0.33
Dysentery	152	17	0.35
Diarrhœa	304	...	...
Other intestinal diseases	111	18	0.37
Heart disease	37	28	0.58
Debility	163	6	0.12
Influenza	2,856	11	0.23
Other diseases	1,852	70	1.46
Minor ailments	12,992	...	...
Total	23,890	444	9.20
<i>Accidents and Injuries—</i>			
Major	261	111	2.30
Minor	8,730	...	...
Total	32,881	555	11.50

Table III.—Natives on Mines.
Comparative Statement of Mortality, 1929-33.

	1929.	1930.	1931.	1932.	1933.
Average number employed	46,981	45,342	35,202	36,050	48,242
Disease—					
Number of deaths	876	687	444	344	444
Death rate per mille per annum	18.65	15.15	12.61	9.54	9.20
Accidents—					
Number of deaths	110	98	87	93	111
Death rate per mille per annum	2.34	2.16	2.47	2.58	2.30
All Causes—					
Number of deaths	986	785	531	437	555
Death rate per mille per annum	20.99	17.31	15.08	12.12	11.50

(4) SPREAD OF DISEASE BY AIRCRAFT.

In my previous reports the danger of the introduction of communicable diseases by means of the rapid transport afforded by aircraft has been fully set forth. Many such diseases are capable of introduction in this way, but the one most to be dreaded is yellow fever. The home of this disease is the west coast of Africa, and with the extension of air routes it will be possible for a patient to be infected at a distance without showing signs of illness before he has entered the Colony. Southern Rhodesia contains the necessary mosquito, *Aedes aegypti* (*Stegomyia fasciata*), and it is possible that the disease may be spread by other mosquitoes occurring in the Colony. The introduction of yellow fever, which is so difficult to eliminate once it has invaded a native population, would be little short of a catastrophe and it is necessary that proper steps be taken to avert this danger.

The necessary precautions have been laid down with great care by the League of Nations, a careful balance being obtained between the need for protecting a country on the one hand and the necessity for interfering as little as possible with aerial traffic on the other hand. It is unnecessary to detail these precautions here, but it is satisfactory to report that towards the end of the year the Government undertook to become participants in the Convention.

Similar action has been taken by the Government of the Union of South Africa, and it is greatly to be hoped that other Governments along the main continental air routes will also fall into line. It is considered most desirable that the same measures should be adopted at the different air ports visited by aeroplanes.

(5) SCHOOL MEDICAL SERVICE.

The scheme of school medical inspection was continued as previously; 4,376 children were examined by the School Medical Officer and by Government Medical Officers at the schools in their immediate vicinity.

During the year practically all entrants and scholars in their last school year were examined, as well as a number of intermediates in two groups,

viz.: those reaching ten and thirteen years of age respectively. Many re-examinations were also carried out, in addition to the special examination of pupils referred by their parents or by the principals of schools.

Mentally Retarded Children.—Dr. A. Clark tested 85 subnormal children during the year by means of intelligence tests, with the result that 32 were classified as normal, 51 as feeble-minded and 2 as imbeciles.

The tests were a combination of the Stanford Revision of the Binet-Simon Tests with the Yerkes-Bridges Point Scale and the various maze and board tests.

Physical Education.—The results of the remedial exercises on children referred to the physical training instructors continue to be uniformly excellent. The majority of the children become very enthusiastic over their exercises and are reluctant to give them up, even after ceasing to attend for individual tuition.

Results of Medical Examination.—The defects noted and recommended for treatment among the 4,376 school children examined during the year are set out in the attached tables. These call for little comment, except in the classes of eye and postural defects.

In the former group the parents of 166 children were notified that further investigation was required on account of defective vision, and it is with regret that again attention has to be drawn to the apathy of the parents, even within reasonable reach of expert advice, which allows many of the children to continue year after year without suitable corrective glasses to the further detriment of their vision and of their learning capacity.

The position with regard to postural defects is more satisfactory. Of the numbers requiring treatment, 81 were boys and 35 girls, and it has been possible to arrange for a considerable proportion to receive individual instruction in remedial exercises. Nearly 60 per cent. of the defects were for poor chest expansion and round shoulders.

There has been a marked drop in the numbers noted to be suffering from mal-nutrition, but, as would be expected in a severe malarial year, the number of grossly enlarged spleens rose by 25 per cent. This again is evidence of apathy on the part of parents who neglect to have their children efficiently protected from malaria or fail to secure adequate treatment when attacks supervene.

Otherwise, the health of the school children is very satisfactory.

School Dental Service.—There was a considerable increase in the amount of work performed, 2,259 children being examined as opposed to 1,640 in the previous year. The actual figures were:—

Number of children examined	2,259	
Number of children treated	741	
Number of fillings—		
Temporary teeth	170	
Permanent teeth	1,287	
	—	1,457
Number of extractions—		
Temporary teeth	836	
Permanent teeth	236	1,072
Number of other operations	113	

The comparatively small number of extractions of permanent teeth is an index of the sound conservative work performed by the school dentists in circumstances which do not lend themselves readily to conservative measures, for it is rarely possible for these officers to spend more than a few days at any one centre.

Cases Recommended for Treatment, 1933.
4,376 Children Examined.

	Number referred for treatment.						Total.
	Group 1.	Group 2.	Group 3.	Group 4.	Group 5.	Group 6.	
	Entrants.	First Intermediates.	Second Intermediates.	Leavers.	Re-examination.	Specials.	
Malnutrition	6	3	3	3	6	2	23
Uncleanliness ... ..	...	...	...	...	...	...	...
Bilharzia	3	...	4	2	5	8	22
Skin—							
Ringworm ... ..	...	...	...	...	...	...	...
Impetigo ... ..	...	1	...	...	2	...	3
Veld sores ... ..	...	...	...	...	...	...	...
Other diseases	6	3	3	6	4	1	23
Eye—							
Blepharitis ... ..	...	1	...	...	2	...	3
Conjunctivitis	1	1	...	...	...	2	4
Defective vision	33	18	25	35	36	19	166
Squint	1	2	...	...	2	1	6
Other conditions	3	3	5	6	6	3	26
Ear—							
Defective hearing	10	10	4	5	9	1	39
Otitis media	4	1	5	3	2	4	19
Other ear diseases	2	...	...	...	1	1	4
Nose and Throat—							
Enlarged tonsils ... ..	...	...	...	...	...	...	...
Slightly enlarged tonsils	28	21	14	12	34	13	122
Enlarged tonsils and adenoids	12	6	4	2	23	3	50
Defective speech	1	...	...	...	...	...	1
Other defects	36	15	17	12	28	11	119
Heart—							
Organic disease ... ..	...	1	...	1	2	1	5
Functional disease ... ..	...	...	1	1	5	2	9
Anæmia	1	...	...	...	2	1	4
Lungs—							
Bronchitis ... ..	...	...	...	...	...	...	...
Other non-T.B. diseases ... ..	...	...	...	...	...	...	...
Tuberculosis—							
Glands ... ..	...	...	...	...	...	...	...
Hip ... ..	...	...	...	...	...	...	...
Other bones and joints ... ..	...	...	...	...	...	...	...
Nervous System—							
Epilepsy ... ..	...	...	...	2	...	1	3
Chorea	1	...	...	...	1	...	2
Other conditions ... ..	...	1	3	1	4	1	10
Spleen—							
Much enlarged	11	9	4	7	11	11	53
Slightly enlarged	3	8	2	1	4	3	21
Other diseases and defects	14	5	14	21	24	22	100

Postural Defects, 1933.

	Number referred for Treatment :		Number requiring to be kept under Observation :		Total Defects.
	Boys.	Girls.	Boys.	Girls.	
Flatness and poor expansion of the chest wall	33	5	6	...	44
Round shoulders	20	10	...	12	42
Curvature of the spine	2	11	...	1	14
Pigeon chest	4	...	1	1	6
Other deformities	22	9	...	1	32

(6) GOVERNMENT DENTAL SERVICE.

Two whole-time dentists are stationed at Salisbury and Bulawayo respectively, the Colony being divided into two districts for this purpose. Most of their time is devoted to Government schools, but a number of other duties are carried out including dental care of the B.S.A. Police, and as much time as possible is given to the treatment of difficult cases among paupers and prisoners, and to patients at the mental hospital, etc.

This was the second year in which Government dentists undertook the treatment of the Police under the direction of Mr. R. Woodcock, the Senior Government Dentist, and the results have proved highly satisfactory. The annual examination of all members of the Force is preventing mouths from getting into a bad condition, and it is anticipated that the necessity to supply artificial teeth will greatly diminish in the future.

The following table shows the work done during the year, apart from work done in schools which is referred to under the appropriate section,

	B.S.A. Police	Salisbury	Bulawayo
No. of patients		143	77
No. of fillings (perm.)		158	145
No. of fillings (temp.)		34	—
No. of extractions		31	63
No. of scalings		32	29
No. of root treatments		4	5
No. of gold inlays		7	—
No. of other minor operations		40	36
Pauper Patients, Prisoners, Mental Hospital.			
No. of extractions		91	385
No. of fillings		—	100*
No. of other minor operations		17	18

* Chiefly European patients at the Mental Hospital.

(7) HEALTH OF THE B.S.A. POLICE.

European.—During the year the number of cases receiving attention for illness or injury was 824, necessitating abstention from duty for 9,347 days. There were 100 dental cases. The chief causes of disability were injuries, both major and minor, diseases of the digestive system including appendicitis, and minor medical cases.

Individual features calling for comment are the increased number of cases of blackwater fever (5, with 1 death), whilst there was a slight diminution in acute malarial cases. The Force was very much less affected by the waves of influenza which were so much in evidence during 1932. Dysentery has shown, in common with the civilian population, a decided increase both in numbers and severity, but enteric fevers are absent except for one case remaining on the sick reports from the previous year. The marked improvement in the latter disease is taken to be a result of the policy of inoculation introduced three years ago, when cases of enteric fever amounted to an average of nine per annum. Venereal diseases, almost all gonorrhoea, continue at the low figure of 1.23% of the strength. There were again two deaths during the year—one from sudden heart failure and the

other from blackwater fever. Discharges medically unfit numbered four, one for disability from injuries received prior to enlistment but only becoming apparent during training.

Native.—There was an increase from 1,327 to 1,428 cases coming under treatment, but the number of days lost per case fell from 8.97 to 8.90. The chief causes responsible for this were marked rises in the incidence of dysentery, conjunctivitis and other eye diseases and minor medical and surgical complaints.

Almost all other groups showed considerable improvement, except the incidence of malaria and venereal disease, which were stationary. Of the total strength 8.06% suffered from venereal disease, the chief centres being Umtali, Fort Victoria and Bulawayo.

General.—Taking the estimated average strength for Europeans as 448, the number of days lost per man is 19.2; for the 943 native troops the corresponding figure is 13.5 days.

(8) TOWN PLANNING.

Sections 110 (1) (h), 111 (1) and (2) and 112 of the Public Health Act, 1924, were repealed by the Town Planning Act, which came into force on 1st August, 1933, and the Town Planning Committee which had worked under the former Act ceased to exist, their functions being merged in the larger responsibilities of the Town Planning Board appointed under the Town Planning Act.

During the seven months in question thirty-four applications were dealt with by the Committee.

CHAPTER IV. HOSPITALS AND LABORATORIES.

(1) HOSPITALS.

The Government of Southern Rhodesia exercise a dual function in regard to hospitals. They provide (a) hospitals for the sick poor, both European and native, and (b) hospital accommodation for paying patients amongst the European population. In other words, they supply the needs which are met by hospitals and also by private nursing homes elsewhere.

This position is probably unique in the self-governing colonies. It is of great benefit to the public, who receive in the private wards of Government hospitals services far superior to those which proprietary nursing homes can offer, and also accessory services such as bacteriological laboratories, X-ray and massage departments. Further, these services are given to the public at a cheaper rate than they could be provided by private nursing homes, who have to pay a dividend. These advantages cannot be supplied to the public without considerable expense to the Government Exchequer. The total cost of our hospitals and dispensaries, not including erection and maintenance of buildings, is roughly £100,000 per annum, while the revenue is less than £30,000 per annum. In other words, the Government are bearing over two-thirds of the total cost of these institutions.

Certain world wide factors have been tending during the last decade to increase the demand for hospital accommodation. These are (a) increased public appreciation of the value of the treatment of illness in hospitals; (b) facilities for rapid transport of the sick over long distances by motor cars; (c) the growth of accessory hospital services of the type referred to above. There is also a tendency to centralisation of the treatment of the sick in the larger towns such as Bulawayo and Salisbury. The Government are meeting this demand by systematic schemes for hospital development in Salisbury, Bulawayo and Gwelo. When these are completed the best modern facilities in the way of hospital buildings and equipment will be rendered available.

In Bulawayo, which has the largest European population in the Colony and which also is the largest industrial centre, the Government have selected a magnificent site at a convenient distance on the edge of the town, where the largest medical institution in the Colony will be erected. This will include a European general hospital and native hospital, as well as a mid-wifery institution which will cater for both paying and non-paying European

patients and also for coloured and native women. A midwifery organisation will thus come into being containing sufficient beds to enable a training school for midwives, both European and native, to be attached thereto. This will meet a badly required want in the Colony. On this site it is proposed to concentrate the medical services of Bulawayo, and the Municipality have arranged to erect their new fever hospital nearby.

The year 1933 saw new records created both in the number of admissions to Government Hospitals and in the number of out-patients attending at these institutions.

The details may be seen in the following tables:—

<i>Admissions.</i>				
	1930.	1931.	1932.	1933.
Europeans	5,272	5,093	5,369	5,822
Natives	8,180	7,466	7,924	10,057
	<hr/>	<hr/>	<hr/>	<hr/>
	13,452	12,559	13,293	15,879
<i>Out-Patients.</i>				
			1932.	1933.
Europeans			8,594	8,996
Natives			13,487	13,563
			<hr/>	<hr/>
			22,081	22,559

These figures do not include patients treated at native dispensaries and clinics.

In-Patients.—The marked rise in the number of in-patients admitted to the hospitals is accounted for, as far as Europeans are concerned, almost entirely in the larger hospitals of Salisbury and Bulawayo; Gatooma, Gwelo and Umtali being also more in demand than previously.

Out-Patients.—A gradual but slow increase is taking place in the number of out-patients. This is to be anticipated under existing economic conditions. It is not, however, intended that the Government should provide out-patient facilities at a cheap rate for persons able to afford the ordinary charges for medical attention, but only for the indigent and poorer members of the population.

Salisbury Hospital.—At 2,339 European admissions during the year, this hospital shows an 18% increase on the previous record year (1930) and an increase of 414 on the figures for 1932. This may be partially accounted for by the increased accommodation, but also to the decrease in the average number of days each patient spent in hospital, which in the case of this hospital has fallen from 15.5 to 12.9 days—a very satisfactory index of the hospital's efficiency. European out-patients numbered 3,899 or 565 in excess of 1932. The decline noted in the admission of native patients during the past three years has now discontinued and this year's total of 1,688 is 53 cases higher than the 1930 record and 262 more than in 1932; that this increase is not at the expense of the out-patients is shown by an increase in that section of 674 patients to the new record of 3,935.

In the operating theatre the total number of operations performed numbered 1,525, of which 466 were major and 1,059 minor. The corresponding figures for 1932 were 1,433, 487 and 946. The X-ray plant was much utilised, 1,222 patients having been investigated as opposed to 1,072 in 1932.

In June the new wing, completing the original plan of the hospital, was opened. This contains six more private wards and a private balcony ward upstairs, and a very well equipped and spacious children's ward of 15 cots downstairs. This latter ward has been named the Fleming Ward as a tribute to the work of Dr. A. M. Fleming, C.M.G., C.B.E., my predecessor. At the close of the year several minor structural alterations were in progress improving the amenities of the kitchen and the eastern sanitary block and plans are in active preparation for a new block to contain an operating theatre suite, a radiological department, including therapeutic as well as diagnostic units, a physiotherapeutic department and a more satisfactory out-patient and casualty section. This new building will also provide a possible means of extension of the hospital ultimately towards the reserved land to the north, when further additions to the hospital become necessary.

Memorial Hospital, Bulawayo.—The number of European admissions to this hospital continues steadily to rise; the figure for the year under review (1,739) being an increase of 49 on 1932, and the number of native admissions shows that the decline which has been noted over the past four years has now ceased and an increase of 379 admissions to 1,976 is to be marked as a record.

European out-patients at 3,649 and natives at 5,720 show a decrease of 378 and an increase of 79 respectively on the previous year's totals. { 5,720 = INCREASE OF 99.

In the X-ray Department, 884 patients were investigated; this figure is a decrease of 13 on the previous year and 224 on 1931, more cases being treated privately. The Physiotherapeutic Department carried out 1,979 treatments on 211 patients as compared with 2,089 treatments on 197 patients; thus maintaining a steady level of efficient usefulness. The operating theatre was much utilised, 1,633 operations being performed; of these 535 were major and 1,098 minor. The figures for 1932 were 1,464;? (551 and 924): 1,475

The accommodation at the hospital became so congested during the year that it became necessary to rent a private house in the vicinity, make the necessary alterations and bring it into use as a children's hospital. Whilst this is a satisfactory temporary solution it is a definite indication of the necessity of pressing forward with the plans of the new hospital to be built on the selected site next to the Lady Rodwell Maternity Hospital.

The new wing of the Nurses' Home was also completed and the nursing staff is now comfortably housed.

Umtali Hospital.—Total admissions for the year at 1,061 show an increase of 45. Of the total 397 were European and 664 were natives, being increases of 32 and 13 respectively. The number of European out-patients treated (54) is the same as the preceding year, but for the natives there was a decrease of 12 to 879. In the operating theatre there was a decrease of 102 cases, the actual number being 172 only. There were 141 radiograms taken during the year.

Gwelo Hospital.—Of the 1,057 total admissions to this hospital, 392 were Europeans and 665 natives, being increases of 11 and 146 respectively. In the out-patient department, 446 European and 1,214 native attendances were recorded. These figures are to be compared with 391 Europeans and 1,272 natives in 1932. The operating theatre was in much greater demand than formerly; in all 301 operations were performed (115 major and 186 minor). The corresponding figures for 1932 were 236 (105 major and 131 minor).

The new native hospital is an excellent building and almost ready for occupation; it is hoped that arrangements may be made for it to be opened by H.R.H. Prince George on his visit at the end of March. Plans are also being prepared for a new European hospital and nurses' home so that the whole medical centre may be moved to the open site just outside the township on the Selukwe Road.

Gatooma Hospital.—The work of this hospital increased by 21% during the past year, the actual figures being for 1933—total admissions 1,145, of which 416 were European and 729 were natives, and for 1932—942 admissions, 324 of which were Europeans. One hundred and sixty-four operations were performed, 30 being classified as major.

In the venereal disease hospital attached to the Gatooma native hospital, 789 cases were admitted, a decrease of 70 on the preceding year.

Fort Victoria Hospital.—The decrease in the number of European patients admitted to this hospital which has been noted each year for some years has now ceased; and at 145 admissions the figure is higher than any year since 1930. Native admissions at 327 is an increase of 8 over the previous year. Seventy-four operations were performed—35 being classified as major, thus creating record figures for the hospital.

Sinoia Hospital.—From the record number of admissions of 193 Europeans in 1932, there has been a fall to 146 cases, but the natives admitted have increased from 458 to 519. The number of operations performed dropped, from 116 to 53, of which 15 were major. One hundred and seven European and one hundred and thirteen native out-patients were treated.

A new nurses' home to replace the dilapidated structure previously in use is in process of building, and also a small wing of two wards and a labour theatre to be used as a maternity block.

Enkeldoorn Hospital.—After a temporary rise in European admissions noted last year, the number of 1933 (126) is a return to the level of 1931. Native admissions at 445 show a gain of 10 on 1932.

New accommodation for native staff has been erected during the year, and a new nurses' home now nearing completion will give three more private wards for use in the hospital itself.

Shamva Hospital.—Fifty-six European admissions to this hospital constitutes a 50% drop on the figures for 1932, but in the native section there was a rise of 70 cases to 503, of whom 196 cases were treated in the venereal disease clinic. Seventy-six European and twenty-one native out-patient attendances were also recorded.

Gwanda Hospital.—The work of this hospital has also decreased very considerably, only 37 Europeans having been admitted as compared with 59 in 1932. The native figure was 597 as compared with 743, but as these figures include 223 and 498 venereal disease patients respectively, there has been an actual rise in numbers of general surgical and medical native cases dealt with. Forty-four European and eighty-one native out-patient attendances were also recorded.

Ingutsheni Mental Hospital.—There were 135 admissions during the year under review; of these 30 were European—an increase of 7 on the previous year; the natives showing a 30% rise to 105. In all 457 cases were treated, but the recovery rate fell to 24.57%—the lowest rate recorded for many years.

At the end of the year there remained in residence ³⁷⁰~~374~~ patients (52 male and 26 female Europeans; 225 male and 67 female natives), a net increase of 52 over the figures for the preceding year. The death rate calculated on the number of patients treated was 10.06% which compares very favourably with the 1932 figure of 16.36%.

A house for the recently appointed Medical Superintendent, and three cottages for the use of the married members of the male European nursing staff, have been completed during the year and are now in occupation. Various minor improvements to the native male section are now in progress and will help in avoiding the over-crowding, but considerable alterations to the older portions of the building will be essential in the near future in order more suitably to accommodate and treat the male patients.

Further reference to the hospital is contained in the section of this report dealing with mental disease.

(2) LABORATORY SERVICES.

(1) *Public Health Laboratory and Pasteur Institute, Salisbury.*

The Director of the Public Health Laboratory reports as follows:—

The work of the laboratory continues to show a steady increase. On the routine side 16,687 examinations were carried out during the year, an increase of 3,387 on the total examinations for the previous year.

1. BACTERIOLOGY:

Faeces, European.—306 specimens of stool were cultured, but pathogens were isolated from 60 only. It is not yet fully appreciated by practitioners and nurses that all specimens of stool for bacteriological analysis must be submitted to the laboratory with the least possible delay. Failure to appreciate this fact accounts for the high percentage of negative cultural results reported in the case of stools showing all the microscopical characters of acute bacillary dysentery. A summary, however, of 30 cases of bacillary dysentery from which pathogens were isolated is of interest: *B. dysenteriae* Shiga, 3; *B. dysenteriae* Flexner, 9; *B. dysenteriae* Dispar, 11; *B. paradyenteriae*, 7. In respect of the classical dysentery bacilli, each case was confirmed serologically. In addition to specimens from cases of bacillary dysentery, a large number of stools were submitted from cases presenting the clinical features of gastro-enteritis. The following is a summary of the

cultural results obtained in a series of 30 cases: *B. typhosus*, 1; *B. paratyphosus* "A", 1; *B. faecalis alkaligenes*, 8; *B. morgani*, 2; *B. enteritidis* (Gaertner), 1; *B. asiaticus*, 9; *B. proteus asiaticus*, 8. *Faeces, Natives*.—The cultural examination of native stools was confined to 18 specimens only, from which 12 positive results were obtained. From cases of bacillary dysentery *B. dysenteriae* Flexner was isolated five times, and *B. paradysenteriae* once. From stools other than bacillary stools *B. typhosus*, *B. faecalis alkaligenes* and *Proteus asiaticus* were each isolated twice. It would appear that, so far as Salisbury is concerned, acute bacillary dysentery is met with considerably more frequently than the amœbic form of the disease, which, however, is by no means rare. Furthermore, from a study of the previous reports of this laboratory, the cultural results for the current year show by comparison an appreciably higher incidence of the classical dysentery organisms—a fact of considerable interest from the viewpoint of serum therapy. While the severity of an attack of bacillary dysentery is determined to some extent by the particular pathogen concerned, even with the same causative organism, the seasonal severity of the disease varies considerably—a fact which serves to explain fluctuations in the mortality returns and accounts to some extent for the uncertainty of serum therapy.

Urines.—483 specimens of urine were cultured and *B. coli* or one of the coliform group isolated from 259. This remarkably high incidence of *B. coli* infection of the urinary tract is commented on more fully under the section on clinical pathology. *Blood Cultures*.—42 blood cultures were made during the year, with 8 positive results, as follows: *B. typhosus*, 7; *B. faecalis alkaligenes*, 1. The difficulties associated with the carrying out of blood cultures at a distance from the laboratory have been overcome by adopting a simple method of blood culture first suggested by McCartney (1931). *Throat Swabs*.—696 throat swabs were cultured for the purpose of isolating the Klebs Loeffler bacillus, and 100 positive cultural results obtained. No virulence tests were made this year. *Sputa*.—Using the anti-formin concentration method, 188 specimens were examined for the presence of tubercle bacilli and a positive result returned in 22 cases (Europeans 15, natives 7). *Urethral or Cervical Smears*.—315 smears were examined and the gonococcus demonstrated in 50 (Europeans 38, natives 12). It should be noted that these figures in no way represent the relative incidence of gonorrhœa amongst natives and Europeans. *Leprotic Material*.—45 specimens in the form of either nasal scrapings or skin snippings were examined for the presence of *M. lepræ* and 18 positive results obtained. All the positive results except two were obtained from material received from the Mtoko Leprosy Hospital. *Cerebro-spinal Fluids*.—Cultural examinations were carried out on 30 specimens of cerebro-spinal fluid and 27 positive results obtained as follows: *Meningococci*, 16; *Pneumococci*, 5; *Staphylococcus aureus*, 2; *B. influenzae*, 2; *Hæmophilus meningitides*, 2. *Water, Milk and Ice-cream*.—The *B. coli* content and organisms per cubic centimetre were ascertained in 32 samples of water, 21 samples of milk and 10 samples of ice-cream. *Vaccines*.—82 autogenous vaccines were prepared and issued during the year.

2. SEROLOGY:

Agglutination Tests.—During the year 300 sera were tested for specific agglutinins, using the standard agglutinable cultures of the Oxford School of Pathology. Of that number 221 were from Europeans and 79 from natives. The number of cases in which diagnostic agglutination titres were obtained may be summarised as follows: *B. typhosus*, European 30, natives 22; *B. paratyphosus* "A", European 4, native 1; *B. paratyphosus* "B", European 2, native 1; *Brucella*, European 7; *B. dysenteriae* Flexner, European 2. It is a matter for regret that medical practitioners continue to depend so exclusively on a single Widal reaction for the laboratory diagnosis of enteric infections. It is but seldom that the laboratory is asked to carry out blood culture in suspected cases, and even more rarely is it asked to demonstrate a rising titre. *Complement Fixation Tests*.—The Wassermann test was carried out on 1,574 sera during the year, with the following results: Positive, 450; doubtful, 68; negative, 1,056. A memorandum on the collection and transmission of sera for laboratory investigation was drawn up and issued towards the end of the year in order

to improve the quality of the sera received at the laboratory, since it is important to bear in mind that in complicated serological tests a good specimen of serum is more likely to furnish satisfactory results than a bad one.

3. PATHOLOGY:

Post-mortem Examinations.—201 post-mortem dissections were performed at the Salisbury mortuary during the year—clinical 120, medico-legal 81. While it is not proposed to give a full analysis of the pathological lesions demonstrated, the following native cases of special interest may be mentioned: Primary carcinoma of liver, 7 cases; faucial diphtheria, 1 case; rupture of heart at site of an apical gumma, 1 case; tuberculoma of brain with terminal tubercular meningitis, 1 case; splenic abscess, 2 cases. The liver cancers were all of the liver-cell type and were not associated with any severe degree of hepatic cirrhosis. In only one case were metastases demonstrated microscopically. *Histological Examinations.*—The amount of material submitted for histological investigation is steadily increasing. During the year 211 histological reports were issued, and, in addition, a large number of sections were prepared from experimental material.

4. PARASITOLOGY:

Fæces.—The following constitutes a summary of the reports issued on 1,535 specimens of stool: European specimens, 546. Protozoa: *Giardia lamblia*, 14; *Entamoeba histolytica*, 3; *Iodamoeba bütschlii*, 1. Helminths: *Tænia* sp., 3; *Hymenolepis nana*, 1; *B. mansoni*, 6; *B. hæmatobium*, 3; hookworm, 3; *Oxyuris vermicularis*, 5; *Ascaris lumbricoides*, 1; *Strongyloides stercoralis*, 3; *Heterodera radicecola*, 3. Native specimens, 989. Protozoa: *Entamoeba histolytica*, 5. Helminths: *B. mansoni*, 160; *B. hæmatobium*, 18; *Tænia* sp., 18; *Hymenolepis nana*, 3; *H. diminuta*, 1; hookworm, 201; *Strongyloides stercoralis*, 17; *Ternidens deminutus*, 9; *Ascaris lumbricoides*, 8; *Trichuris trichiura*, 4; *Oxyuris vermicularis*, 3. The protozoal returns must necessarily give rise to the impression that amœbic dysentery is of infrequent occurrence in this country. More recently, however, special attention has been paid to the incidence of intestinal amœbiasis amongst natives and Europeans, and there is already evidence to show that it occurs much more frequently than was believed hitherto. It is hoped to be able to continue the investigation of this subject during 1934.

Urine.—Europeans: In an examination of 903 specimens (from children and young adults) the eggs of *B. hæmatobium* were found on 62 occasions—an incidence of 6.8 per cent. Natives: *B. hæmatobium* was demonstrated in 259 of the 1,080 specimens examined—an incidence of approximately 24 per cent. In 10 cases the eggs of *B. mattheei* were demonstrated in conjunction with those of *B. hæmatobium*. *Blood.*—Plasmodia: Europeans: 1,082 films were examined for evidence of malarial infection. *P. falciparum* was demonstrated on 166 occasions and *P. vivax* 4 times. Natives: 110 blood films were examined and *P. falciparum* demonstrated in 18. *Trypanosomes*: 89 blood films were examined, trypanosomes demonstrated in 1 (European) case and subsequently identified as *T. rhodesiense*. *Filaria Embryoes*: The embryoes of *F. bancrofti* were demonstrated once during the year in a northern native suffering from elephantiasis of the right inferior extremity, and in the course of a special investigation *F. perstans* was found in 32 out of a total of 70 indigenous natives examined.

5. BIOCHEMISTRY:

The biochemical work of the laboratory continues to increase steadily, particularly in the direction of blood analysis and fractional test meals. The following is a summary of the 482 biochemical investigations carried out during the year:—*Blood Examinations*: Sugar (Folin), 77; sugar tolerance tests, 40; urea, 78; non-protein nitrogen, 67; chloride, 2; cholesterol, 3; calcium, 11; inorganic phosphate, 5; bilirubin, 28. *Urine*: Urea, 14; urea concentration test, 3; glucose (quantitative test), 11; urobilin, 28; spectroscopic examinations for hæmoglobin derivatives, 22. *Fæces*: Occult blood, 3; analysis of total fat, neutral fat and fatty acid

content, 1. *Cerebro-spinal Fluid*: Protein, 1; Lange's colloidal gold test, 2. *Fractional Test Meals*: 87. An analysis of the results of the fractional test meals shows that hypochlorhydria and achlorhydria are met with twice as frequently as hyperchlorhydria. While it is realised that the fractional test meal is at best but an uncertain index of gastric function, it is of interest that the average red cell count in all cases in which the presence of free HCl never exceeded 10 amounted to 3,800,000 per cubic millimetre, the anæmia being chiefly of the simple hypochromic type.

5. CLINICAL PATHOLOGY:

Hæmatology.—393 full blood counts and 149 differential leucocyte counts were carried out during the year. The frequency with which blood counts are asked for has brought to light a high incidence of "anæmia" amongst the European population. In the great majority of cases the anæmia is characterised by a red cell count of about 3,500,000 per cubic millimetre, hæmoglobin percentage of 55 to 60 (Newcomer), a colour index below unity and a low reticulocyte count. The fragility of the erythrocytes presents no significant deviation from normality, and there is no evidence of intravascular hæmolysis. The white cells are frequently diminished with a slight mononucleosis, particularly in the case of individuals who give a history of attacks of malaria. The platelets appear to fall within the normal range. These cases almost invariably respond satisfactorily to massive doses of iron and a dietary containing an adequate content of vitamins B and C. In a smaller number of cases the anæmia is frankly of the megalocytic type, although only a small percentage of these can be classed as true Addisonian anæmia. These cases all respond well to liver therapy, and under the climatic conditions which obtain in Salisbury no difficulty is experienced in maintaining the red cell count up to 5,200,000 per cubic millimetre even in frank Addisonian anæmia. Not infrequently, however, cases of anæmia are met with which defy all attempts at classification.

Blood Grouping.—The blood group was ascertained on 16 occasions. A small transfusion service is still maintained and was called upon ten times during the course of the year. There are now sixty donors available, and I wish to accord my appreciation of the prompt response of all donors when called upon. The practice of giving blood transfusion during the early phases of an attack of blackwater fever, irrespective of the existence of intravascular hæmolysis, is being continued with consistently favourable results.

Urine.—A chemical and microscopic examination was carried out on 1983 specimens of urine (native and European). An unusually high incidence of albuminuria has been noted repeatedly amongst the native urine specimens examined in this laboratory, and during the year 466 native urines received on consecutive days were made the subject of special investigation. Of 466 specimens examined, albumin was found in 275, while granular or hyaline casts were demonstrated in 137 of the specimens giving positive albumin reactions. The blood urea and non-protein nitrogen were estimated in 12 cases of albuminuria showing numerous casts. The average of the results so obtained is as follows: Blood urea, 24 mgms. per 100 c.c. of blood; and N.P.N., 40 mgms. per cent. These figures suggest that in spite of albuminuria and casts there is no significant degree of impairment of renal function. It is hoped, however, to continue investigations on this subject. A point of interest in connection with specimens of urine obtained from European patients is the high incidence of infections of the urinary tract with *B. coli* or coliform bacilli. A total of 483 specimens of urine were cultured during the year and *B. coli* or organisms of the coli group found in 259—an incidence of 53.6 per cent. The great majority of the positive results were obtained from adult female patients, and as in practically every case pus cells could be demonstrated in large numbers, these cases were examples of established infections of the urinary tract and not simple bacillurias. It is highly probable that urinary sepsis accounts for a considerable amount of chronic ill-health amongst adult European females.

7. BIOLOGICAL TESTS :

Tuberculosis.—10 guinea pig inoculations were carried out (sputum 8, urine 2) and 2 positive results obtained. *Trypanosomiasis*.—30 white rat inoculations were performed in potential cases of human trypanosomiasis and one positive result obtained. The biological characters of the trypanosome so obtained conformed to those of *T. rhodesiense*. *Rhodesian Ten-day Fever*.—A considerable amount of experimental work has been carried out during the year on the transmissibility of the "virus" of Rhodesian ten-day fever to the common laboratory animals. Several interesting results have been obtained and it is proposed to publish those in conjunction with a laboratory study of the disease at a later date. It may be stated, however, that the available evidence suggests that the disease is a tick-borne infection and is probably identical with the tick typhus met with in the Union of South Africa and extending up into East Africa.

8. SKIN TESTS :

Schick Test.—This test was carried out on 77 individuals and 11 positive reactions obtained. The whole of the nursing staff of the Salisbury Hospital was tested in this way and 7 of the staff found to be susceptible to diphtheria. The Schick test is now being carried out on all new members of the hospital's nursing staff. *Mantoux Test*.—Using 1:1,000 phenolised saline dilutions of tuberculin, this test was made on 10 Europeans and 3 positive reactors found. *Protein Sensitization Tests*.—A series of 8 sensitization tests were made with the stock extracts prepared by the South African Institute for Medical Research. Positive reactions were obtained on 2 occasions with Composite Pollen Extract. *Casoni Reaction*.—This test was made on three occasions, each time with negative results.

9. PASTEUR INSTITUTE REPORT :

Four courses of anti-rabies vaccine were issued during the year and 1,200 c.c. of vaccine prepared.

10. SPECIAL WORK :

Recent propaganda in connection with immunisation against diphtheria has given rise to a steady demand for prophylactic anti-diphtheritic vaccine anatoxine. The material used is prepared by the South African Institute for Medical Research, and during the year 1,467 "sets" and 90 10 c.c. ampoules were issued by the laboratory to medical practitioners in different parts of the Colony, and a total of 68 children immunised at the laboratory itself. In all cases in which immunisation is carried out at the laboratory the Schick test is employed approximately two months after the date of the last injection to ascertain the presence of immunity, and so far complete immunity has been demonstrated in every case.

W. K. BLACKIE, M.D.,
Director.

(2) Report of the Director, Bacteriological Institute, Bulawayo.

Dr. G. R. Ross reports as follows:—

The total number of specimens examined was 2,035; this shows a decline of 200 on the total of the previous year. The distribution of the specimens among the various authorities was as follows: Government, 872; Railway, 329; Municipal, 37; Private, 797. The actual number of investigations made is much greater, as a specimen is only recorded once irrespective of the number of investigations made on it. The work undertaken has been purely of a routine nature as it is impossible with the staff available to undertake research.

Brief mention may be made of the prevalence of bilharziasis as shown by the results of examinations. In one instance the children attending a farm school were examined, and on one examination only, 14 out of 19

harboured ova, 4 showed presumptive signs of infection and only one was negative. It is significant of the insidious nature of the disease in its early stages that only one of the children complained of symptoms of any sort. During the year under review three cases of infection with *Sp. Duttoni* were found in natives. Two of these were indigenous natives. This is the first time the disease has been discovered in the area served by the institute during the three and a half years of its existence. The incidence of malaria in Bulawayo and district as shown by positive blood slides was small during the year; this was in all probability due to the dryness of the year. All positive slides showed *P. falciparum* infection.

(3) Report of the Government Analyst, Salisbury.

Mr. A. W. Facer, F.I.C., Government Analyst, reports that 451 specimens were dealt with, amongst which were 228 exhibits in connection with criminal investigation, 73 waters, 74 milks, 17 customs' control samples, 19 foods, 7 drugs, etc.

Criminal Investigations comprised 157 toxicological exhibits in connection with 36 cases, in 22 of which analysis proved the administration of an identifiable poison, and in many of which it supplied important evidence in connection with establishing the identity of the guilty person. The majority of the cases were in connection with the native population, but in some cases Europeans were involved. Arsenic, which is so readily obtained, continues to be the favourite poison, though the frequency with which analysis establishes guilt may in time have a deterrent effect. Fifty-four exhibits were examined for blood and other stains in connection with investigations concerning charges of murder, assault and rape. Laboratory investigation furnished material evidence in connection with a case in which a European was convicted of arson, and clearly decided the rightful owner of valuable mining properties where there was doubt by reason of superimposed inscriptions on the prospecting notices.

Waters.—The results of the 62 sanitary analyses showed that in general the water supplied to organised communities by means of catchment systems, and those yielded by the majority of our wells, are of very satisfactory type. Other water samples included distilled water for automatic exchanges, river waters for presence of arsenic (of which no trace was found), and mineral springs for therapeutic value. *Milks.*—Analysis showed that 4 of the 74 samples were seriously below standard quality, and in each of these cases the vendors were prosecuted and convicted. Most of the other milks were of distinctly good quality—much better than the average milks of a few years ago. *Customs Control* work prevents unfair competition from imported foods, etc., by seeing that they conform to defined quality standards, and in all doubtful cases produces the necessary figures for the correct assessment of duty on alcoholic liquors, etc. Co-operation with the Criminal Investigation Department appears to have put an end to the once fairly common and dangerous practice of selling potent liquors to natives under the name "Hop Beer." *Drugs.*—The work done comprised standardisation of anaesthetics and an investigation which has resulted in the establishment of an agreed "rate of solubility" test for quinine supplied under contract to the Government. The other samples comprised numerous instances in which investigation supplied material evidence and facts in connection with matters concerning crime, law, foods, Government contracts, etc.

Lectures.—With the co-operation of the Commissioner of Police the Government Analyst gave lectures on the principles, methods and field procedure in connection with the scientific detection of crime, to police recruits and refresher groups. *Advisory Duties.*—As the Government Institution dealing with the application of chemistry to matters not directly associated with mining and agriculture, the laboratory is freely consulted by Government departments and the commercial, industrial and general public on

matters of the most varied nature. The records show that there is a steady increase in the demands made upon the branch in connection with State and public interests.

CHAPTER V.—ADMINISTRATIVE.

(1) PUBLIC HEALTH DEPARTMENT.

(a) Staff.

1. Doctors (Permanent Establishment, 29; Aided, 5) ...	34
2. Dentists	2
3. Government Analyst	1
4. General Nurses	192
5. Mental Nurses	17
6. Other European Staff	60
7. Asiatic and Native Staff	315
	621

(b) Expenditure and Revenue.

Total Expenditure	£165,006
Total Revenue	30,592
Net balance of expenditure	£134,414

(2) SOUTHERN RHODESIA NURSING SERVICE.

There are 192 nurses employed in Government hospitals, being an increase of 8 upon the previous year. Of these 99 are qualified and 93 student nurses. There were 224 applications for 36 vacancies for student nurses. Posts are given only to daughters of persons who are living or who have lived in the Colony. The Service is popular in the Colony and candidates applying are of a very good type. There were 131 applications for 24 vacancies in the qualified staff. These are filled chiefly from outside the Colony, as we have not as yet a sufficient number of our own nurses to meet the demand. In addition to the above there are 15 qualified mental nurses and 2 student mental nurses at Ingutsheni Mental Hospital.

Two members of the qualified staff were granted study leave in England. There is much need for a method of enabling nurses trained in the Colony to meet the expense of proceeding overseas for a short period of post graduate study, and it is hoped that the Beit Trustees may be able to assist the Colony in this direction.

In 1932 the Southern Rhodesia Medical Council commenced examining and granting certificates to nurses in the Colony. This has proved most successful, and marked enthusiasm and improvement in the quality of work was noticed in 1933.

The results of the examinations were as follows:—

	Number of candidates.	Number successful.	Number unsuccessful.
Preliminary Examination	20	15	5
Final Examination	18	18	—
		(1 with Honours.)	

(3) MEDICAL COUNCIL.

On the resignation of the Hon. G. M. Huggins, F.R.C.S., M.P., Doctor G. H. Peall was appointed President.

The total numbers on the registers at the end of 1933 were as follows; though remaining on the register a certain proportion are not resident in the Colony:—

	Additions 1933.	Total 31.12.33
Medical practitioners	7	132
Dental Surgeons	nil	38
Chemists and Druggists	5	76
Trained Nurses	27	118
Midwives	6	28
Mental Nurses	1	4

(4) HABIT FORMING DRUGS.

Import Certificates.—Eighty-two permits were issued, covering the importation of the following drugs during 1933, as compared with 61 in 1932.

Drug.	1932 Ounces.	1933 Ounces.
Medicinal Opium	25.2	16.0
*Opium (in tinctures, extracts and other preparations)	292.4	426.0
Morphine alkaloid	28.1	31.8
Diacetyl morphine (heroin)	4.08	6.2
Ethyl morphine	—	2.0
Di-hydro-oxy-codeinone (eukodal)	0.04	—
Cocaine	30.84	25.0
Codeine phosphate	4.87	4.0
Codeine	2.7	—
Tincture cannab. indica	16.0	—
Extract cannab. indica	—	6.0

Export Certificates.—Fifteen permits were issued, covering the export of the following drugs to Northern Rhodesia, as compared with 34 in 1932.

Drug.	1932 Ounces.	1933 Ounces.
Medicinal opium	2.37	1.0
Opium (in tinctures, extracts and other preparations)	17.56	3.2
Morphine alkaloid	1.46	2.0
Diacetyl morphine (heroin)	0.76	0.18
Cocaine	0.74	0.11

Ten permits were issued by the Veterinary Department in 1933 for the purchase of 98 ounces of tincture of opium, as against 11 in 1932 for 99 ounces.

*The increase in imports of opium in tinctures, etc., does not represent additional consumption. It is due to the fact that stocks in the Colony at the end of 1933 were 216 ounces in excess of the previous year.

TABLE I.

CLASSIFICATION OF DEATHS (EUROPEANS), 1933.

Deaths classified according to the International Classification of Causes of Sickness and Death.

I.—INFECTIOUS AND PARASITIC DISEASES.

Classification No.	Disease.	No. of Deaths.
1, 2	Typhoid and paratyphoid fevers	4
9	Whooping cough	6
10	Diphtheria	8
11	Influenza	8
13	Dysentery	13
18	Cerebro-spinal fever	2
22	Tetanus	1
23	Tuberculosis of the respiratory system	11
24	Tuberculosis of the central nervous system	1
26	Tuberculosis of the vertebral column	1
32	Disseminated tuberculosis	1
36	Purulent infection, septicaemia	3
38	Malaria	34
39	Other diseases due to protozoa	1
44 : 6	Blackwater fever	13
44	Other infectious or parasitic diseases	1

II.—CANCER AND OTHER TUMOURS.

45	Cancer of the buccal cavity and pharynx	1
46	Cancer of the digestive organs and peritoneum	18
47	Cancer of the respiratory organs	3
48	Cancer of the uterus	1
50	Cancer of the breast	6
51	Cancer of the male genito-urinary organs	3
52	Cancer of the skin	1
53	Cancer of other or unspecified organs	4
54	Non-malignant tumours	2
55	Tumours of undetermined nature	1

III.—RHEUMATISM, DISEASES OF NUTRITION AND OF ENDOCRINE GLANDS AND OTHER GENERAL DISEASES.

56	Rheumatic fever	1
59	Diabetes	3

IV.—DISEASES OF THE BLOOD AND BLOOD-FORMING ORGANS.

70	Haemorrhagic conditions	1
73	Diseases of the spleen	1

V.—CHRONIC POISONING.

75	Alcoholism (acute or chronic)	2
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VI.—DISEASES OF THE NERVOUS SYSTEM AND SENSE ORGANS.

79	Meningitis	2
81	Other diseases of the spinal cord	1
82	Cerebral haemorrhage, apoplexy, etc.	17
83	General paralysis of the insane	1
84	Other forms of insanity	4
85	Epilepsy	1
86	Infantile convulsions (age under 5 years)	2
89	Diseases of the ear and mastoid sinus	1

VII.—DISEASES OF THE CIRCULATORY SYSTEM.

90	Pericarditis	1
92	Chronic endocarditis, valvular disease	9
93	Diseases of the myocardium	19
94	Diseases of the coronary arteries, angina pectoris	6
95	Other diseases of the heart	1
96	Aneurysm	2
97	Arterio-sclerosis	8
99	Other diseases of the arteries	2
100	Diseases of the veins	1
102	Abnormalities of blood pressure	3

VIII.—DISEASES OF THE RESPIRATORY SYSTEM.

104	Diseases of the nasal fossae and annexa	1
106	Bronchitis	3
107	Broncho-pneumonia	6
108	Lobar-pneumonia	9
109	Pneumonia (not otherwise defined)	13
110	Pleurisy	1
111	Congestion and haemorrhagic infarct of lung, etc.	2
112	Asthma	2
113	Pulmonary emphysema	1
114	Other diseases of the respiratory system	6

IX.—DISEASES OF THE DIGESTIVE SYSTEM.

115	Diseases of the buccal cavity, pharynx, etc.	1
117	Ulcer of the stomach or duodenum	4
118	Other diseases of the stomach	3
119 & 120	Diarrhoea and enteritis	11
121	Appendicitis	7
122	Hernia, intestinal obstruction	10
123	Other diseases of the intestines	1
124	Cirrhosis of the liver	2
125	Other diseases of the liver	2
126	Biliary calculi	1
127	Other diseases of the gall bladder and ducts	1
128	Diseases of the pancreas	1

X.—NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ANNEXA.

131	Chronic nephritis	13
132	Nephritis, not stated to be acute or chronic	4
133	Other diseases of the kidneys and annexa	5
137	Diseases of the prostate	1
139	Diseases of the female genital organs	1

XI.—DISEASES OF PREGNANCY, CHILD-BIRTH AND THE PUERPERAL STATE.

141	Abortion not returned as septic	2
145	Puerperal sepsis not returned as post-abortion	3
146	Puerperal albuminuria and convulsions	2

XII.—DISEASES OF THE SKIN AND CELLULAR TISSUE.

152	Cellulitis, acute abscess	1
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XIII.—DISEASES OF THE BONES AND ORGANS OF LOCOMOTION.

155	Other diseases of the bones	1
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XIV.—CONGENITAL MALFORMATION.

157	Congenital malformation	5
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XV.—DISEASES OF EARLY INFANCY.

158	Congenital debility	3
159	Premature birth	14
160	Injury at birth	2
161	Other diseases peculiar to early infancy	7

XVI.—OLD AGE.

162	Old Age	11
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XVII.—DEATHS FROM VIOLENCE.

163	Suicide by solid or liquid poisons and corrosive substances	5
167	Suicide by firearms	8
177	Food poisoning	1
179	Other acute accidental poisoning (not by gas)	1
180	Conflagration	2
181	Accidental burns (conflagration excepted)	1
183	Accidental drowning	1
184	Accidental injury by firearms	6
186	Accidental injury by fall, crushing, etc.	8
194	Other and unstated forms of accidental violence	5

XVIII.—ILL-DEFINED DISEASES.

200	Cause of death unstated or ill-defined	3
	Total	441

TABLE II.—Staffing, beds and patients at Government Hospitals, 1933.

Name of hospital.	European nursing staff.	Native staff.	No. of beds.		No. of patients treated.			Daily average of patients.			No. of units maintained.			Average No. of days each patient was in hospital.	
			European.	Coloured and native.	European.	Coloured and native.	Total.	European.	Coloured and native.	Total.	European.	Coloured and native.	Total.	European.	Coloured and native.
Salisbury ...	73	79	120	112	2,410	1,788	4,198	85.5	93.3	178.8	31,218	34,074	65,292	12.9	19.0
Bulawayo ...	66	66	123	151	1,827	2,075	3,902	91.0	126.0	217.0	33,123	46,249	79,372	18.12	22.29
Umtali ...	10	22	38	46	401	682	1,083	12.94	26.18	39.12	4,724	9,559	14,283	11.78	14.0
Gwelo ...	9	15	25	52	400	703	1,103	11.73	38.32	50.05	4,284	13,988	18,272	10.7	19.89
Gatooma ...	7	20	23	96	418	778	1,196	11.1	54.8	65.9	4,060	19,993	24,053	9.71	25.69
Gwanda ...	3	10	6	24	38	638	676	1.94	49.97	51.91	711	18,242	18,953	18.71	28.58
Enkeldoorn ...	4	9	15	7	127	458	585	3.17	15.0	18.17	1,159	5,495	6,654	9.1	12.0
Fort Victoria ...	4	13	15	32	145	338	483	5.28	19.34	24.62	1,929	7,060	8,989	13.3	26.6
Shamva ...	3	12	18	27	57	528	585	1.12	39.81	40.93	411	14,531	14,942	7.21	27.52
Sinoia ...	4	13	11	29	149	547	696	4.02	34.2	38.22	1,466	12,506	13,972	9.8	22.8
Ingutsheni ...	18	25	80	300	99	358	457	75.0	269.0	344.0	27,392	98,470	125,862	276.0	275.0

TABLE III.—Return of Government and free patients in Government hospitals during 1933.

Name of hospital.	Number of free patients.			Total No. of units treated.		
	European.	Coloured and native.	Total.	European.	Coloured and native.	Total.
Salisbury ...	481	1,146	1,627	9,696	26,049	35,745
Bulawayo ...	881	2,434	3,315	12,784	34,140	46,924
Umtali ...	85	558	643	1,677	8,461	10,138
Gwelo ...	123	499	622	1,890	11,211	13,101
Gatooma ...	46	309	355	708	11,003	*11,711
Gwanda ...	12	342	354	316	14,455	14,771
Enkeldoorn ...	75	599	674	732	5,292	6,024
Fort Victoria ...	83	453	536	1,047	5,929	6,976
Shamva ...	14	683	697	94	11,785	11,879
Sinoia ...	27	400	427	494	10,082	10,576
Ingutsheni ...	57	240	297	20,925	87,777	108,702

*Excluding V.D.

TABLE IV.—Statement of expenditure and revenue at Government hospitals for the year 1933.

Name of hospital.	No. of patients treated E. and N.	Vote 7 A & B. Salaries and travelling expenses.	Vote 7 C. Maintenance, drugs and equipment.	Gross expenditure.	Fees charged.	Revenue received.	Deficit of revenue over expenditure.	Revenue per cent. of gross expenditure.	Total amount outstanding.	
									End of 1932.	End of 1933.
Salisbury ...	4,198	£ 11,907	£ 17,940	£ 29,847	£ 14,997	£ 11,200	£ 18,647	37.5	£ 9,244	£ 9,994
Bulawayo ...	3,902	10,074	17,225	27,299	11,893	8,225	19,074	30.1	7,223	7,972
Umtali ...	1,083	2,450	3,143	5,593	1,783	1,401	4,192	25.0	644	863
Gwelo ...	1,103	2,739	2,715	5,454	1,481	1,146	4,308	20.0	631	741
Gatooma ...	1,196	1,995	3,472	5,467	2,398	1,667	3,800	30.4	807	1,132
Fort Victoria ...	483	1,188	1,036	2,224	489	303	1,921	13.6	492	625
Gwanda ...	676	708	1,099	1,807	444	323	1,484	17.8	217	318
Enkeldoorn ...	585	929	777	1,706	228	175	1,531	10.2	183	189
Shamva ...	585	758	970	1,728	315	160	1,568	9.2	411	455
Sinoia ...	696	1,117	1,577	2,694	599	197	2,497	7.3	1,679	2,073
Ingutsheni ...	457	5,389	3,851	9,240	2,644	2,385	6,855	25.8	1,313	1,522
Totals ...	14,964	39,254	53,805	93,059	37,271	27,182	65,877		22,844	25,884

