

Annual report of the Department of Public Health / Union of South Africa.

Contributors

South Africa. Department of Health.

Publication/Creation

Pretoria : Government Printing and Stationery Office., [1924]

Persistent URL

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

License and attribution

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

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



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

AC. 162
[Advance Extract from the volume of "Annual Departmental Reports"
for the period 1923-24.]

P. 65/0



UNION OF SOUTH AFRICA

ANNUAL REPORT

OF THE

DEPARTMENT OF PUBLIC HEALTH

Year Ended 30th June, 1924.

*Published under Authority, and Presented to both
Houses of Parliament*

PRETORIA

THE GOVERNMENT PRINTING AND STATIONERY OFFICE

1924

8123—26/11/24—700

UNION OF SOUTH AFRICA
DEPARTMENT OF PUBLIC HEALTH

*With the Compliments
of the
Secretary for Public Health.*

CONTENTS.

	PAGE
I. INTRODUCTORY :—	
1. General Remarks.....	4
2. Staff.....	4
3. Council of Public Health.....	7
4. International Health Matters and Intelligence System.....	7
5. Parliamentary Session, 1924.....	8
6. District Surgeons.....	8
7. Local Authorities and their Health Staffs.....	9
II. WORK OF THE DEPARTMENT :—	
1. Inspections, Investigations, and "Field" Work.....	9
2. Addresses and Published Papers by Members of Staff.....	10
3. Publicity and Educative Work.....	11
4. Mines, Sugar Estates, etc.....	12
5. Alluvial Diamond Diggings.....	13
6. Laboratories.....	13
7. Port Health Administration.....	14
8. Adulteration of Food and Drugs.....	16
III. INFECTIOUS, COMMUNICABLE, AND PREVENTABLE DISEASES :—	
1. Notifications.....	17
2. Enteric or Typhoid Fever.....	17
3. Influenza.....	20
4. Leprosy.....	20
5. Malaria.....	26
6. Meningitis, Epidemic Cerebro-Spinal.....	27
7. Plague.....	27
8. Rabies (Hydrophobia).....	34
9. Smallpox and Vaccination.....	35
10. Tuberculosis.....	37
11. Typhus.....	38
12. Venereal Diseases.....	39
IV. GENERAL :—	
1. Housing.....	40
2. Town Planning.....	42
3. Nursing and Maternity Homes.....	42
4. Child Welfare.....	43
5. Offensive Trades.....	44
6. Opium and Habit-forming Drugs.....	44
7. Traffic in Methylated Spirits for Drinking.....	45
8. Botulism and other Food Poisoning.....	45
9. Meat Inspection—Standard and Procedure.....	46
10. Cancer.....	46
11. Vaccines, Sera, Pathogenic Cultures, etc.....	46
12. Medical, Dental, Pharmacy, Nursing, and Midwifery Matters.....	47
13. Military Hospitals and Medical Services.....	48
14. Central Medical and Veterinary Stores.....	49
15. Military Pensions Medical Board.....	50
16. Artificial Limb Factory.....	50
ANNEXURES :—	
A. Resolutions Passed by Council of Public Health.....	51
B. Plague Investigation in the Union: Work Done to Date, and Further Points requiring Investigation.....	52

CONTENTS

PAGE

I. Introduction

1. General Introduction	1
2. Scope of the Study	2
3. Objectives of the Study	3
4. Methodology	4
5. Organization of the Study	5
6. Summary	6

II. Review of Literature

1. General Introduction	7
2. Review of Literature	8
3. Theoretical Framework	9
4. Empirical Studies	10
5. Summary	11

III. Empirical Study and Policy Implications

1. General Introduction	12
2. Data Collection	13
3. Data Analysis	14
4. Results	15
5. Discussion	16
6. Policy Implications	17
7. Summary	18

IV. Conclusion

1. General Introduction	19
2. Summary of Findings	20
3. Policy Recommendations	21
4. Limitations and Future Research	22
5. Summary	23

Appendix

1. General Introduction	24
2. Summary	25

Department of Public Health.

REPORT FOR THE YEAR ENDED 30TH JUNE, 1924.

By J. A. MITCHELL, M.B., Ch.B., D.P.H.,

Secretary for Public Health and Chief Health Officer for the Union.

I.—INTRODUCTORY.

1. *General Remarks.*—The year ended 30th June, 1924, has been, on the whole, one of steady progress by the Department and by most local authorities throughout the Union, retarded in matters involving increased expenditure by the general financial stringency. Unfortunately, in the case of some of the smaller local authorities, the retrograde movement in the direction of reduced expenditure on public health and sanitary matters, referred to in last Annual Report, has continued.

From the Department's point of view the most noteworthy matters during the year have been a serious prevalence of plague in the northern and western districts of the Orange Free State with considerable extension of the area of enzootic plague infection in veld rodents; the marked subsidence of typhus prevalence in the Transkei and Ciskei; the transfer to the Health Department from the Department of the Interior of the administration of leper institutions and leprosy matters; the completion of a tuberculosis survey of the Union and the publication of a report thereof; the completion and opening of a tuberculosis sanatorium at Nelspoort, Beaufort West District, Cape Province; the completion of a quarantine hospital at Rentzkie's Farm, Capetown, in connection with the Port of Table Bay; the completion of a new infectious diseases block at the Rietfontein Hospital, Johannesburg, to serve the whole of the Witwatersrand; and the establishment of a South African National Council for Child Welfare.

2.—*Staff.*—The principal changes during the year were the promotion of Dr. W. A. Murray, Pathologist at the Durban Laboratory, to be Assistant Health Officer for the Union, with headquarters at Pretoria (24th September, 1923); the promotion of Dr. W. F. Rhodes, Assistant Pathologist in the Capetown Laboratory, to be Pathologist in charge of the Durban Laboratory (19th September, 1923); the promotion of Dr. P. Allan, Medical Inspector (Tuberculosis), to be Medical Superintendent at the Nelspoort Tuberculosis Sanatorium (1st December, 1923); and the retirement on pension (owing to reorganization and abolition of office) of Dr. J. van Niekerk, Medical Inspector (Mines) (28th March, 1924).

The following chart shows the matters dealt with or administered by the Department and the organization of the staff:—

Department of Public Health

REPORT FOR THE YEAR ENDING 31st DECEMBER 1931

By J. A. MITCHELL, M.B., CH.B., D.P.H.

Secretary for Public Health and Chief Health Officer for the Island.

1. INTRODUCTION

The year ending 31st December 1931 has been an eventful one for the Department and for the Island. The Department has been engaged in a number of important projects, and has made considerable progress in the various fields of public health. The year has been marked by the completion of the new Public Health Laboratory, and by the opening of the new Public Health Office. The Department has also been engaged in a number of important projects, and has made considerable progress in the various fields of public health.

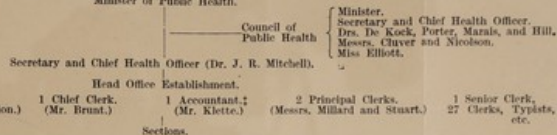
The year ending 31st December 1931 has been an eventful one for the Department and for the Island. The Department has been engaged in a number of important projects, and has made considerable progress in the various fields of public health. The year has been marked by the completion of the new Public Health Laboratory, and by the opening of the new Public Health Office. The Department has also been engaged in a number of important projects, and has made considerable progress in the various fields of public health.

The year ending 31st December 1931 has been an eventful one for the Department and for the Island. The Department has been engaged in a number of important projects, and has made considerable progress in the various fields of public health. The year has been marked by the completion of the new Public Health Laboratory, and by the opening of the new Public Health Office. The Department has also been engaged in a number of important projects, and has made considerable progress in the various fields of public health.

The year ending 31st December 1931 has been an eventful one for the Department and for the Island. The Department has been engaged in a number of important projects, and has made considerable progress in the various fields of public health. The year has been marked by the completion of the new Public Health Laboratory, and by the opening of the new Public Health Office. The Department has also been engaged in a number of important projects, and has made considerable progress in the various fields of public health.

CHART OF DEPARTMENT OF PUBLIC HEALTH.

Minister of Public Health.



Asst. Health Officers (Detached).	Inspection and Field Staff.	Pathological Laboratories.	Port Health Officers.	District Surgeons.	Housing.	Local Authorities.	Leprosy.	Veneral Diseases.	Tuberculosis.	Epidemic and Infectious Diseases (Plague, Typhus, etc.), Sanitary and Vaccination.	Food and Drug Administration. Habit-forming Drugs.	Medical, Dental, Pharmacy, Midwifery, and Nursing.
Cape Town (Dr. Willmot). Durban (Dr. Park Ross).	2 Asst. Health Officers (Drs. Murray and Sheldon). 4 Inspectors (2 Plague, 2 Typhus).	Cape Town (Dr. Robertson). Durban (Dr. Rhodes). *S.A. Institute for Medical Research, Johannesburg.	Cape Town, Durban, Port Elizabeth, East London, Simonstown, Kyness, Mossel Bay.	6 Whole-time. 5 Whole-time (jointly). 267 Part-time. — Total. 278	Central Board (Sir E. Thornton, Mr. Eagle, Mr. Jameson, Sir J. van Renswoude), Secretary (Mr. Gordon).	215 Municipalities. 89 Village Management Boards. 30 Local Boards. 31 Village Councils. 31 Health Committees. 88 Divisional Councils. 1 Health Board. 140 Magistrates. — Total. 625	Pretoria (Dr. De Vos), Robben Island (Mr. Alexander and Dr. Budd), Enslayana (Mr. Macdonald and Dr. Johnstone), Mkwabati (Mr. Bell and Dr. Drew), Amatikulu (Mr. Roach and Dr. Wildish), Rochem, *St. Raphael's.	Rietfontein, Johannesburg (Dr. Mehliss), Cape Town, Port Elizabeth, King William's Town, *Rochem, *Ellis, Several smaller hospitals.	Nelspoort Sanatorium (Dr. F. Allan).	Field Staff. District Surgeons, Local Authorities, Magistrates, etc.	Inspectors, Police, etc. Chemical work done in Chemical Laboratories of Department of Agriculture at Cape Town and Johannesburg.	* Cape Medical Council. * Cape Pharmacy Board. * Transvaal Medical Council. * Transvaal Pharmacy Board. * Natal Medical Council. * Natal Pharmacy Board. * O.F.S. Medical and Pharmacy Board.

* Receives Grant-in-Aid.

† Is also Director of Medical Services (Defence).

‡ Jointly with Department of Interior.

3. *Council of Public Health.*—No change in the personnel of the Council occurred during the year. A meeting was held at Pretoria on 15th and 16th November, 1923. The resolutions passed and a note of the more important matters discussed are shown in Annexure "A."

4. *International Health Matters and Intelligence System.*—I attended, as representing the Union Government, a Congress of Tropical Medicine convened by the Portuguese Government and held at Loanda, Angola, in July, 1923. The delegates to the Congress, all of whom were the guests of the Angola Administration, comprised seventy-six medical men, of whom twenty were from Europe, most of the remainder being from Angola, the Belgian Congo, French Equatorial Africa, the Cameroons, French Senegal, and Lagos. Amongst them were Dr. Damas Mora, Chief of the Health Services, Angola; Dr. Ferreira dos Santos, Chief of the Health Services, Mozambique; Dr. Rhodain, Chief Medical Officer of the Belgian Congo; Dr. Vassal, Chief Medical Officer of French Equatorial Africa; Professor Kopke, of the Lisbon School of Tropical Medicine; Professors Brumpt, Joyeux and Tanon, of the Faculty of Medicine, Paris; Dr. Blanchard, Director of the Pasteur Institute, Brazzaville; Dr. Connal, of the Bacteriological Laboratory, Lagos (representing the London School of Tropical Medicine), and Professors de Melo and Correia, of the School of Medicine, Nova Goa, Portuguese India.

Important papers were read at the Congress dealing with sleeping sickness, malaria, bilharziosis, and other tropical diseases, and with the health supervision and medical care of natives. I had the honour of being appointed President of the first session, which dealt with State sanitary organizations and inter-State "accords sanitaires." The Congress passed a resolution moved by me recommending the establishment between the several States of Africa of a system under which all essential information regarding outbreaks of formidable epidemic diseases or other matters of international health importance would be promptly communicated to all concerned, with particulars of the measures taken; that, in addition, each State should issue and distribute periodical health bulletins on the lines of the weekly bulletins issued by the Union Government, and that the port health system and procedure in operation at ports of the several States should be harmonized and made uniform as far as possible. This resolution was transmitted through the Government of Angola to the Governments of the other States concerned, several of which have since taken action in accordance with its recommendations. Apart from the papers contributed, the Congress had valuable effects in stimulating interest in health and medical matters and encouraging medical research, in bringing the delegates into close personal touch and enabling them to compare notes and exchange ideas, and in promoting co-operation in health and medical matters between the several States of Africa. After the Congress some of the delegates, including Dr. Ferreira dos Santos and Professors Brumpt, Joyeux, and Tanon, visited Johannesburg and Pretoria as guests of Sir Ernest Oppenheimer, and inspected the South African Institute for Medical Research, the Veterinary Research Laboratory and other institutions of medical or scientific interest.

The Parliament of Southern Rhodesia recently passed a Public Health Act based on the Union Act of 1919, with merely minor modifications to meet local conditions. As mentioned in a previous Annual Report, a Health Ordinance based on the Union Act was passed in Kenya Colony in 1921.

The system of issuing weekly and monthly health bulletins mentioned in previous Annual Reports remains in operation; in matters relating to

infectious disease or otherwise of health importance the Department keeps in close touch and acts in friendly co-operation with neighbouring Governments and Administrations.

The arrangements under which the Union is represented by Colonel Stock, C.B., C.B.E., formerly Director of Medical Services here and now Medical Officer in the Ministry of Health, London, at meetings of the *Office Internationale d'Hygiene Publique* at Paris, and in the Health Organization under the League of Nations at Geneva, remain unchanged. Very little progress appears to have been made by these organizations during the past year in the matter of a revised International Health Convention. The *Office* has recently drafted and submitted a form of International Bill of Health (*Patente de Sante et Visas*) for vessels, intended for adoption by all countries; also a draft International Agreement relating to the treatment of venereal disease in seamen.

5. *Parliamentary Session, February, March, April, 1924: Matters affecting Health Department.*—The *Medical, Dental, and Pharmacy Bill*, which had passed Second Reading and been reported on by a Select Committee during the previous Session, was referred to and reported on by a further Select Committee in respect of Clause 34, relating to unqualified practice and "cult" practitioners; further progress with this Bill, and also the introduction of a *Public Health Amendment Bill* (dealing mainly with the exemption of conscientious objectors to vaccination), and a *Food, Drugs and Disinfectants Bill*, were prevented by the dissolution of Parliament on 9th May, 1924.

6. *District Surgeons.*—The following table shows the position. The six whole-time officers are those at Cape Town, Wynberg, Port Elizabeth, East London, Durban, and Pretoria District; the five whole-time officers appointed jointly with local authorities or public bodies are those at Kimberley, Grahamstown, Queenstown, Pretoria Central, and Hartebeestpoort.

TABLE A.—DISTRICT SURGEONS AS ON 30TH JUNE, 1924.

Province.	Whole-time.	Whole-time, but jointly with Local Authority or Public Body.	Part-time.			Total.
			On Annual Retainer and Fees.	On Commuted Salary and Allowances.	On Commuted Salary with Certain Supplementary Fees and Allowances.	
Cape.....	4	3	11	1	121	140
Natal.....	1	—	10	—	28	39
Transvaal...	1	2	7	8	37	55
O.F.S.....	—	—	4	—	40	44
UNION....	6	5	32	9	226	278

7. *Local Authorities and their Health Staffs.*—Table B shows the number of the various classes of local authorities under the Public Health Act as on 30th June, 1924. Eight local authorities, namely, the Bloemfontein, Cape Town, Durban, East London, Johannesburg, Pietermaritzburg, Port Elizabeth, and Pretoria Municipalities, and also the Natal Provincial Administration in respect of the "Peri-Durban" area, have whole-time medical officers of health. By Proclamation No. 30 of 7th February, 1924, the Administrator of Natal was de-proclaimed local authority for the area around Durban, eight Public Health Committees having been constituted for this area (with the exception of Chatsworth) under Ordinance No. 7 of 1923 (Natal).

On the 30th June, 1924, there were 41 local authorities, namely, 19 in the Cape, 5 in Natal, 3 in the Orange Free State, and 14 in the Transvaal, employing certificated sanitary inspectors devoting the whole of their time to sanitary work. This is a decrease of 4 as compared with the previous year; since then Frankfort, Heilbron, Smithfield, Ladybrand, and De Aar Municipalities have ceased to employ certificated sanitary inspectors devoting the whole of their time to sanitary work, whilst the Ermelo Municipality has appointed such an officer.

TABLE B.—LOCAL AUTHORITIES UNDER THE PUBLIC HEALTH ACT (1919),
AS ON 30TH JUNE, 1924.

Province.	Municipalities.	Village Management Board.	Local Boards.	Village Councils.	Health Committees.	Magistrates.	Divisional Councils.	Board of Health.	Total.
Cape.....	129	82	16	—	—	29	88	1	345
Natal.....	9	—	14	—	8	44	—	—	75
Transvaal.....	22	—	—	31	23	35	—	—	111
O.F.S.....	55	7	—	—	—	32	—	—	94
UNION.....	215	89	30	31	31	140	88	1	625

II.—WORK OF THE DEPARTMENT.

1. *Inspections, Investigations, and Field Work.*—The following table summarizes the inspections and investigations carried out, and the distances travelled, by each administrative and inspecting medical officer of the Department during the year. A large amount of the field work was in connection with the plague prevalence in the Orange Free State :—

TABLE C.—INSPECTIONS, INVESTIGATIONS, AND TRAVELLING BY MEDICAL OFFICERS OF THE DEPARTMENT OF PUBLIC HEALTH, YEAR ENDED 30TH JUNE, 1924.

Particulars.	J. A. Mitchell.	Sir E. N. Thornton.	L. G. Haydon.	G. A. P. Ross.	F. C. Willmot.	H. F. Sheldon.*	W. A. Murray.†	P. Allan.‡	J. D. Wicht.	W. F. Wicht.	Total.
Systematic General Inspections.....	5	—	—	—	2	27	18	—	—	1	53
Mines.....	3	—	—	11	—	—	1	1	—	—	16
Factories and Works, including Offensive Trades.....	—	—	—	67	—	—	—	—	—	—	67
General and Chronic Sick Hospitals under Provincial Administrations.....	—	—	—	8	3	3	—	—	—	—	14
Mental and Leper Institutions.....	8	—	—	11	3	—	1	—	—	—	23
Venereal Hospitals, Prisons, Reformatories, etc.....	14	—	1	8	9	—	2	—	—	—	34
Water Supplies.....	—	—	—	3	2	2	1	—	—	—	8
Drainage, Sewerage, etc.	1	2	—	11	1	1	8	—	—	—	24
Housing, Nuisances, and Insanitary Conditions.....	2	6	—	14	—	—	1	—	—	—	23
Departmental Inquiries.....	—	—	—	2	1	—	—	—	—	—	3
Formidable Epidemic Diseases: Plague, Smallpox, Typhus, etc.....	4	—	1	28	—	18	1§	—	—	—	52
Other Infectious or Communicable Diseases.....	—	—	—	7	9	9	4	—	2	1	32
Other Inspections....	7	30	15	90	—	4	29	3	—	—	178
Total Number of Inspections and Investigations.....	44	38	17	260	30	64	66	4	2	2	527
Number of days Absent from Headquarters in that connection.....	53	32	17	128	44	195	85	133	3	2	692
Number of Miles Travelled—											
By Rail.....	10,120	3,500	1,200	4,310	15,508	4,000	6,000	920	1,000	150	46,678
By Road.....	680	1,200	200	5,273	608	4,000	4,000	3,000	58	—	19,019

* On leave from 14th April, 1924.

† Only assumed duty as Assistant Health Officer on 24th September, 1923.

‡ Engaged in Tuberculosis Survey of Union from June to November, 1923. Assumed duty as Medical Superintendent, Nelspoort Sanatorium, on 1st December, 1923.

§ Spent seven weeks in the Orange Free State as Plague Medical Officer.

2. Addresses and Published Papers by Members of the Staff.—

Dr. J. A. Mitchell, Secretary for Public Health and Chief Health Officer.

Congress of Tropical Medicine, Loanda, Angola. Address as representing Government of the Union of South Africa, 16th July, 1923.

"Some Urban Health Problems." Transvaal Municipal Congress, Barberton, 4th October, 1923.

"Advantages of Training in First Aid and Home Nursing." Annual Meeting, St. John's Ambulance Association, Cape Town, 14th March, 1924.

"Avoidable Wastage of Child Life in South Africa." Child Welfare Conference, Cape Town, 25th March, 1924. (*S.A. Medical Record*, No. 15, Vol. XXII, 9th August, 1924.)

"Tuberculosis, Plague, Enteric Fever, and Other Health Problems." Cape Municipal Congress, 10th April, 1924.

"Plague: Its Symptoms, Diagnosis, Morbid Anatomy, and Treatment." Jointly with the late Dr. D. C. Rees. (*Medical Journal of South Africa*, No. 11, Vol XIX, June, 1924.)

Colonel Sir Edward Thornton, K.B.E., Assistant Health Officer and Director of Medical Services :

"The Evacuation of Casualties." Lecture at Military College, Roberts Heights, October, 1923.

Dr. L. G. Haydon, D.S.O., Assistant Health Officer :

"Common Diseases and their Prevention." Pretoria Civic Association, Health Week, 25th October, 1923.

"Plague Prevention." (*Journal of the Transvaal Mine Medical Officers' Association*, No. 12, Vol. III, April, 1924.)

Dr. G. A. Park Ross, Assistant Health Officer :

"Labour Losses and Unscientific Rationing." (*South African Sugar Journal*, Congress Number, June, 1923.)

"Ventilation and Durban Summer Conditions." Jointly with Professor Cluver. (*Medical Journal of South Africa*, No. 12, Vol. XVIII, July, 1923.)

"Simple Mosquito-Proof Housing for Settlers." (*South African Sugar Journal*, December, 1923.)

"The Anti-Malarial Campaign." (*Bulletin of the South African Sugar Association*, March, 1924.)

"Hook Worm Infection and Disease (Ankylostomiasis) in Natal and Zululand." (*S.A. Medical Journal*, Vol. XIX, March, 1924.)

"Native Labour Supply and Some Factors on which its Efficiency Depends." (*South African Sugar Journal*, Congress and Exhibition Number, June, 1924.)

Dr. F. C. Willmot, Assistant Health Officer :

"How Disease is Spread." English Church Congress of Catechists, 23rd August, 1923.

"Clean Milk." (*S.A. Red Cross Society Magazine*, Vol. I, September, 1923.)

"Public Health." City Hall, Cape Town, Health Week, 23rd October, 1923.

"Our Milk Supply." Simonstown Public Hall, Health Week, 25th October, 1923.

Dr. W. A. Murray, Assistant Health Officer :

"Insects and Disease." Pretoria Civic Association, Health Week, 22nd October, 1923.

Dr. H. F. Sheldon, Assistant Health Officer :

"Some Aspects of the Typhus Problem in South Africa." (*Lancet*, No. XX, Vol. II, 1923, 17th November, 1923.)

Dr. Peter Allan, Medical Inspector :

"Significance of Lung Crepitations." (*S.A. Medical Record*, No. 3, Vol. XXII, 9th February, 1924.)

Dr. H. A. Spencer, District Surgeon, Middelburg (Transvaal).

"The Vagaries of Smallpox." (*S.A. Medical Record*, No. 23, Vol. XXI, 8th December, 1923.)

"Blackwater or Haemoglobinuric Fever; a case occurring upon the Middleveld." (*S.A. Medical Record*, Vol. XXII, 26th January, 1924.)

3. *Publicity and Educative Work.*—The following pamphlets and leaflets were prepared, published, and distributed by the Department during the year :—

Tuberculosis :

"How to Prevent Consumption." No. 284 (Health).

"Directions for Those who have been in a Sanatorium." No. 285 (Health).

Dagga Smoking :

"Dagga Smoking and its Evils." No. 289 (Health).

Malaria :

"Directions for the Prevention and Treatment of Malaria." No. 198 (Health). (Amended and republished, October, 1923.)

"Precautions against Malaria on Vessels." No. 257 (Health). (Amended and republished, October, 1923.)

Plague :

"Prevention and Destruction of Rats and Mice." No. 238 (Health). (Revised and republished, March, 1924.)

"Memorandum for Distribution in Infected Rural Areas." No. 240 (Health). (Revised and republished, March, 1924.)

Smallpox :

"Duties and Powers of Local Authorities under the Public Health Act, No. 36 of 1919, and Procedure to be followed in dealing with Outbreaks." No. 276 (Health).

A handbook, "Sanitation and Public Health" by Dr. A. W. Reid, Assistant Medical Officer of Health, Municipality of Cape Town, was published during the year. It was compiled at the suggestion of and in consultation with this Department and published by authority of the Minister of Public Health and with the aid of a grant from Government. Framed on simple and practical lines and with special reference to South African conditions, it has supplied a much-felt want, and although primarily intended for sanitary inspectors and officials it should prove both interesting and useful to members of local authorities and their health committees, and to all concerned in matters of sanitation and public health. The Department notified all local authorities by circular of this publication, and furnished copies of the Handbook to each Magistrate who is a "local authority" under section 9 of the Public Health Act.

Annual grants-in-aid are made by the Department to the Cape and Transvaal Branches of the Society for combating Venereal Disease; also to the Lovedale Health Society, which issues a monthly health journal and occasional leaflets. These are widely distributed to natives throughout the eastern Cape Province and Transkei.

During the past year "Health Weeks" were organized in Pretoria and Cape Town, with encouraging results; it is to be hoped that this movement will spread.

In the last analysis, progress in most matters of public health and sanitation depends on intelligent and informed co-operation on the part of the public. The Government Health Departments of some countries (Canada is a notable example) have separate Publicity Branches which carry on a campaign of publicity and propaganda work on organized lines, utilizing pamphlets, leaflets, posters, the public press, schools, and any other agencies which can be utilized. More attention and more money might usefully be devoted to this matter in South Africa. More attention should be given to the teaching and inculcation of the elementary principles of cleanly and healthy living in schools. In recent years the public press of the Union has been devoting increased attention and space to matters relating to public health and welfare and, I feel sure, would gladly do more in this direction if given reasonable assistance.

1. *Mines, Sugar Estates, etc.*—The supervision of health and sanitary matters on mines, sugar estates, etc., was continued during the year, action being taken (usually in consultation with the Department of Native Affairs) where necessary to secure improvements.

The Native Labour Laws were by Proclamation No. 1 of 1924, with effect from 1st January, 1924, extended to the northern districts (coal mining areas) of Natal, and regulations dealing with health and other matters were promulgated thereunder. This will materially strengthen the position of the Government in dealing with such matters on mines and works in this area. Unfortunately in Act No. 15 of 1911 the term "native labourer" is defined to mean only "a native employed on any mine or works" and consequently these laws

cannot be applied to natives employed in the cane-fields or on other agricultural work or to employers of such natives. Some amendment of the law in this respect is very desirable.

During the year, at the request of the Secretary for the Interior, the Indian hospitals in Natal and Zululand were inspected by Dr. Park Ross, and recommendations involving the radical revision of the whole system of medical aid and hospital facilities for both Indians and natives on the sugar estates were submitted to the Department of the Interior.

5. *Alluvial Diamond Diggings*.—The present population residing or working on alluvial diamond diggings in the Union is estimated to be—white, 26,156, coloured and native, 36,788. The arrangements for safeguarding the health of this large population and for dealing with outbreaks of infectious disease occurring therein are at present very inadequate and unsatisfactory. Following on the discovery of diamonds, new diggings, as a rule, “grow up anyhow” without regard to health or sanitation. The primary concern of the local officials of the Departments of Mines and Native Affairs is the collection of revenue for digging licences and native passes. No one bothers about the siting of dwellings, prevention of pollution of water supplies, disposal of night-soil and refuse, and like matters. Sanitation, in established diggings, is supposed to be looked after by a “Diggers’ Committee” elected by the diggers and with a Government representative, but these bodies have very limited powers and as a rule little or no funds, and are otherwise not in a position to deal with these matters on anything like adequate lines. The “local authority” under the Public Health Act is, in the Cape Province, the Divisional Council and in other districts the Magistrate (under Section 9 of the Public Health Act). Divisional Councils gets no revenue from diggings and in consequence are usually loathe to spend any money thereon; sometimes they absolutely refuse. Outbreaks of enteric fever, typhus, influenza, etc., frequently occur on these diggings; during the past year a serious outbreak of enteric occurred in diggings in the Lichtenburg District, necessitating the establishment by this Department, through the Magistrate as local authority, of a temporary field hospital. On such occasions this Department usually comes in for criticism and blame for occurrences which, as at present organized and staffed, it is not in a position to prevent.

The whole matter requires review and reconsideration, and also some amendment of the law. It is essentially a case for the taking of elementary and necessary health measures and precautions and for effective supervision from the outset—especially as regards the siting and arrangement of dwellings, the separation of whites and natives, the protection of water supplies from pollution, the safe disposal of night-soil, manure, and refuse, the prevention of fly-breeding, and the maintenance of a reasonable standard of domestic and general cleanliness. Repeated representations on the subject have been made by this Department to the Departments of Mines and Native Affairs, but hitherto without much result. A further conference of the Departments concerned is now being arranged for.

6. *Laboratories*.—The following table shows the specimens and material examined in, and the manufactures and issues made by, each of the two Government laboratories and by the South African Institute for Medical Research, Johannesburg, on behalf and at the cost of the Government, during the year :—

TABLE D.—PATHOLOGICAL LABORATORIES: ANALYSES AND EXAMINATIONS,
YEAR ENDED 30TH JUNE, 1924.

Particulars.	Laboratories.		South African Institute for Medical Research.
	Cape Town.	Durban.	
<i>Specimens Examined for:—</i>			
Government Departments—			
Agriculture.....	6	2	—
Customs and Excise.....	37	—	34
Defence.....	196	270	1,934
Finance.....	—	—	—
Interior (Mental Hospitals, etc.).....	1,874	301	80
Justice.....	—	287	817
Justice (Prisons).....	154	251	177
Mines and Industries.....	—	—	1,416
Mines and Industries (Miners' Phthisis).....	—	—	5,809
Mines and Industries (Geological Survey).....	—	—	—
Native Affairs.....	11	—	—
Posts and Telegraphs.....	3	—	—
Public Health.....	1,056	3,337	14,281
Public Works.....	4	1	—
South African Railways and Harbours.....	138	67	—
Other Government Work.....	—	—	26
Provincial Administrations—			
General Hospitals.....	456	2,528	5,616
Local Authorities.....	916	915	4,023
Medical Practitioners.....	5,391	1,932	3,635
Members of the Public.....	—	—	20
Other Governments or Administrations.....	281	—	—
Others.....	4	—	228
TOTAL.....	10,527	9,891	38,096
<i>Manufactures and Issues:—</i>			
Autogenous Vaccines.....	154	125	1,018
Bacterial Vaccines (Stock).....c.c.	9,846	25	741,423
Sera (various).....c.c.	—	—	173,074
Bulgarian Milk Cultures.....bottles	—	—	386
Insulin.....tubes	—	—	169
Smallpox Vaccine—Calf Lymph (prepared at Vaccine Institute, Rosebank).....tubes	977,010	—	—
Attendances at Courts of Justice by members of staff.....	8	25	65
Total Days Absence entailed by such atten- dances (part of day reckoned as one day).....	12	49	67

The arrangements under which the chemical work of the Department, including work in connection with the adulteration laws, is done in the chemical laboratories of the Department of Agriculture have worked smoothly and satisfactorily. The construction of the new wing to the South African Institute for Medical Research has been commenced; this extension when completed will provide a much-needed addition to the existing laboratory accommodation, but further funds for medical research and additional staff and facilities (including a mobile field laboratory) are very necessary, the most urgent need at the moment being research in connection with plague.

7. *Port Health Administration.*—The following table summarizes health work at Union ports during the year:—

TABLE E.—PORTS OF THE UNION: HEALTH ADMINISTRATION DURING THE YEAR ENDED 30TH JUNE, 1924.

Particulars.	Cape Town.	Durban.	Port Elizabeth.	East London.	Mossel Bay.	Knysna.	Simons-town.	Port St. Johns.	Total.
Vessels dealt with.	1,109	1,237	554	495	219	46	46	60	3,766
Cases of Infectious or Communicable Diseases dealt with.....	55	134	—	2	—	—	—	—	191
Vessels Involved...	30	90	—	1	—	—	—	—	121
Disinfections—									
Vessels.....	18	6	—	—	—	—	—	—	24
Second-hand Clothing and Other Articles...	1,600	18,101	12,834	—	—	—	—	—	32,535

Noteworthy occurrences during the year were:—

S.s. "Bedeburn," left Dakar 5th October, 1923, in ballast for Beira; put in at Cape Town on 26th October, 1923, in distress; nineteen out of a crew of twenty-seven being sick. Disease proved on investigation to be malaria; five of the patients were landed for treatment in hospital, the others were treated on board, and a few days later the vessel proceeded on her voyage.

S.s. "Demosthenes," bound from England to Australia, arrived Cape Town 28th December, 1923, with twenty-nine cases of influenza of mild type—all convalescent except one. Vessel given "restricted pratique." No cases amongst passengers bound for Cape Town, and these were allowed to land; other passengers and members of the crew not allowed ashore during vessel's stay in port.

S.s. "Kildonan Castle" arrived Cape Town 11th February, 1924, with a case of foot-and-mouth disease on board, the patient being a veterinary surgeon coming to a Government appointment in South Africa and recently employed on duties in connection with that disease in England. The case was diagnosed ten days before the vessel's arrival in port and was promptly isolated in the ship's hospital. On the vessel's arrival, patient was removed to an isolation hospital and, in conjunction with the Agricultural Department, all necessary steps were taken to prevent any spread of infection.

S.s. "Argalia" arrived Durban 8th June, 1924, and reported having had a case of cholera in a European member of the crew on 12th May, 1924, whilst the vessel was lying at Bassein, Lower Burma. The patient had been landed and removed to hospital on the day of discovery, and all possible measures to eradicate the infection and prevent the occurrence of further cases were promptly taken by the authorities of Bassein. No further cases or suspected cases occurred on board. Following on careful inquiries and investigations made at Durban it was concluded that the vessel was free from infection, and pratique was granted.

No case or suspected case of plague in man and no suspicious sickness or mortality in rodents occurred in any port of the Union during the year.

Every effort has been made to keep down rats in port areas and to safeguard against the introduction of plague infection, but owing to the increasing number of plague-infected ports having intimate trade relations with the Union, the risks are steadily increasing. During the year, plague in man or in rodents, or in both, existed at many Eastern and South American ports, and also in Mauritius, Madagascar, Kenya, Oran, Alexandria, Cape Verde Islands, Canary Islands, Algiers, French Senegal, and Angola.

The Marine Quarantine Station at Rentzkie's Farm, Cape Town, referred to in last Annual Report, has been completed; it provides accommodation for 136 patients and contacts (or considerably more on emergency) with the necessary staff. A new Clayton fumigating barge for the Port of Table Bay has also been completed. With these additions and with the existing facilities at the City Infectious Diseases Hospital and the Municipal Smallpox Hospital, the port of Cape Town is now well equipped for dealing with infection or infectious diseases on vessels. The same may be said of the port of Durban. At the intermediate Union ports there are certain facilities for dealing with cases of infectious disease or small disinfections on board vessels; should a serious outbreak occur the vessel concerned may be removed, under Section 78 of the Public Health Act, 1919, to either Cape Town or Durban, as may be more convenient for it.

A reprint of all Port Health regulations, laws, notices, etc., in convenient pamphlet form (280A, Health) was issued by the Department during the year.

8. *Adulteration of Food and Drugs.*—The following table shows the action taken in this connection during the year :—

TABLE F.—ADULTERATION OF FOOD AND DRUGS, YEAR ENDED
30TH JUNE, 1924.

Province.	Samples Taken.	Samples Analysed.	Samples found Inferior, Deficient, or Adulterated.	Prosecutions.	Convictions.	Remarks.
Cape (Ports)....	94	94	5	—	—	Suitably dealt with and importers warned.
Cape (Province).	2,005	1,999	69	45	32	Result of proceedings in four cases not yet known.
Natal.....	248	245	42	35	31	Three samples broken in transit.
Transvaal.....	324	324	20	—	—	Adulteration Laws Administered by Municipalities within their areas.
Orange Free State	68	68	3	1	—	—
UNION.....	2,739	2,730	139	81	63	

The foregoing table does not convey an adequate idea of the amount of food adulteration and sophistication which is going on. The present laws on the subject are in many respects obsolete, inadequate, and ineffective. As an illustration it may be mentioned that in October, 1923, when butter was exceptionally scarce and dear, out of twenty-two butter samples purchased in

the public market at Cape Town, six proved to contain from 11 to 23 per cent. of foreign fat. Owing to the loose and easily evadable provisions of the old Cape *Adulteration Act* regarding "warranties," it proved impossible to secure a conviction or to effectively check these disgraceful frauds. A subsequent attempt by the Department of Agriculture under the *Dairy Industry Act* also proved unsuccessful. A consolidating and amending Act on the lines of the *Food, Drugs, and Disinfectants Bill* published in January, 1922, is urgently necessary.

III.—INFECTIOUS, COMMUNICABLE, AND PREVENTABLE DISEASES.

1. *Notification*.—The following table shows the notifications of infectious diseases by medical practitioners during the year, the total for the year ended 30th June, 1923, being inserted for comparison. (It is to be noted that many cases of infectious disease, especially in natives, are never seen by a medical man and consequently are not notified):—

TABLE G.—NOTIFICATIONS OF INFECTIOUS DISEASES BY MEDICAL PRACTITIONERS DURING THE YEARS ENDED 30TH JUNE, 1923, AND 30TH JUNE, 1924.

Disease.	Year ended 30th June, 1923.	Year ended 30th June, 1924.											
		Union.	Cape Province, ex-cluding Transkei.		Transkei.		Natal.		Orange Free State.		Transvaal.		
	Union.												
	Total.	Total.	W.	C.	W.	C.	W.	C.	W.	C.	W.	C.	
Anthrax.....	50	35	7	3	—	3	—	—	2	6	4	10	
Diphtheria.....	885	1,037	421	104	—	1	122	19	69	23	249	29	
Encephalitis : Infective	13	13	5	2	—	—	1	—	—	1	—	4	
Enteric or Typhoid Fever	4,163	3,859	1,041	767	11	4	225	290	209	181	551	580	
Erysipelas.....	194	188	57	33	1	—	8	4	13	3	43	26	
Glanders.....	—	1	—	—	—	—	—	—	—	1	—	—	
Leprosy.....	87	53	4	19	1	4	—	5	—	5	2	13	
Malta Fever.....	27	18	11	2	—	—	—	—	—	—	—	5	
Meningitis : Epidemic													
Cerebro-Spinal.....	515	826	53	37	2	5	5	11	11	16	80	606	
Opthalmia—													
Gonorrhoeal.....	12	14	2	2	—	—	1	1	—	1	3	4	
Neonatorum.....	82	87	16	34	—	—	2	1	2	4	27	1	
Plague.....	2	8	—	4	—	—	—	—	—	—	—	4	
Polio myelitis : Acute..	5	3	—	—	—	—	—	1	—	2	—	—	
Puerperal Fever, includ- ing Puerperal Sepsis.	136	128	25	40	—	—	7	16	4	2	27	7	
Rabies.....	—	1	—	—	—	—	—	—	—	—	1	—	
Scarlatina or Scarlet Fever.....	2,042	1,024	225	20	1	1	52	2	70	4	636	13	
Smallpox.....	285	246	7	92	45	19	1	6	5	59	2	10	
Tuberculosis.....	3,612	3,942	284	1,982	2	464	74	273	23	63	44	733	
Typhus.....	3,762	1,230	31	430	1	383	12	50	9	232	2	80	
TOTAL.....	15,872	12,713	2,189	3,571	64	884	510	679	417	603	1,671	2,125	

2. *Enteric or Typhoid Fever*.—The total notifications show a reduction of some 300 as compared with the previous year. The following table shows the notifications of the disease in certain centres during the year, arranged in order of incidence rate:—

TABLE H.—TYPHOID OR ENTERIC FEVER: NOTIFICATIONS AND INCIDENCE IN CERTAIN LOCAL AUTHORITY AREAS DURING THE YEAR ENDED 30TH JUNE, 1924, ARRANGED IN ORDER OF INCIDENCE RATE.

Place.	Notifications.			Incidence per 1,000 of Population.		
	White.	Coloured.	Total.	White.	Coloured.	All Races.
Britstown.....M.	60	32	92	63.83	58.00	61.66
Fraserburg.....M.	12	18	30	16.55	35.89	24.73
Hopetown.....M.	15	8	23	21.09	11.90	16.60
Brandvlei.....V.M.B.	8	—	8	31.74	—	16.23
Warden.....M.	10	3	13	16.72	9.55	14.25
Van Rhynsdorp.....M.	4	7	11	8.11	22.36	13.64
Lichtenburg.....V.C.	25	—	25	13.40	—	9.46
Uniondale.....M.	6	6	12	9.35	8.27	8.77
Jagersfontein.....M.	10	4	14	11.84	2.89	6.29
Caledon.....M.	10	7	17	6.66	5.27	6.00
Ventersdorp.....V.C.	4	5	9	4.57	6.43	5.44
Nigel.....V.C.	5	12	17	5.19	5.43	5.36
Middelburg (C.).....M.	14	8	22	6.65	3.51	5.02
Heidelberg (T.).....M.	9	7	16	4.31	5.30	4.69
Estcourt.....M.	3	5	8	4.02	4.99	4.57
Calvinia.....M.	6	4	10	6.11	3.08	4.39
Ficksburg.....M.	9	5	14	4.53	3.77	4.22
Utrecht.....M.	1	8	9	1.50	5.18	4.07
Springs.....M.	13	61	74	2.90	4.00	3.81
Innesdale.....V.C.	36	4	40	4.50	1.40	3.69
Uitenhage.....M.	28	23	51	3.58	3.59	3.58
Vrede.....M.	3	8	11	2.10	4.84	3.57
Germiston.....M.	26	118	144	1.65	4.43	3.40
Ladysmith (N.).....M.	19	4	23	5.90	1.12	3.39
Kimberley.....B. of H.	14	113	127	0.80	5.29	3.26
Stutterheim.....M.	10	—	10	11.05	—	3.19
Klerksdorp.....M.	15	3	18	4.80	1.16	3.17
Boksburg.....M.	33	84	117	2.65	3.28	3.08
Newcastle.....M.	12	1	13	5.83	0.45	3.05
Fauresmith.....M.	6	—	6	6.40	—	3.00
Burghersdorp.....M.	8	2	10	4.77	1.15	2.93
Dundee.....M.	7	4	11	4.42	1.81	2.90
Alce.....M.	2	5	7	2.59	3.00	2.85
Beaufort West.....M.	11	6	17	3.59	1.91	2.74
Paarl.....M.	24	10	34	4.17	1.50	2.74
Zastron.....M.	7	—	7	3.97	—	2.52
Wellington.....M.	5	8	13	1.88	3.20	2.51
Oudtshoorn.....M.	15	11	26	2.70	2.13	2.42
Pretoria.....M.	81	66	147	2.21	2.60	2.37
Mossel Bay.....M.	9	4	13	3.41	1.29	2.27
Wynberg.....M.	14	35	49	1.40	2.92	2.23
Somerset Strand.....M.	5	3	8	2.14	1.99	2.08
Graaff-Reinet.....M.	15	4	19	3.32	0.84	2.05
Bethlehem.....M.	13	—	13	3.84	—	2.04
Potchefstroom.....M.	27	—	27	3.29	—	2.00
Brandfort.....M.	5	—	5	3.53	—	1.98
Craddock.....M.	8	5	13	2.44	1.41	1.90
Cape Town.....M.	157	125	282	1.77	1.86	1.80
Korsten.....V.M.B.	1	11	12	1.41	1.70	1.67
Kroonstad.....M.	14	1	15	3.26	0.19	1.60
Harrismith.....M.	9	—	9	3.53	—	1.44
Pietermaritzburg.....M.	26	22	48	1.49	1.24	1.37
Durban.....M.	71	55	126	1.50	1.14	1.32
Aliwal North.....M.	7	1	8	2.86	0.26	1.27
East London.....M.	27	10	37	1.60	0.80	1.24
Port Elizabeth.....M.	30	14	44	1.25	1.08	1.20
Brakpan.....M.	7	22	29	0.98	1.26	1.17
Roodepoort-Maraiburg.....M.	17	11	28	2.38	0.65	1.16
Krugersdorp.....M.	11	27	38	0.82	0.93	0.89
Johannesburg.....M.	127	114	241	0.85	0.86	0.85
Benoni.....M.	14	26	40	0.96	0.78	0.84
Bloemfontein.....M.	16	12	28	0.90	0.64	0.76

M.—Municipality.

B.H.—Board of Health.

V.M.B.—Village Manage Board.

V.C.—Village Council.

Rates calculated on population as at Census, 3rd May, 1921.

The following outbreaks or prevalences are noteworthy:—

Alluvial Diamond Diggings, Lichtenburg District (Bethal and Stompies).—Commenced in January, 1924. Investigated by assistant health officer of this Department. Some fifty cases occurred; spread due

to general insanitary conditions and fly prevalence; field hospital established by Department under supervision of Magistrate and District Surgeon.

St. Anna School, Mariannhill, Pinetown District.—Investigated by assistant health officer of Department; thirteen cases in boarding establishment. Infection probably introduced by "carrier" and spread by direct contact and by flies, etc.

Burnside Colliery.—Prevalence not reported until first week of April, 1924; active measures then taken by the Department to investigate and institute preventive measures. Up to then there had been ninety-six cases (including six in Europeans) with nine deaths, the total native labour population being about 2,700. Although there was some suspicion that the water supply may have been contaminated (from kaffir kraals in the catchment area, clothes washing, etc.), balance of evidence was in favour of spread being mainly due to fly conveyance from infective human excreta to food, etc. Measures were taken to remove these dangers and carry out a general "clean up" and only a few further cases occurred—one during May and two during July.

Britstown Municipality.—A total of ninety-two cases occurred during the year. The prevalence commenced in September, 1923. Investigation by the Department disclosed a very unsatisfactory state of affairs—dirty and insanitary conditions, worst in the coloured quarter of the town; unsatisfactory closets, night-soil, and rubbish removal system; ineffective arrangements for dealing with infective excreta; prevalence of flies; nursing of patients in their own homes by untrained persons, and general lack of effective sanitary and public health supervision. Although the water supply was not very satisfactory there was no evidence that the infection was spread either by water or by milk.

The causes of the Britstown prevalence may be taken as typical of those occurring in a number of other small centres such as Fraserburg, Hopetown, Lichtenburg, Uniondale, and Calvinia. Caledon is fairly high up on the list—an unfavourable position for a health resort. There were also considerable prevalences in Middelburg (Cape), Heidelberg (Transvaal), Springs, Innesdale, Uitenhage, and Germiston, most of the cases in the latter area being, however, on mines. Of the larger centres with sewerage systems, Pretoria is highest on the list with an incidence rate of 2.37 per 1,000. The Cape Town figures show a notable improvement as compared with the previous year, no doubt largely due to the coming into operation of the southern suburbs sewerage scheme.

Experience goes to show that a large percentage of outbreaks in urban areas are started by "carriers"—mostly natives handling milk or food; that enteric fever in natives is frequently mild or presents anomalous symptoms, so that the disease is often not recognized; and that in the larger centres a surprisingly high percentage of the natives react positively to the Widal test. Thus, during the Durban outbreak of October, 1922, of seventy-five native employees of a dairy company which was under some suspicion, thirty-seven gave a positive reaction. For comparison, the native employees of another large dairy company, about which there was no suspicion, were examined with almost identical results, whilst a further large random sample of natives in the town gave only a slightly smaller percentage of positive reactors. A number

of natives from dairies around Durban were then examined, an appreciably smaller proportion of reactors being found, whilst a batch of natives from up-country farms yielded on examination very few reactors. This matter requires further investigation, but present information justifies, and indeed calls for, more effective measures to safeguard public food supplies, and especially milk, against contamination in this way.

3. *Influenza*.—No serious outbreak occurred during the year. A small outbreak of rather severe type, with ten deaths, occurred at Pilgrims Rest during September and October, 1923. Prevalences of infectious catarrhs or influenza of mild type were reported from many places in the Union.

4. *Leprosy*.—In accordance with the arrangement referred to in last Annual Report, the administration of the leper institutions and all matters relating to leprosy was transferred by the Department of the Interior to this Department on 1st April, 1924.

The general policy of the Department in regard to leprosy, which was submitted to and approved by the Government at the time the transfer was decided on (October, 1922), and was subsequently (November, 1923), approved by the Council of Public Health, may be summarized as follows:—

- (a) The carrying out of a "Leprosy Survey" of the Union to ascertain, as far as may be possible, the present position and the precise nature and extent of the problem to be dealt with.

The information at present available on this point is very meagre and indefinite. Owing to the stigma attaching, and to fear of removal and segregation, concealment of the disease is very general, and it is extremely difficult to get anything like complete and reliable figures and particulars. In 1907 the Medical Officer of Health for the Cape Colony stated it was probable that in the Cape Colony there were at least 1,000 lepers at large of whom the Government had no knowledge. In 1911, following on a period of duty as Medical Superintendent of the Emjanyana Leper Institution and some general inquiries regarding the matter in the Transkei, I estimated that there were 1,300 or 1,400 such cases in the Transkei alone. No effective investigation has been made since, but there is no reason to believe that the position has improved. It is quite possible that at present there are as many native lepers undiscovered and at large in the Union as there are under segregation.

- (b) A publicity and educative campaign regarding the disease, its nature and symptoms, modes of spread, conditions and circumstances favouring spread, and precautionary measures.

The prevailing attitude and lack of knowledge on the part of the public and of many Local Authorities constitute a very serious obstacle to the effective combating of the disease. Leprosy is very generally regarded with unreasoning dread, or even horror. It is commonly believed to be hereditary, and every case to be highly infective; many even seem to think the infection can be carried to a distance by the air.

There is no sound reason why leprosy should be regarded differently from other communicable diseases. It is not hereditary in any sense, and, speaking generally, it is not a highly infectious or contagious disease. As a rule, infection of the healthy only occurs after close and prolonged contact with a leper. In the closely allied

disease, tuberculosis, there are all gradations of infectivity—from the lung case with profuse sputum teeming with tubercle bacilli to the case of bone or joint tuberculosis, which is, to all intents, entirely non-infectious. There are similar gradations in leprosy—from the acute “nodular” case with nasal secretion, and perhaps sputum and discharge from ulcers, containing leprosy bacilli in enormous numbers, to the old-standing, quiescent case of “anaesthetic” type, without leprosy bacilli in any of the secretions or discharges. Many cases of leprosy become “cured” after a time as regards further progress of the disease and risk of conveying it to others, although some of the effects of the disease, such as loss of fingers or toes, or of sensation in certain parts, or contraction of certain muscles, may remain.

Both tuberculosis and leprosy are caused by easily found and characteristic micro-organisms, so that the microscope provides a reliable means of determining whether or not a patient is discharging infection.

- (c) The appointment of a Leprosy Advisory Committee, to include representatives of the South African Institute for Medical Research, the Universities of Cape Town and the Witwatersrand, and of the Health Department, to advise the Government regarding leprosy matters, especially research work. Steps to constitute this Committee have already been taken.

- (d) The full utilization and testing of the latest methods of treatment of the disease and the development and testing of new methods.

- e) To encourage, by all possible means, leper patients to come forward for treatment *voluntarily* and *at an early stage of the disease*.

The measures taken hitherto by the Government to limit and ultimately eradicate the disease have been largely nullified by the fact that cases are, as a rule, not reported until the disease has been going on for years, and in many instances until the most infective stage has passed, whilst a large percentage of cases, especially in natives, are never reported or discovered at all.

- (f) To take all possible measures to secure the early discovery and notification and the segregation of all active and infective cases of the disease.

- (g) The appointment of a Leprosy Board, consisting of both official and non-official medical men with special knowledge and experience of leprosy, to periodically examine all patients in leper institutions and to recommend for discharge therefrom all cases in which, in the Board's opinion, the disease is no longer active or infective. By arrangement with the Department of the Interior, this system has been in operation since the beginning of 1923, from which date up to 30th June, 1924, 571 cases have been probationally discharged as no longer “active” or infective, subject to periodical medical and bacteriological examination and to certain conditions designed to obviate objections on the part of the public, maintenance allowances being paid by the Government in cases where the patient is unable to work or to provide for himself and has no friends or relatives able and willing to do so.

- (h) To authorize segregation at home in suitable cases and under suitable circumstances where the patient is in a position and can be relied on to properly carry out the necessary precautions. Home segregation to be approved only on the recommendation of the Leprosy Board and after a period of special observation and instructional detention in a leper institution. The approval may be withdrawn and the patient forthwith removed to a leper institution if at any time the Minister comes to the conclusion that the conditions on which home segregation was authorized are not being properly observed, or that its continuance would entail risk of spread of the disease.
- (i) To aim at gradually converting leper institutions into "Leper Sanatoria," analogous to sanatoria for tuberculosis, to which patients will come early and voluntarily for treatment by the best and latest methods.
- (j) To secure the active co-operation in measures for combating the disease, of Local Authorities and their health staffs, medical practitioners, school teachers, native chiefs, and headmen and all concerned or interested in matters of public health and social welfare. It may be remarked that under the *Public Health Act*, No. 36 of 1919, medical practitioners must immediately report to the Local Authority of the area all cases of leprosy coming to their notice, and that under the same Act important duties and responsibilities in connection with leprosy (in common with other infectious diseases) devolve on Local Authorities. Measures taken by Government in connection with leprosy are to be regarded as *supplementary* to those of Local Authorities.

It is hoped with a system organized on the foregoing lines to make more progress than in the past as regards the control, limitation, and eventual eradication of the disease; and to secure better results for the heavy annual expenditure by Government, which has hitherto been disproportionate to the relative importance of the disease from the standpoint of the State (as compared, say, with tuberculosis or venereal disease) and nearly as much as on all other human diseases put together.

The reduction of the number of institutionally segregated cases of leprosy, with certain staff reorganizations and reductions, has made possible a reduction of £15,500 on the Leprosy Vote for the current financial year, and it is hoped to effect further economies.

It will take some time to bring the foregoing scheme into full operation, and a consolidating and amending *Leprosy Act* for the Union will also be necessary. A Bill for this purpose is being prepared for submission.

Steps have been taken to standardize and systematize the keeping of clinical and other records at leper institutions and to tabulate data of medical or aetiological interest in regard to the patients; also to systematize the procedure in regard to probationally discharged patients. The bacteriological examinations involved have entailed a large increase of work to the Government Pathological Laboratories at Cape Town and Durban and to the South African Institute for Medical Research, Johannesburg.

The following tables include the principal statistical data regarding leprosy during the year:—

TABLE I.—LEPROSY BOARD: RESULTS OF EXAMINATION OF PATIENTS IN
LEPER INSTITUTIONS, YEAR ENDED 30TH JUNE, 1924.

Institution.	White.		Coloured.		Native.		Total.	
	Total Ex- amined.	Classified as Non- infective.	Total Ex- amined.	Classified as Non- infective.	Total Ex- amined.	Classified as Non- infective.	Total Ex- amined.	Classified as Non- infective.
Robben Island.	18	2	76	7	4	1	98	10
Pretoria.....	55	4	—	—	682	53	737	57
Emjanyana....	—	—	—	—	487	61	487	61
Amatikulu.....	—	—	3	1	272	28	275	29
Mkambati*.....	—	—	—	—	—	—	—	—
Bochem.....	—	—	—	—	72§	3	72§	3
TOTAL....	73	6	79	8	1,517	146	1,669	160

* The Board did not visit Mkambati Leper Institution during the year ended 30th June, 1924.

§ Including two found not to be suffering from leprosy.

TABLE J.—PATIENTS IN LEPER INSTITUTIONS ON 31ST DECEMBER, 1923.

Institution.	White.		Native.		Coloured.		Asiatic.		Total.		Grand Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
Robben Island	23	19	77	27	73	68	1	—	174	114	288
Pretoria.....	64	37	425	286	20	6	3	—	512	329	841
Amatikulu....	—	—	202	138	—	—	1	1	203	139	342
Emjanyana....	—	—	266	223	—	—	—	—	266	223	489
Mkambati.....	—	—	70	50	—	—	—	—	70	50	120
Bochem.....	—	—	45	37	1	—	—	—	46	37	83
TOTAL....	87	56	1,085	761	94	74	5	1	1,271	892	2,163

TABLE K.—ADMISSIONS TO LEPER INSTITUTIONS, 1ST JANUARY TO 30TH JUNE, 1924.

Institution.	Admitted for First Time.						Readmitted.						Admitted on Transfer from Other Institutions.						Total.		Grand Total.	
	White.			Coloured.			Asiatic.			White.			Coloured.			Asiatic.						
	M.	F.		M.	F.		M.	F.		M.	F.		M.	F.		M.	F.		M.	F.		
	M.	F.		M.	F.		M.	F.		M.	F.		M.	F.		M.	F.		M.	F.		
Robben Island.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pretoria.....	4	4	44	20	5	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Amatikulu.....	—	—	19	20	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emjanyana.....	—	—	13	26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mkambati.....	—	—	22	13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bochem.....	—	—	12	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	4	4	110	82	5	10	2	—	2	—	14	6	1	—	—	—	—	—	—	—	—	—

TABLE L.—DISCHARGES, ESCAPES, TRANSFERS, ETC., FROM LEPER INSTITUTIONS, 1ST JANUARY, TO 30TH JUNE, 1924.

Institution.	Probationally Discharged as "Arrested" and Non-Infective.						Discharged as Non-Leprous.						Escaped.						Transferred to Other Institutions.						Total.		Grand Total.			
	W.	N.	C.	A.	W.	N.	C.	A.	W.	N.	C.	A.	W.	N.	C.	A.	W.	N.	C.	A.	M.	F.								
Robben Island.....	2	—	9	6	11	24	1	—	—	—	—	—	—	—	—	—	—	—	1	22	9	—	—	—	—	—	45	40	85	
Pretoria.....	1	—	8	4	—	—	—	—	—	3	3	—	2	—	—	—	—	—	—	—	14	—	—	—	—	—	—	32	9	41
Amatikulu.....	—	—	6	4	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	4	—	—	—	—	—	—	12	4	16
Emjanyana.....	—	—	4	9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	1	—	—	—	—	—	7	10	17
Mkambati.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	4	—	—	—	—	—	9	5	14
Bochem.....	—	—	15	11	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	19	12	31
TOTAL.....	3	—	42	34	12	24	1	—	—	—	4	4	—	2	—	—	—	—	—	—	23	5	1	—	—	—	—	124	80	204

W.—White. N.—Native. C.—Coloured. A.—Asiatic.

W.—White.

N.—Native.

C.—Coloured.

A.—Asiatic.

TABLE M.—DEATHS OF PATIENTS IN LEPER INSTITUTIONS: 1ST JANUARY TO 30TH JUNE, 1924.

Institution.	White.		Native.		Coloured.		Asiatic.		Total.		Grand Total.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Robben Island.....	—	—	4	2	* 8	4	—	—	12	6	18
Pretoria.....	2	1	12	8	2	—	—	—	16	9	25
Amatikulu.....	—	—	7	3	—	—	—	—	7	3	10
Emjanyana.....	—	—	17	6	—	—	—	—	17	6	23
Mkambati.....	—	—	1	2	—	—	—	—	1	2	3
Bochem.....	—	—	7	4	—	—	—	—	7	4	11
TOTAL.....	2	1	48	25	10	4	—	—	60	30	90

TABLE N.—PATIENTS IN LEPER INSTITUTIONS ON 30TH JUNE, 1924.

Institution.	White.		Native.		Coloured.		Asiatic.		Total.		Grand Total.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Robben Island.....	21	18	42	10	54	40	—	—	117	68	185
Pretoria.....	67	41	437	292	23	14	3	—	530	347	877
Amatikulu.....	—	—	204	153	—	—	2	1	206	154	360
Emjanyana.....	—	—	275	243	—	—	—	—	275	243	518
Mkambati.....	—	—	87	58	—	—	—	—	87	58	145
Bochem.....	—	—	32	24	—	—	—	—	32	24	56
TOTAL.....	88	59	1,077	780	77	54	5	1	1,247	894	2,141

5. *Malaria*.—The incidence of malaria in the endemic areas of the Union last year was unusually light. About the beginning of March, 1924, a sharp outbreak occurred along the Natal-Zululand coastal belt north of Durban and extended up to the Borough boundary. Between Durban and Tongaat there were at least 5,000 cases; further north the prevalence was not so serious. About 250 cases occurred in Durban; some of these were imported from outside the Borough, but others were of local origin, most of them being from the low-lying areas of the town near Cato Creek and Congella. The Sea Cow Lake on the Durban outskirts, and now practically a swamp, also played an important part in spread; the drainage of this swamp would be a great improvement.

In December, 1923, revised circular instructions were issued to all Magistrates in malarial districts regarding supplies of quinine by Government and the arrangements for storage and issues; provision was made for free issue to persons in poor and indigent circumstances and for whom no employer or other person is responsible, and to others at cost price on the magistrate being satisfied that owing to distance from a chemist shop or other good reason the applicant is unable to obtain necessary supplies otherwise at a reasonable price, and that he requires and intends to use the quinine for himself, his family, or employees. Issues on payment only to be made for cash. Arrangements were made by the Natal Education Department for the free distribution of quinine to school children requiring it in the Natal north coast and Zululand.

In a paper, "Simple Malaria-Proof Housing for Settlers," by Dr. Park Ross, published in the *South African Sugar Journal* for December, 1923, and reprinted by the Department, particulars and type plans of dwellings of cheap construction suitable for settlers in malarial areas were given.

Efforts were made to interest the Sugar Association in malaria prevention, emphasis being laid on the duty of employers of native and Indian labour to themselves to carry out preventive measures and that to do so was in their own interests, financially and otherwise. The association took the matter up and co-operated actively. The establishment of anti-malaria committees in localities along the coast was recommended. A series of meetings convened by the Association were addressed by the Assistant Health Officer on the subject; it was recommended that these committees should organize and arrange for the purchase and distribution of quinine, the inspection and malaria-proofing of dwellings on a contract basis, the designing and carrying out of drainage schemes, bush cutting, furrow cleansing, anti-malarial propaganda amongst both whites and natives, etc., the committees to work in co-operation with the local health authority and this Department.

6. *Meningitis: Epidemic Cerebro-Spinal*.—The notifications during the year were 826, as compared with 515 during the previous year, the increase being almost entirely in the Witwatersrand area. In this area, cases of the disease constantly crop up, but some excessive prevalence usually occurs, especially in mine natives, during the dry, dusty season preceding the onset of the summer rains. Last year the prevalence was unusually severe; it began in the early part of July and continued until the latter part of October. The great majority of the cases were in East Coast natives, and in about half of them the disease developed within a month of their arrival on the Rand. A little later individual cases, or small groups of cases, occurred at Maclear, Elliot, Indwe, Tarkastad, Thaba 'Nchu, Edenburg, Alice, and other centres, the circumstances suggesting that the infection was spread mainly by native "carriers" returning from the Rand. Coincidentally with the native prevalence on the Rand there was a marked increase in the number of cases occurring among the European population.

The cases, as a rule, responded well to injections of anti-meningococcic serum prepared by the South African Institute for Medical Research, but imported brands of sera had little effect. The Institute at the time had only four horses and very limited stabling, with the result that the local supply of serum proved quite inadequate. Since then the stabling accommodation at the Institute has been increased so as to provide for twenty horses, with bleeding-room, laboratory, etc., and arrangements have been made which should obviate any shortage of serum in future.

7. *Plague*.—The survey in regard to plague in veld rodents, detailed in last Annual Report, was continued by the Rodent Inspection Staff of the Department during the earlier months of the year covered by this Report. It showed that plague infection then existed, or had recently existed, amongst veld rodents in parts of the districts of Krugersdorp, Lichtenburg, Rustenburg, and Schweizer Reneke in the western Transvaal; in the Hopetown District, Cape Province; in the Bethulie, Edenburg, Fauresmith, and Smithfield Districts of the Orange Free State; as well as in other districts in the Cape and Orange Free State in which evidence of infection had previously been found. Evidence of infection in the Krugersdorp District was found up to within about a mile of Krugersdorp and twenty-five miles of Johannesburg.

Prolonged search for evidence of active infection was made along this line, but although several decomposed or dried-up carcasses of wild rodents were found under circumstances highly suspicious of plague, laboratory examination failed to confirm this suspicion. Subsequent events support the view that this failure was due to the state of the carcasses. The infected area in the western Transvaal included Welverdiend, near Potchefstroom, where fifteen human cases occurred in 1917; there was evidence of a comparatively recent plague epizootic in that locality.

All Local Authorities and others concerned throughout the new areas of enzootic infection disclosed by this survey were notified of the results, and a statement of the salient facts, with an illustrative map, was published in the public Press.

In October, 1923, an outbreak occurred amongst natives on the farm Haarhoff's Kraal, eighteen miles north-west of Uitenhage. The scene of the outbreak was dense bush country; none of the patients had recently been away from the farm. The circumstances were strongly suggestive of infection from wild rodents. Associated cases occurred a week or so later on the farm Helpmakaar, about five miles from Haarhoff's Kraal. A total of seven cases occurred on the two farms, all of them fatal. Investigation showed that striped mice and water-rats were numerous in the locality, especially along the streams and spruits, but there were only a few gerbilles—these being of the Namaqua variety. At first no evidence of plague infection amongst the wild rodents on these farms and in the neighbourhood could be found, but after prolonged and exhaustive search, plague-infected carcasses of multimammate mice were found.

During the week ended 8th December, 1923, four cases in natives were reported on a farm forty-five miles east of Hoopstad, in an area where enzootic plague infection in veld rodents was known to exist; rodent mortality was also reported in the neighbourhood. This proved to be the commencement of a serious and widespread epidemic. A fortnight later, cases occurred at Zandfontein and Viljoenskroon, in the Bothaville area of the Kroonstad District. In this area veld rodents were very numerous and badly flea-infested; investigation indicated a wave of active and virulent plague infection amongst them.

During the next few weeks cases of plague in man occurred throughout the greater part of the Bothaville sub-district and in parts of the Kroonstad District adjoining. The prevalence spread to the Winburg, Vredefort, Boshof, Bethulie, Bloemfontein, Senekal, Lindley, Brandfort, and Heilbron Districts of the Orange Free State. During the week ended 23rd February, 1924, a small outbreak occurred in the Albert District, Cape Province. Later, cases occurred in the Venterstad area of the same district and in the Colesberg District adjoining. During the week ended 12th April, a small outbreak—six cases with four deaths—occurred on the farm Vlakfontein, Krugersdorp District, Transvaal, on the line where a few months before exhaustive but unsuccessful search had been made for active plague infection in wild rodents. A small outbreak (three cases, one of them fatal) also occurred in the Wolmaransstad District, Transvaal.

The prevalence reached its height during the week ended 1st March, 1924, in which forty cases and twenty-one deaths occurred. It continued into April, but rapidly subsided with the coming of frosts in the latter part of that month, a few sporadic cases continuing to occur during May and June, 1924.

The following table shows the total plague cases and deaths in the Union during the year under report:—

TABLE O.—PLAGUE CASES AND DEATHS IN UNION DURING THE YEAR ENDED 30TH JUNE, 1924.

Province.	No. of Outbreaks.	White.		Coloured and Native.		Total.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cape.....	18	—	—	34	26	34	26
Natal.....	—	—	—	—	—	—	—
Transvaal.....	2	1	—	8	5	9	5
Orange Free State.	147	50	27	279	177	329	204
UNION.....	167*	51	27	321	208	372	235

* Outbreaks in man, or in both man and rodents. Apart from human outbreaks, infected rodents were found on the farms Baines Vlei (yellow mongoose and springhare), Roodebloem No. 994 (gerbille), Welman's Rust No. 1027 (gerbille), America and Geneva Sidings, in mealie stacks (multimammate and house mice), Kroonstad District; Libertas Station, in mealie stacks (multimammate mouse), Senekal District; Thaba 'Nchu town, found outside skin store (black rat), farm Dunottar (gerbille), Vredefort District, Orange Free State; Grootfontein School of Agriculture, Middelburg District, Cape (one Karroo rat).

As regards type of the disease, about 85 per cent. of the cases were bubonic, about 12 per cent. pneumonic, and the remainder septicaemic. Except for three cases in the Venterstad Municipality, two in the Bothaville Municipality and one in the Viljoenskroon Village, all the cases occurred on farms. 102 farms had one case on each; 22 had two on each; 14 had three; 8 had four; 8 had five; 3 had six; 2 had seven; whilst on five separate farms there were 9, 11, 12, 13, and 27 respectively. In the bubonic cases the tendency to spread from case to case was comparatively small. As a rule, infection was easily traceable to wild rodents, with fleas as intermediaries. Many of the patients were herd-boys accustomed to spend most of the day on the veld, in which the burrows of plague-infected rodents were more or less numerous; in several cases there was a history of the patients having recently handled carcasses of veld rodents. In a number of instances there was reason to believe that infection had occurred in the dwellings, these containing house mice and very often multimammate mice. Grain stored in native huts or in rooms or outbuildings of farm-houses had a potent influence in attracting rodents and thus promoting the infection of the inmates.

In the most common type of bubonic case the onset was usually rapid, with headache, fever, prostration, and a painful glandular swelling—most frequently in the groin or axilla—on the first or second day; about half of these cases recovered.

In a second type there were headache and weakness with a little fever, development of the bubo being delayed for several days; these cases were, on the whole, mild, and recovery was the rule.

In a third type there was sudden illness with great prostration, high fever and delirium, with no definite bubo, but tenderness only in the axilla, groin, or neck; pain in the abdomen was often complained of. Cases of this type usually proved fatal within two to four days.

Where bubonic cases recovered, the buboes usually subsided without suppuration, but in some cases suppuration occurred during the second or third week of illness, the bubo thereafter subsiding and healing gradually.

During the outbreak, 43 pneumonic cases (11 European and 32 native) occurred, all of which proved fatal. In all of them there was a history of contact—often of close contact, including kissing—with a previous case of plague; indeed, it seems probable that kissing was the mode of infection in

the majority. 21 out of the 32 native cases occurred on two farms in the Bothaville area, whilst all the European cases were comprised in two groups—one in the Brandfort and the other in the Kroonstad District. In 5 of the 43 pneumonic cases, buboes were present; 31 of these cases had received either 1 or 2 injections of anti-plague vaccine at periods varying from 3 to 12 days before onset of illness. The incubation period in these cases varied from 2 to 4 days. The period from onset until death was 3 to 18 days in the five "mixed" cases (pneumonic and bubonic), and 2 to 4 days in the purely pneumonic cases.

Despite every effort to inform the population, both European and native, of the infected districts as to the symptoms of the disease and the importance of prompt notification, considerable delay in reporting cases and consequently in the diagnosis of the disease and the taking of precautionary measures, frequently occurred; this was one of the greatest difficulties experienced in dealing with the epidemic.

With regard to the rodent epizootic, it has already been mentioned that a wave of virulent plague infection commenced in the Bothaville area in the latter part of December, 1923. This spread rapidly, first throughout the roughly triangular area bounded by the railway line from Westleigh to Vierfontein on the south-west, the Vaal River on the north, and the Bloemfontein-Johannesburg main railway line on the south-east, and later spread farther afield. The areas most severely affected were the extensive grain lands in the north-western Orange Free State. The incidence of human plague closely followed the rodent epizootic in point of time, and roughly coincided in degree. In last Annual Report it was stated that the area of enzootic plague infection in the north-western Orange Free State was separated by some seventy miles of country from the enzootic area of the Cape Midlands and northern Cape Districts, this extent of country being inhabited by healthy gerbilles, some portions of it being unsuitable for or devoid of gerbilles, but with no discoverable connecting band of infection between the two areas. During this year's plague epizootic the infection swept southwards, over-running this seventy-mile stretch of country—completely linking up the northern and southern areas of enzootic infection and sweeping eastwards and northwards through the Thaba 'Nchu, Ladybrand, and Senekal Districts. Narrow strips of country in the valleys of the Zand and Vet Rivers, in the Winburg District, lying between stretches of country unsuitable for gerbilles had, as described in last Annual Report, been cleared of veld rodents so as to form "plague firebelts;" these belts held good during the epizootic, but the infection swept round to the south through the stretch of country between Excelsior and the Caledon River, and thus "turned the position." At the end of last plague season the infection had extended eastward to Clocolan and further north to near Rosendal, and on the extreme north to Lindley Road, at the junction of the Senekal branch line with the Kroonstad-Bethlehem railway line, as shown in the attached map.

The extension of the area of enzootic plague infection in veld rodents during this epizootic, and the position at the end of the year, are shown in distinctive colours in the map. In the Kroonstad District (including Bothaville), and in the adjoining parts of Vredefort, Hoopstad, and Winburg, it is estimated that 80 per cent. to 90 per cent. of the total veld rodent population (mainly gerbilles), and from 30 per cent. to 40 per cent. of the associated small carnivora (mongoose and suricats) died of plague. In some localities, during the height of the epizootic, dead veld rodents could be collected by the barrowful. The following is a list of the species of animals in which plague infection was proved to exist during the year:—

TABLE P.—SPECIES OF RODENTS AND OTHER VELD ANIMALS IN WHICH
PLAGUE-INFECTION HAS BEEN FOUND.

English.	Afrikaans.	Latin.
Gerbille.....	Springhaas rot; rooi witpens rot; haar-stert muis	Tatera lobengulæ.
Multimammate mouse.....	Vaal veldmuis.....	Rattus coucha.
Large-eared mouse.....	Grootoor muis; nacht muis...	Malacothrix.
Striped mouse.....	Streepmuis.....	Rhabdomys pumilio.
Karoo rat.....	Karroorot.....	Parotomys luteolus.
Ground squirrel.....	Waaier-stert meerkat.....	Geosciurus capensis.
Springhare.....	Springhaas.....	Pedetes caffer.
Black rat.....	Zwaarterot.....	Rattus rattus.
House mouse.....	Huismuis.....	Mus mus culus.
Yellow mongoose.....	Witpunt-stert meerkat; geel meerkat	Cynictis penicillata.

The presence of plague bacilli has not often been found in the carnivores (mongoose and suricat), although considerable numbers have been examined bacteriologically. During a plague epizootic, these animals eat enormous numbers of dead rodents, and it seems possible that many die from poisoning by the toxins contained in the infected animals which they ingest. Incidentally they are apt to pick up large numbers of fleas from the carcasses of the animals which they eat, and may thus play an important role in spreading the infection. The spring hare, which may travel 20 to 40 miles in a single night, may also be a potent agent in carrying the infection into new areas.

At the commencement of the epidemic and epizootic, the infected districts of the Orange Free State contained enormous quantities of maize, stacked for the most part at railway stations and sidings, either without covering or fencing or in covered sheds without walls. There were, in addition, considerable quantities of hay and forage; also small stacks of maize on many of the farms and at trading stores, etc. As a rule no precautions whatever are taken to safeguard these stacks against rodents; usually the grain remains in these stacks for many months, waiting for a rise in the market price, and during this period the stacks usually become rodent-infested, chiefly with multimammate mice, black rats, and domestic mice. Gerbilles rarely harbour in the stacks, but they often form populous colonies in burrows on the veld near the stacks.

Early in the epizootic, a rapid survey of accumulations of grain and farm produce, stacked for storage or rail carriage, was made by the Department's Medical Officers and Rodent Inspectors. This disclosed a very serious situation; with the rapidly spreading epizootic, a large number of stacks on farms and at railway stations and sidings were found heavily infested with rodents dying of plague. Some of these stacks contained as much as 30,000 bags of maize intended for railage to the large centres, or for export *via* one or other of the Union ports. Apart from local measures for dealing with the epidemic, prompt measures for preventing the conveyance of plague infection to the large centres, or the ports or oversea, were of the utmost importance. Compared with the risks of infection of the rodent population of some of the large centres or the ports (which would almost inevitably have been followed by a local epizootic and a more or less severe epidemic in man), the importation into such centres from the infected area of a few cases of the disease in man was relatively unimportant, as the risks of any serious spread from such cases—if discovered with reasonable promptitude—were very small. Regulations and Orders were issued under the *Public Health Act*, prohibiting natives travelling from the more severely infected areas except with special passes

issued by the Police; this involved the employment of some fifty special police. Only one instance occurred of the human conveyance of infection to one of the larger centres, but the case was promptly discovered and isolated before any spread of infection took place.

The main efforts of the Department were concentrated on preventing the conveyance of infection in grain, forage, and other farm products. Regulations and Orders were issued, prohibiting the movement of such articles except after inspection and, if necessary, disinfection. This prohibition was made general throughout the Kroonstad District and adjoining portions of the Vredefort District and Ventersburg area of the Winburg District, but special measures of a like nature were taken in respect of any places or areas containing grain stacks known to be infected in other localities. Delay and inconvenience were inevitably entailed to owners of grain and other produce after the institution of these precautions, but as additional trained staff became available and the organization was got into working order, delays were minimized. The Railway Administration, Magistrates, and the Police all co-operated and rendered invaluable assistance. Railway officials were instructed to refuse carriage of grain or produce from the badly infected areas unless accompanied by a certificate of freedom from infection from a Health official; in the less severely affected areas they were instructed to refuse rail conveyance of any article showing signs of damage or contamination by rodents. These instructions were carefully carried out, and no instance is known where infection occurred at a distance as a result of rail carriage of infected produce. At the urgent request of this Department, the Railway Administration expedited the completion of the grain elevators in the north-western Orange Free State, and by arrangement between the Railway Administration and grain-owners, infected stacks of maize, after a preliminary disinfection under official supervision, were passed through the elevators, where they were thoroughly cleansed—the dirt, vermin, and waste screened out being destroyed by fire. No grain from the badly infected areas was accepted for rail conveyance until it had been passed through an elevator; small lots intended for local consumption were otherwise disinfected under supervision.

Local Authorities throughout the Union were urged to inaugurate an active campaign against rodents, to organize and carry out rodent destruction schemes, and, in conjunction with the Railway Administration, to take measures for the destruction of rodents arriving in goods trucks, etc. At Johannesburg, where the Municipality, in conjunction with the Railway Administration, organized a system of searching and destroying rodents in arriving trucks, it was found that, on an average, four trucks arrived daily containing rodents—in all cases black rats. These were most frequently found in trucks containing cattle, or crates of poultry, in which both food and water were usually available to the rats. After consultation with a number of the larger Local Authorities, Regulations drafted by the Department were promulgated under the *Public Health Act*, to be in force in all urban areas throughout the Union, regarding the prevention of rodent infestation of stores, shops, business premises, and dwellings.

Up to the present, no effective method of localizing or arresting the spread of virulent plague infection in large tracts of country with a dense veld rodent population has been devised; indeed, the problem is a well-nigh insoluble one. Good results have been obtained by gassing veld rodents in their burrows with carbon bisulphide, but the process is costly and tedious, and in the nature of things is not applicable to enormous stretches of country. Attempts to deverminize stacks of grain by covering them with tarpaulins and then fumigating with carbon bisulphide proved disappointing. Similar attempts

with hydrocyanic acid gas were more promising, and the results are being followed up. In devising and carrying out experiments and tests in methods of rodent destruction, the Department received the cordial co-operation and assistance of firms in the Union engaged in the manufacture of chemicals and explosives. For some time an officer with expert knowledge and special experience of this work was employed to explore the possibilities of dynamiting rodent burrows, and to test various methods of gassing. He succeeded in devising a method of gassing with agricultural dynamite, which, under certain circumstances, is proving useful. The great difficulty is in devising a method applicable to a vast extent of country and to animals mostly of nocturnal habits and living in deep and complicated burrows. Experience in other countries in poisoning wild animals—such as rabbits in Australia, dingoes, coyotes, and squirrels in America, etc., has been drawn upon, and a number of special poisoned baits have been tried. One great difficulty in dealing with gerbilles was that of finding an attractive bait. After much thought and experiment, the Department succeeded in devising a poisoned bait consisting of ground monkey-nuts with barium carbonate, made up into pellets. This poisoned bait is giving promising results; it is certainly the best, quickest, and cheapest method of destroying gerbilles and associated veld rodents so far devised, and promises to be a valuable aid in combating plague in the Union.

The problem confronting the Union in connection with plague is an extremely serious one. It is unlikely that during the next "plague season" there will be any very serious prevalence of the disease in the north-western Orange Free State, as a large percentage of the rodent population of these districts was killed by plague during last season, but there is grave risk of spread to the grain areas of the eastern Orange Free State, which also teem with veld rodents. Strips of country in strategic positions, i.e. near the Vaal River at Viljoensdrift, and near Frankfort, are being systematically cleared of rodents so as to form "plague fire-belts," designed to limit spread northwards, but measures of this kind are inapplicable to the Ficksburg, Fouriesburg, Bethlehem, and Harrismith Districts. The measures taken last year were successful in preventing the conveyance of infection to any of the large centres or to the ports, but it would be impossible to guarantee similar results in future. The area of the Union now known to have enzootic plague infection is about 50,000 square miles. Although a great deal has been done by the Department to elucidate the mechanism of perpetuation and spread of the infection, much still remains to be done. It is imperative that the problem be attacked from all sides, and further investigation—from the zoological, entomological, and bacteriological points of view—is urgently necessary. Proposals have been submitted to the Government and to the South African Institute for Medical Research for a comprehensive investigation, involving the organization of a mobile field laboratory and the employment of a special Research Staff. I attach (Annexure "B") a memorandum dated 26th May, 1924, furnished to the Minister of Public Health and to the Director of the South African Institute for Medical Research, Johannesburg, outlining the course of events in connection with plague in the Union, the points already investigated and cleared up more or less completely by this Department, and those requiring further investigation.

Further strong representations, supported by the South African Biological Society, have been made to the Administrations of the four Provinces urging the protection, and promotion of the increase, of natural enemies of rodents, especially birds of the owl and hawk families and wild cats. The destruction of these and of bush and other "cover," concurrently with the development

of grain-farming, has seriously disturbed the balance of nature in many localities and is an important factor in the perpetuation and spread of plague. In many places rodents have become a serious and destructive pest, apart altogether from plague. By preserving bush, planting trees, and stopping veld-burning and shooting on their farms, a few enlightened farmers have already done much to reduce the rodent pest on their farms. A few others have obtained surprising results by fostering the domestic cat; one farmer has largely cleared his farm of rodents by turning loose a consignment of cats and arranging for their care and regular feeding with limited amounts of milk (so that they have to hunt for most of their food) at selected spots on the farm away from the homestead and dwellings.

These simple and practicable measures are within the reach of all, and their extensive application, combined with the protection of stored grain and the exclusion of rodents from dwellings and outbuildings, would greatly reduce the danger of plague in the endemic areas.

8. *Rabies (Hydrophobia)*.—In September, 1923, a suspected case occurred at Kopjes, Vredefort District, Orange Free State. The patient, a young European farmer, becoming suddenly ill on the 14th, died on the 19th, and was buried at Bloemfontein on 21st September. The occurrence, unfortunately, was not reported to this Department until 2nd October, when arrangements were at once made for disinterring the body, making a post-mortem examination, and submitting materials to the Veterinary Research Laboratory, Onderstepoort; the condition of these materials on receipt, however, rendered it impossible to determine definitely the presence or absence of hydrophobia. The history of the case was briefly as follows: On the evening of 22nd June, on hearing a noise of dogs barking, the deceased went outside the house and found that two of his Airedale puppies which were tied up had been bitten by a lurcher greyhound, a dog belonging to a native on the farm, well known to the deceased as a timid, cowardly animal. The deceased shouted at it, expecting that it would make off, but instead and without any warning it jumped at him and bit him in the left forearm, perforating the skin in one or two places. The owner of the dog, on being sent for, was much surprised and could not account for the strange behaviour of the animal on this occasion and during the preceding two or three days, when it had chased and snapped at fowls and any animal in the vicinity. The dog was subsequently shot by a neighbouring farmer whom it had attacked but had not succeeded in biting; it had been buried at the place where it was shot, but owing to lapse of time it was considered useless to exhume it. One of the Airedale puppies recovered, but the other sickened on 17th and died on 22nd August.

Another suspected case occurred on the farm Boschfontein, Middelburg, Transvaal, the patient being a young agricultural student. The history was that about the middle of November, 1923, he had caught a meerkat which came wandering on to the Homestead about midday. It bit the deceased in the finger and was so pertinacious that a knife had to be used to lever its jaws open. The patient began to feel "out of sorts" on 11th January, but continued at work until the 15th idem, when he became seriously ill with symptoms strongly suggestive of hydrophobia, and a medical man was called to see him; he died on 17th January. Unfortunately, the Department was not notified of the case until too late for post-mortem and laboratory examinations. (For detailed report of this case see article "Rabies?" by Dr. C. J. Albertyn, *S.A. Medical Record*, Vol. 22, No. 5, 8th March, 1924.)

Reference to suspected cases in dogs at Lobatsi, in British Bechuanaland, near the Union border, in November, 1919, and December, 1922, also to a suspected human case (fatal) at Harrismith, in February, 1921, following a scratch by a monkey, will be found in previous Annual Reports. Two human deaths following meerkat bites and with symptoms suggestive of hydrophobia are stated to have occurred in the Heilbron District in 1916. The available data raise the disquieting suspicion that there may be sparse and smouldering rabies infection amongst the wild fauna of South Africa. Vigilance should be exercised by all concerned, and any suspected case in man or animals should be promptly reported for investigation. Animal suspects should, if at all possible, be preserved alive, as decomposition greatly increases the difficulties of pathological examination.

9. *Smallpox and Vaccination.*—The following tables show the number of outbreaks and cases of and deaths from smallpox during the year, the state as to vaccination of those attacked, vaccination of infants and children amongst the classes which register births, vaccinations of twelve-year-old European children in Natal, and the total public vaccinations carried out during the year.

TABLE Q.—(i) SMALLPOX: CASES AND DEATHS REPORTED DURING THE YEAR ENDED 30TH JUNE, 1924.

Province.	Number of Districts Affected.	White.		Coloured.		Total.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cape.....	23	17	—	227	3	244	3
Natal.....	5	—	—	12	—	12	—
Transvaal.....	10	3	—	39	—	42	—
Orange Free State	15	8	—	97	2	105	2
UNION.....	53	28	—	375	5	403	5

TABLE Q.—(ii) STATE AS TO VACCINATION OF CASES OF SMALLPOX REPORTED DURING THE YEAR ENDED 30TH JUNE, 1924.

Particulars.	White.		Coloured.		Total.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Previously vaccinated *.....	12	—	80	—	92	—
Unvaccinated.....	16	—	295	5	311	5
TOTAL.....	28	—	375	5	403	5

* In most instances many years previously.

TABLE R.—(i) VACCINATION OF INFANTS AND CHILDREN IN THE CLASSES OF THE POPULATION WHICH REGISTER BIRTHS: YEAR ENDED 30TH JUNE, 1924.

(The figures do not include revaccinations of twelve-year-old children.)

Particulars.	Cape.		Transvaal.		Natal.			Orange Free State.	Union.
	Cape District.	Re-mainder of Province.	Rand Area.	Re-mainder of Province.	Durban.	Pieter-maritz-burg.	Re-mainder of Province.		
Births entered in Vaccination Register.....	9,558	52,752	7,531	9,005	1,811	583	1,606	4,511	87,357
Successfully Vaccinated..	3,824	2,709	883	2,093	630	213	680	730	11,762
Insusceptible to Vaccination.....	15	1	1	1	16	8	14	—	56
Vaccination Postponed owing to Illness.....	11	63	37	82	108	28	79	59	467
Previously had Smallpox.....	—	—	—	—	—	—	—	—	—
Deaths of Infants under two years registered...	1,804	6,269	1,153	914	85	21	102	338	10,686
Ratio % of Vaccinations Registered to Births Registered during the Year (after allowing for deaths of infants under two years).....	49·51	5·83	13·86	25·88	37·43	39·32	46·14	17·49	15·41

TABLE R.—(ii) REVACCINATION OF TWELVE-YEAR-OLD EUROPEAN CHILDREN IN NATAL: YEAR ENDED 30TH JUNE, 1924.

Particulars.	Durban.	Pieter-maritz-burg.	Remainder of Province.	Total.
Registrations of 12-year-old European Children.....	1,165	547	886	2,598
Successfully Vaccinated.....	565	282	558	1,405
Insusceptible to Vaccination.....	25	35	23	83
Vaccination Postponed owing to Illness.....	26	2	16	44
Previously had Smallpox.....	2	—	—	2
Ratio of Vaccinations to 12-year-old Registrations.....	50·81	57·96	65·58	57·35

TABLE R.—(iii) PUBLIC VACCINATIONS DURING THE YEAR ENDED 30TH JUNE, 1924.

Province.	Number of Centres at which Public Vaccinations were held.		Number of Visits of Public Vaccinators to Centres.		Numbers Vaccinated.				Total.
					White.		Coloured.		
	Urban.	Rural.	Urban.	Rural.	Primary.	Re- vaccina- tions.	Primary.	Re- vaccina- tions.	
Cape.....	190	1,551	553	1,560	10,460	2,065	94,726	65,747	172,998
Natal.....	48	292	142	294	849	429	34,344	2,598	38,220
Transvaal.....	81	554	838	562	12,926	2,399	68,558	89,278	173,161
Orange Free State	45	258	129	259	2,585	695	7,955	2,256	13,491
TOTAL....	364	2,655	1,662	2,675	26,820	5,588	205,583	159,879	397,870

During the year the Union was never without several outbreaks of smallpox, most of these being in native areas. All the outbreaks were effectively limited and eradicated by vaccination of the affected population, the isolation of cases, and the carrying out of disinfection. The type of disease was mild.

The results of vaccination during the year are distinctly disappointing—the total vaccinations being 146,000 less than in the previous year and 225,000 less than in 1921. In many places vaccination is rapidly becoming a “dead

letter"; this is entirely due to failure to enforce the law and to institute prosecutions where necessary, the Government having decided not to prosecute "genuine conscientious objectors" to vaccination pending the amendment of the law in this respect, and it being impossible, without some definite system established by law, to differentiate between the genuine and the spurious. A continuance of this tailing-off process would result in the gradual accumulation of a large unvaccinated population—a state of matters which would be fraught with grave danger to the public health. Either the existing law should be rigorously enforced, or it should be amended so as to lay down a carefully considered and safeguarded procedure under which genuine conscientious objectors to vaccination, and no others, may obtain exemption.

10. *Tuberculosis*.—The Tuberculosis Survey of the Union by Dr. P. Allan, Medical Inspector, referred to in last Annual Report, was completed and a Report thereof published during the year.

Despite many difficulties and the incompleteness or lack of records and statistics, Dr. Allan succeeded in eliciting much useful information, and his Report will be of great practical value to the Government, Local Authorities, and all concerned. It shows that although tuberculosis is a very serious menace, especially to the coloured and native races of the Union, there has been in recent years a steady and well maintained reduction of prevalence in practically all areas and amongst all classes of the population. The data included in the Report strikingly illustrate the importance in this connection of feeding, housing, and the general standard of living; in other words, the close relationship between tuberculosis prevalence and general economic conditions.

The Sanatorium at Nelspoort has been completed and was opened for the reception of patients on 5th May, 1924. It provides accommodation for ninety-two patients, with facilities for extension. Dr. P. Allan has been appointed Medical Superintendent. An agreement has been entered into between the Government and the other parties concerned establishing and defining the functions of an Advisory Committee in connection with the Institution—to include representatives of the Union Health Department, of Local Authorities (both urban and rural) of the Cape Province, and of Mr. John Garlick. At first, admissions were restricted to cases sent in by Local Authorities of the Cape Province, but as after a month or six weeks only twenty-eight such patients had been admitted, the Sanatorium was thrown open to patients from all parts of the Union, but with priority for Cape Province cases. The following tariff of charges was laid down: For patients sent in by Local Authorities—European, 10s. per diem; coloured, 7s. 6d. per diem; native, 5s. per diem; half of these charges being payable by the Local Authority, the other half being defrayed from this Department's Votes in terms of Section 50 (1) (e) of the Public Health Act, 1919; part-paying patients, 10s. per diem, half the difference between the amount contributed by the patient and this tariff being payable by the Local Authority, the other half being defrayed from the Department's Votes; paying patients, 12s. 6d. per diem. It is hoped that it may prove possible to reduce these charges later on, the intention being that the Institution should be run as economically as possible and that charges to Local Authorities should be calculated as nearly as may be at half the actual cost. On 30th June, 1924, the patients in the Sanatorium numbered: European, 25; coloured and native, 18; total, 43; of whom 1 was part-paying, the remainder being Local Authority cases. It is not surprising that there should be, at the outset, hesitation on the part of many patients to go to a distant Sanatorium of which they know very little; it is confidently expected, however, that when the Institution becomes better known, the existing

accommodation will not only be fully utilized but will prove inadequate. Apart from dealing with cases of the disease, it is hoped that the Sanatorium will prove a centre for the scientific study of tuberculosis and the dissemination of information regarding the disease.

Under the Immigrants' Regulation Act, No. 22 of 1913, persons entering the Union are required to sign a declaration stating, *inter alia*, whether they are affected with tuberculosis; persons so affected are not admissible except under permit, subject to conditions as to place of residence and accommodation, disposal of sputum, disinfection, and other precautions, notification to the Local Authority, and medical examination when required; also, such persons may be required to make a deposit or give a guarantee to cover the cost of their repatriation should this become necessary. According to returns furnished by the Department of the Interior, the total number of tuberculous immigrants into the Union since 1918 was 59, of whom 15 have since left the Union and 14 have died therein. Since the opening of the Sanatorium, investigation of the histories of several applicants has disclosed the facts that they were suffering from tuberculosis before entering the Union, that they had made false declarations to the Immigration Officer in this respect, and that their condition had consequently escaped detection. It has been decided, after consultation with the Sanatorium Advisory Committee, not to admit to the Sanatorium persons who have secured admission to the Union on false declarations in this respect. It would seem desirable, however, that more effective steps be taken to prevent tubercular immigrants from entering the Union. Effective medical examination of all immigrants, either at the port of departure or at the port of arrival in the Union, would entail difficulties and delays; in my opinion, the Union should adopt the plan followed by Canada and place upon shipping companies and ships' surgeons the duty of medically examining all immigrants during the voyage, and furnishing a report on each to the Immigration Officer and Port Health Officer at the port of arrival.

With regard to the question of bovine tuberculosis in the Union and the consequent danger to the public health, which was dealt with at some length in previous Annual Reports, I regret to state that the position remains unchanged, except that arrangements are being made by the municipalities of Cape Town and Durban, in co-operation with this Department, to actively enforce the provisions of Section 114 of the *Public Health Act* in respect of tuberculosis in dairy herds.

11. *Typhus*.—The following table shows the cases and deaths reported during the year:—

TABLE S.—TYPHUS FEVER: CASES AND DEATHS REPORTED DURING THE YEAR ENDED 30TH JUNE, 1924.

Province.	Number of Districts Affected.	White.		Coloured.		Total.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cape.....	51	26	3	1,366	246	1,392	249
Natal.....	10	8	—	233	36	241	36
Transvaal.....	6	2	—	201	49	203	49
Orange Free State	16	10	—	276	43	286	48
UNION.....	83	46	3	2,076	379	2,122	382

During the previous year, 7,099 cases with 755 deaths were reported, so that this year there has been a notable subsidence of the disease.

The educative and publicity campaign referred to in previous reports has been actively carried on during the year; there is reason to believe that the great majority of natives in the Transkei and other native areas, which in

the past have been seriously affected, now know the essential facts regarding the nature of the disease and its mode of spread; also the precautions which are effective in preventing spread. The scheme of distributing naphthalene oil through storekeepers in the Transkei, mentioned in last year's Report, has been put into operation with excellent results; a total of 316 gallons has been issued on repayment at cost price (1s. 6d. per bottle), and in addition large quantities have been issued free to indigent natives.

A somewhat serious outbreak of typhus occurred amongst native labourers mostly from the Transkei, housed in Nicoll's Barracks, Point area, Durban, in November, 1923; altogether there were some ninety cases, with ten deaths. The majority of the cases were mild in type and atypical on clinical examination; considerable spread had occurred before the true nature of the disease was recognized. Effective measures to cleanse and de-verminize the natives were promptly taken, the outbreak was quickly suppressed, and the infection eradicated. The outbreak emphasizes the frequent difficulties of diagnosis of the form of typhus usually met with in South Africa, the need for vigilance, and for the supervision of large collections of natives in barracks and locations to ensure their freedom from vermin.

12. *Venereal Diseases.*—The following table summarizes the work in connection with venereal diseases done by District Surgeons, Local Authorities, and Institutions during the year:—

TABLE T.—VENEREAL DISEASES: CASES TREATED AND ATTENDANCES,
YEAR ENDED 30TH JUNE, 1924.

Locality.	In Hospital.				Out-door Attendances.				Total.
	Syphilis.		Gonorrhoea and Other Venereal Diseases.		Syphilis.		Gonorrhoea and Other Venereal Diseases.		
	White.	Col.	White.	Col.	White.	Col.	White.	Col.	
1. <i>By District Surgeons:</i>									
Cape.....	24	712	34	358	129	3,237	63	288	4,845
Natal.....	10	141	16	81	40	710	34	213	1,245
Transvaal.....	1	5	3	3	188	3,957	57	112	4,326
Orange Free State...	—	3	11	—	151	1,581	66	224	2,036
2. <i>At Institutions:</i>									
Barberton.....	2	395	—	12	—	—	—	—	409
Bloemfontein (Belmont Hospital)....	5	101	6	19	118	420	46	15	730
Bochem.....	—	1,017	—	20	—	10,483	—	—	11,520
Cape Town.....	—	—	—	—	2,244	3,251	1,745	847	8,087
Colesberg.....	—	102	—	—	4	18	5	6	135
Craddock.....	—	26	—	—	—	4	—	—	30
East London.....	—	—	—	—	170	382	108	96	756
Elim.....	4	851	2	2	—	597	1	3	1,460
Johannesburg.....	—	—	—	—	5,116	—	4,649	—	9,765
Kimberley.....	5	184	4	28	113	491	19	57	901
King William's Town	3	162	—	—	—	1	23	—	189
Kuruman and Oliphantshoek.....	—	20	—	—	1	365	—	—	386
Oudtshoorn.....	—	—	—	—	18	320	—	—	338
Pietermaritzburg.....	—	58	3	29	188	456	54	24	812
Port Elizabeth.....	6	61	3	7	13	100	56	32	278
Port St. John.....	—	—	—	—	—	9	—	—	9
Pretoria.....	—	—	—	—	1,244	4,195	10	22	5,471
Rietfontein.....	157	2,147	118	390	2,233	2,230	—	—	7,275
Secucuniland (Furze Memorial).....	—	19	—	—	—	7,766	—	—	7,785
Stellenbosch.....	—	—	—	—	—	88	—	—	88
Victoria West.....	—	—	—	—	—	1	—	—	1
Vryburg.....	—	125	—	1	—	766	—	—	892
TOTAL.....	217	6,129	200	950	11,970	41,428	6,936	1,939	69,769

Free issues of anti-syphilitic drugs to the value of £4,998 were made by the Department during the year.

A system of distributing mercurial ointment by Justices of the Peace, Sub-Native Commissioners, missionaries, and other approved persons in remote areas where treatment by a District Surgeon or other medical man is impracticable, was organized during the year and is giving very promising results.

The Magistrate of the district, after consultation with the District Surgeon, furnishes to selected persons in the remote parts of his district supplies of the ointment for use by the method of inunction, put up in tins labelled with full instructions, for free issue to natives suffering from syphilis.

The publicity and educative campaign has been carried on in conjunction with the Societies for Combating Venereal Diseases in the Cape and Transvaal. In consultation with the Department, the Krugersdorp Municipality has entered into an arrangement with the Johannesburg Municipality under which cases of venereal disease are sent from Krugersdorp to the Johannesburg Clinic for treatment, the Government refunding two-thirds of the cost. Under an arrangement between the Borough of Durban, the Natal Provincial Administration, and this Department, a Venereal Diseases Clinic and hospital section has been opened at the Addington Hospital and is working satisfactorily.

A singular outbreak of gonorrhoea, comprising seventeen cases, occurred in a girls' school in Johannesburg, and was investigated and promptly and effectively dealt with by the Municipal Medical Officer of Health and his staff.

IV.—GENERAL.

1. *Housing.*—In many of the larger centres and especially in Cape Town and Durban, there is still a serious shortage of houses and a considerable amount of overcrowding. A report published during the year by the Medical Officer of Health, Capetown, disclosed a very unsatisfactory state of matters in that centre.

Reports for the year regarding bad or insufficient housing, as required by Section 121 of the *Public Health Act*, have been obtained from all urban local authorities and are being considered by the Department and the Central Housing Board; it must be admitted, however, that the great majority of these are of comparatively little value, and that except in the case of local authorities having whole-time health officers and an organized health staff, where detailed and reliable information regarding housing conditions is required it is usually necessary for the Department or the Housing Board to arrange for an independent investigation.

A separate Report by the Central Housing Board, detailing the measures taken and loans issued under the Housing Act, No. 35 of 1920, during the year, is being submitted; the following table shows the principal figures in regard to the working of the Act since it became law:—

TABLE U.—HOUSING ACT, NO. 35 OF 1920: WORKING FROM PROMULGATION (16TH AUGUST, 1920) TO 30TH JUNE, 1924.

Province.	Loans Approved.			Loans Issued.	Number of Houses.					
	European.	Coloured and Native.	Total.		Completed.	Under Construction.	Approved but not yet Commenced.	Total.	Total for European Occupation.	Total for Coloured and Native Occupation.
	£	£	£	£						
Cape.....	388,513	189,112	577,625	469,871	1,155	148	195	1,498	457	1,041
Natal.....	373,728	—	373,728	327,100	268	21	—	289	289	—
Orange Free State.....	245,668	21,625	267,293	230,375	207	239	581	1,027	188	839
Transvaal...	334,938	109,154	444,092	383,084	1,072	45	35	1,152	345	807
UNION ...	1,342,847	319,891	1,662,738	1,410,430	2,702	453	811	3,966	1,279	2,687

The total funds provided for loan issues during the year ending 31st March, 1925, are £610,000, leaving a balance of £499,000 to be provided next year. This will bring the total loans made under the Act to £2,381,000 and will complete all commitments of the Government in respect of Housing Loans to date. Up to the end of August, 1922, the interest rate for loans was 4 per cent. per annum, and a total of £751,266 was issued at that rate; all subsequent loans are at 5 per cent.

Undoubtedly, the Housing Act and the measures taken thereunder have been of considerable assistance in alleviating the housing shortage at several of the large centres—notably Durban, Pretoria, Bloemfontein, Kimberley, and Port Elizabeth—but the funds available have been far short of meeting the needs. The question has also been raised as to whether the Act is meeting the most urgent part of the need, namely, that of the artisan and the semi-skilled or unskilled labourer; it has been contended that the class of house for which loans have been made is much too expensive for the “small” man, that the limits of loans and total cost are too high, and that most of the persons who are being assisted under the Act could themselves raise money through building societies or otherwise for building their own homes.

The Housing Committee of 1919, on the recommendations of which the *Housing Act* was based, emphasized the urgent need *not only for more houses but for better houses*, and that *relief of the housing shortage should proceed concurrently with housing improvement*; that the Government should aim at building a fairly good class of house to accommodate those living in poorer class houses, who could then evacuate the latter, leaving them available for the stratum next below, and in this way the position would be eased down to the poorest class of householder.

At the commencement of the Act the maximum limits fixed were £2,500 for the house, exclusive of site, and £2,000 for the loan. In July, 1921, owing to the limited funds available, it was decided to reduce the maximum loan to £1,500. In July, 1923, following on a fall in the cost of labour and building materials, the limit was reduced to £1,000 for the house, exclusive of the site, except in certain centres where building costs were still high and the Local Authorities demanded a good class of dwelling; in the Reef Municipalities, Pretoria, and Bloemfontein, the limit was fixed at £1,250, and in the Cape, Transvaal, Port Elizabeth, East London, and Durban, at £1,150. In all cases the maximum loan was limited to 80 per cent. of the cost of the building and ground, or such less amount as the Local Authority in each case decided. Since then there has been some rise in building costs, and in some centres it is now difficult to build a satisfactory house of three living rooms, kitchen, and bathroom, with sewerage, fencing, etc., within the limit specified.

It must be admitted that under the present system the poor man is at a disadvantage, but this is not the fault of the Government or the Central Housing Board. Local Authorities throughout the Union are not in favour of housing loans to the poorer classes of the population; they much prefer to make loans to persons in somewhat better circumstances or in permanent employment. In this attitude they have been supported, generally speaking, by the Provincial Administrations. Also during the past year or two Local Authorities have shown little tendency to take advantage of the provisions of the Act in regard to the carrying out of municipal housing schemes.

It seems to me that the time has come to review and reconsider the whole position. Formerly, poor class housing or slum property was, generally speaking, a highly profitable investment which attracted a certain class of capitalist and also the speculative builder. Nowadays, as a result of municipal

by-laws and regulations as to building construction and equipment, maintenance in good order and repair, prevention of overcrowding, etc., the statutory limitation of rents and other legislation, speculative house-building no longer attracts, and very little is being done to meet the increasing needs of housing accommodation for the poorer classes of urban residents. The *Housing Act* itself has had an effect in discouraging private enterprise in this direction. That Act under the present system is certainly not adequately meeting the needs. Naturally, Provincial Administrations and Local Authorities are proceeding with caution and are favouring those classes of housing loan which entail the least risk of loss. Any revised system would necessitate the provision by Government of much larger loan funds and probably a reduced and "sub-economic" rate of interest, perhaps with the Government carrying some of the risks for losses, which are at present entirely borne by the Local Authorities.

2. *Town Planning*.—This important matter remains in the very unsatisfactory position described in last report. After the rejection of the scheme referred to in that report tentative proposals were submitted by the Department for the establishment of Provincial Town Planning Boards—consisting of the Surveyor-General, the Registrar of Deeds, an Assistant Health Officer of this Department, with a part-time Town Planner—for the Cape Province and Natal, in which at present there is no town-planning legislation whatever. The suggestion was to constitute these Boards by Regulation under Section 132 (1) (h) of the *Public Health Act*, and to promulgate a simple series of Regulations under that sub-section prohibiting the cutting-up of land for building purposes except with the concurrence of the Board first obtained. The Government Law Advisers, however, ruled that such Boards could not legally be established under the sub-section mentioned. Thereafter, the Government decided to leave the supervision and control of town planning to the Provincial Administrations, and this decision was conveyed to the latter in February, 1924; since then, so far as I am aware, nothing further has been done in the matter. This delay is regrettable, as every year that passes increases the difficulties of the position. It is a comparatively easy matter to frame and enforce town-planning principles in respect of new lay-outs, but to alter existing lay-outs where the land has already been surveyed and part of it sold, is an exceedingly difficult one—involving as it does direct interference with vested interests.

If effective action in the matter in the Cape and Natal is much longer delayed, there will be little land left to "town plan"—at any rate in the vicinity of the larger centres and at favourable places along the coast. Land speculators have evidently taken alarm at the prospect of controlling legislation, and within the past year the surveying and cutting-up of land, mostly on very unsatisfactory lines, has been carried on with almost feverish activity, especially in the neighbourhood of Cape Town and Durban and at certain spots along the Natal coast.

3. *Nursing and Maternity Homes*.—The system of registration and inspection has been continued with beneficial results. All except a few homes have now been inspected and a considerable number reinspected, representations being made to the managements wherever defects or matters requiring attention have been found.

The following table shows the inspections made during the year :—

TABLE V.—NURSING AND MATERNITY HOMES: INSPECTIONS DURING THE YEAR ENDED 30TH JUNE, 1924.

Place.	Total Number.	Number Inspected.	
		By Medical Officer of Local Authority.	By Government Health Officer.
<i>Cape Province—</i>			
Cape Town.....	22	22	—
East London.....	12	12	—
Port Elizabeth.....	13	11	—
Elsewhere.....	41	—	3
<i>Natal Province—</i>			
Durban.....	22	4	—
Pietermaritzburg.....	5	5	—
Elsewhere.....	15	—	3
<i>Transvaal Province—</i>			
Witwatersrand.....	42	29	—
Pretoria.....	5	5	—
Potchefstroom.....	1	—	1
Elsewhere.....	17	—	3
<i>Orange Free State Province—</i>			
Bloemfontein.....	7	—	2
Frankfort.....	3	—	3
Elsewhere.....	8	—	5
UNION.....	213	88	20

For the reasons detailed in the previous Annual Report the system would be much more effective if there were wider powers, but on the whole persons in charge of homes have shown willingness to comply with any representations made by the Department as to alterations or improvements.

4. *Child Welfare.*—The following table shows for each Province and for the Union the births and deaths of white infants registered, and the white infantile mortality rate per 1,000 births, for each of the calendar years 1913 to 1923, inclusive:—

TABLE W.—WHITE CHILDREN: BIRTHS AND DEATHS REGISTERED AND DEATH-RATE PER 1,000 BIRTHS, 1913-23.

Year.	Cape.			Natal.			Orange Free State.			Transvaal.			Union.		
	Total White Births Registered.	Deaths of White Children Under One Year.	Death-rate per 1,000 Births.	Total White Births Registered.	Deaths of White Children Under One Year.	Death-rate per 1,000 Births.	Total White Births Registered.	Deaths of White Children Under One Year.	Death-rate per 1,000 Births.	Total White Births Registered.	Deaths of White Children Under One Year.	Death-rate per 1,000 Births.	Total White Births Registered.	Deaths of White Children Under One Year.	Death-rate per 1,000 Births.
1913	17,989	1,739	96.60	2,806	190	67.36	5,386	460	85.41	15,957	1,427	89.43	42,138	3,816	90.55
1914	18,384	1,571	85.45	2,771	181	65.31	4,571	381	83.35	15,160	1,328	87.60	40,886	3,461	84.84
1915	17,745	1,535	86.50	2,832	186	66.03	4,882	428	87.67	15,012	1,343	89.46	40,471	3,492	86.31
1916	17,333	1,512	87.23	2,773	177	63.83	5,080	389	76.57	16,010	1,467	91.63	41,196	3,545	86.05
1917	17,521	1,436	81.96	2,756	171	62.05	4,959	353	71.18	15,486	1,309	84.53	40,722	3,269	80.27
1918	17,775	1,496	84.39	2,924	176	60.53	4,906	357	72.99	15,977	1,383	87.00	41,582	3,412	82.37
1919	16,749	1,351	80.66	2,910	191	65.63	4,727	382	80.81	15,338	1,326	86.38	39,724	3,250	81.81
1920	18,425	1,654	89.77	3,256	235	71.17	4,996	448	89.67	16,768	1,576	93.99	43,445	3,913	90.07
1921	18,259	1,382	82.21	3,367	203	65.93	5,279	379	71.60	16,347	1,374	90.84	43,252	3,338	82.92
1922	18,248	1,294	70.91	3,294	180	54.64	4,920	357	72.56	16,370	1,292	78.92	42,832	3,123	72.91
1923	18,397	1,599	86.92	3,240	198	61.11	4,828	329	68.14	15,539	1,323	85.14	42,004	3,449	82.11

In last Report reference was made to the unsatisfactory position in regard both to infantile mortality and child welfare organization. During the latter part of 1923 a tour of the Union was made and numerous meetings held by Miss Patterson, a Child Welfare Nurse, trained by Dr. Truby King and for some time a member of his staff in New Zealand. In March, 1924, at a conference of Child Welfare Societies held in Cape Town, a series of resolutions was passed providing for the establishment of a South African National Council for Child Welfare, including representatives of the various Child Welfare Organizations, Municipalities, and Divisional Councils, Medical Councils, Trained Nurses' Associations, Red Cross Societies, Provincial Administrations and the Government Departments concerned. Resolutions were also passed urging the Government to subsidize the new body under Section 135 of the *Public Health Act*. The Council held its first meeting at Bloemfontein in May, 1924, when a full-time secretary and central executive were appointed, and it was decided, subject to the receipt of a grant-in-aid from the Government, to establish mother-craft training centres at Cape Town and Johannesburg.

During the year a booklet, "Care of Mother and Baby" was prepared by Dr. Charles Porter, Medical Officer of Health, Johannesburg, in collaboration with certain local medical men. The booklet was specially designed for use in Johannesburg, but the Department purchased 1,000 copies and distributed these under circular to local authorities and others concerned throughout the Union. The publication has been welcomed everywhere; arrangements have been made by the Johannesburg Municipality to furnish supplies to local authorities, Child Welfare Societies, etc., at cost price. An Afrikaans edition of this or a similar booklet is much needed.

5. *Offensive Trades*.—The Department continues to exercise supervision regarding this matter. Administrative arrangements under the regulations referred to in last Annual Report were upset by the abolition of the office of Licensing Officer in Natal. The regulations were revised and republished, provision being made for the work formerly done by the Licensing Officer being taken over by the Factories Inspector. Whilst the Provincial Administration will still be in a position to obtain expert advice as to the suitability of premises for licence, the procedure under the regulations has been further simplified for applicants, and it is hoped that with the active co-operation of the police the efficiency of supervision and control may be improved.

6. *Opium and Habit-forming Drugs*.—In co-operation with the Police and the Commissioner of Customs and Excise, the enforcement of the regulations regarding opium, dagga, and other habit-forming drugs has been actively continued during the year. The following table shows the prosecutions and convictions:—

TABLE X.—PROSECUTIONS AND CONVICTIONS UNDER LAWS RELATING TO HABIT-FORMING DRUGS DURING THE YEAR ENDED 30TH JUNE, 1924.

Province.	European.		Native.		Asiatic.		Other Coloured.		Total.	
	Prose- cutions.	Convic- tions.	Prose- cutions.	Convic- tions.	Prose- cutions.	Convic- tions.	Prose- cutions.	Convic- tions.	Prose- cutions.	Convic- tions.
Cape.....	53	45	322	303	14	14	622	604	1,011	966
Natal.....	—	—	353	341	18	17	3	3	374	361
Transvaal	32	30	858	831	26	23	94	86	1,010	970
Orange Free State	6	5	296	280	—	—	26	24	328	309
UNION.....	91	80	1,829	1,755	58	54	745	717	2,723	2,606

Of the total of 2,723 prosecutions, 2,697 were in respect of dagga, 21 of opium, 2 of morphine, and 3 of cocaine. 12 lb. 5½ oz. of opium and considerable quantities of dagga were seized and confiscated during the year. Owing to the strict enforcement of the regulations and the consequent difficulty in obtaining habit-forming drugs in Johannesburg and other large centres, a certain amount of smuggling, chiefly in the Rand area, has developed, "dagga" being brought in by native agents or runners mainly from Swaziland and opium through Mozambique. The police have taken active measures to check this traffic.

The total quantities of habit-forming drugs authorized to be imported into the Union during the year ended 30th June, 1924, were:—Opium, 776 lb. 14 oz.; morphine, 84½ lb. (including 55 lb. exported by a German firm through Hamburg, consigned to a firm in Johannesburg in a case supposed to contain hosiery, and discovered and seized by the Customs authorities at Johannesburg); morphine, tubes of hypodermic tablets, 8,241; heroin, 1 lb. 2½ oz.; cocaine, 35 lb. 8 oz.; cannabis indica, 4 lb. 13½ oz.

The following exports of habit-forming drugs from the Union were authorized during the same period: Opium, 2 oz. 110 gr.; tincture of opium, 240 lb.; opium tablets (each 1 gr.) 1,100; morphine, 34 lb. 12 oz. (including 33 lb. of consignment seized by the Customs authorities at Johannesburg and exported to Paris, with the previous concurrence of the French Government); morphine, hypodermic tablets, 48 tubes; heroin, hypodermic tablets, 93 tubes; cocaine, 3 oz. 24 gr.; opthalmic cocaine, 14 tubes; Tucker's asthma fluid, 28 oz.

Representations were made to the Opium Committee of the League of Nations urging that Indian hemp or dagga be added to the international list of habit-forming drugs. A memorandum on dagga-smoking and its evils was published by the Department and widely circulated.

The regulations under Section 10 of Act No. 35 of 1922, promulgated under Proclamation No. 181 of 1922, were amended by Proclamation No. 38 of 1924, so as to provide for the purchase of tincture of opium (laudanum) by farmers or owners of live stock for the prevention or treatment of diseases in stock, also for the procuring and keeping of cocaine solutions for "first-aid" treatment of eye injuries or other necessary purposes by managers of factories or workshops.

A permit for the cultivation of "Indian hemp" for export for medicinal purposes has been issued under the regulations to a farmer in the Koster area, Rustenburg District.

7. *Traffic in Methylated Spirits for Drinking Purposes.*—The report of the Inter-Departmental Conference referred to in last Annual Report has been laid on the Tables of both Houses of Parliament. A short Bill giving effect to its recommendations has been drafted by the Department of Customs and Excise, but has not yet been introduced.

There is evidence that this nefarious traffic continues. As an illustration it may be mentioned that during the first six months of 1924, 38,228 lb. weight of methylated spirits were imported by rail into Kimberley; there is no doubt that much of this is not for legitimate purposes.

8. *Botulism and other forms of Food Poisoning.*—A serious outbreak, comprising some eighteen cases, one of which proved fatal, occurred in March, 1924, amongst persons who at lunch in a café at Muizenberg had partaken of a lemon sponge stated to have been made of fresh milk, fresh eggs, the juice of three lemons, and some gelatine. Medical witnesses at the inquest attributed the attack to "ptomaines in the egg albumen," it being suggested that a

cracked egg, even if fresh, might have become inoculated with the toxin-producing organism. Unfortunately, such cases are not notifiable, and cannot be made notifiable, under the present *Public Health Act*, and long delay occurred before there was any investigation. Laboratory examination of the gelatine disclosed nothing abnormal.

It is very desirable that all cases of botulism or other form of food poisoning should be notifiable by medical practitioners and heads of households; it is proposed to obtain the necessary statutory powers at the first opportunity.

9. *Meat Inspection—Standards and Procedure: "Measly" Meat.*—From time to time the Department has received complaints as to differences of standard and procedure in regard to meat inspection adopted by various local authorities, most of these having reference to carcasses or meat containing bladder worms (measles). It was, therefore, deemed desirable to draft and promulgate regulations, under Section 115 of the *Public Health Act*, uniform for the whole Union, laying down the procedure and standards to be adopted by all local authorities; these regulations to rescind and replace all local regulations regarding these matters at present existing. As a first step a conference of representatives of the meat trade, the larger local authorities, veterinary surgeons, the Veterinary Branch of the Department of Agriculture, and this Department, was convened by this Department and held at Johannesburg on 1st September, 1923, under the chairmanship of Dr. L. G. Haydon, Senior Assistant Health Officer. Thereafter, a series of regulations were drafted and published for information and criticism (as provided in Section 138 of the *Public Health Act*) in January, 1924. A large number of criticisms and suggestions were received, and a revised draft has been prepared and circulated for information and further suggestions. It is hoped that it will soon be possible to promulgate the regulations in final form. Most of the difficulties which have arisen in regard to the draft have been in connection with "measles" in cattle, and the standard of fitness for human consumption to be applied to measly meat. In some areas, and notably in Albany and neighbouring districts of the Cape Province, measles in cattle is very common, and at present there are no cold storage facilities locally in which slightly infected carcasses could be sterilized.

10. *Cancer.*—The increase of cancer amongst the white population of the Union mentioned in last Report still continues. The following are the certified European deaths from cancer during each of the past eleven years:—1913, 622; 1914, 625; 1915, 717; 1916, 672; 1917, 772; 1918, 764; 1919, 811; 1920, 884; 1921, 916; 1922, 993; 1923, 1,127. This matter, and also the comparative infrequency of cancer amongst natives living under natural and primitive conditions, has been brought to the notice of the South African Institute for Medical Research, the Department offering to co-operate and assist in any investigation. The Institute is hampered by shortage of funds, but it has decided, as an initial step, to get in touch with the Cancer Research Committee in England with a view to ascertaining how the Institute could best co-operate with that Committee, it being mentioned that questions relating to the incidence of cancer amongst natives might afford a fruitful line of investigation.

11. *Vaccines, Sera, Pathogenic Cultures, etc.*—Nine permits under the Regulations (Government Notice No. 2306 of 1920) were issued during the year, one of them being in respect of smallpox vaccine or calf lymph. The Department has been in touch, through its representative on the Committee of the Office Internationale d'Hygiene Publique, Paris, with the special committee of that body which is considering the question of the establishment of international standards of potency of certain sera and other biological products.

12. *Medical, Dental, Pharmacy, Nursing, and Midwifery Matters.*—The present system of administering these matters—with three separate Medical Councils, three Pharmacy Boards, and one joint Medical and Pharmacy Board, each body differing as to its constituting laws and procedure, but all of them subject to certain Union legislation (Act No. 21 of 1919)—is complicated and unsatisfactory. It is to be hoped that the consolidating and amending *Medical, Dental, and Pharmacy Bill*, which has now been before Parliament for seven years, will shortly become law. Apart from merely administrative difficulties, the position has been materially changed by the establishment of medical schools in connection with the Universities of Cape Town and the Witwatersrand; the latter University is also taking steps to establish a Dental School furnishing a complete dental course.

During the half-year ended 30th June, 1924, there were in the Universities of the Union a total of 402 medical, 29 dental, and 9 pharmacy students, with 3 medical practitioners taking the special course for the diploma in Public Health.

The position in regard to the supply and training of nurses and midwives is very unsatisfactory. More trained nurses and midwives is one of the crying needs of the country, but at present it is nobody's business to promote and increase the supply of these. This Department under the present laws has no *locus standi* in the matter; the Medical Councils are merely examining, registering, and supervising bodies; and the Provincial Administrations and Hospital Boards are concerned with the administration and working of the general hospitals and kindred institutions rather than with the training of nurses and midwives for the public generally. The Transvaal Provincial Administration has indeed definitely laid down that it is not prepared to assume responsibility for the training of pupil midwives except such as may be necessary for the nursing of patients in its institutions, and has refused an offer of £5,000 by the Johannesburg Municipality towards the capital cost (for accommodation) of a scheme for training an additional sixty to eighty midwives annually in connection with the Queen Victoria Maternity Hospital—a scheme which would have been largely or entirely self-supporting, which would have provided a good district nursing service for Johannesburg, and have been of great benefit to the whole of South Africa. The development of district nursing and midwifery services, especially in the smaller centres which have no hospital accommodation and in the rural areas, and an increased supply of trained nurses and midwives of the type of the Australian "bush nurse," who is not only competent in her profession, but accustomed to move about country districts alone and take care of herself under all circumstances, are much needed. South Africa could certainly produce an adequate supply of woman of this type if only reasonable facilities and encouragement were provided.

The King Edward Order of Nurses is endeavouring to meet the need, but its funds and resources are very limited, and in the nature of things it is unable to do more than touch the fringe of the problem. The Z.A. Moeders' Bond Hospitaal, Pretoria, has organized an excellent system of training midwives for the smaller centres and rural areas, but is labouring under similar difficulties.

Very useful work is being done by the Red Cross and St. John's organizations in training young people of both sexes in first-aid and home nursing and organizing Voluntary Aid Detachments. This movement is worthy of every encouragement. A scheme has been arranged under which the assistance of those detachments may be requisitioned by the public medical authorities in any local emergency, and a percentage of each detachment may be called out for service in any military or civil emergency in any part of the Union.

A conference of representatives of the four Medical Councils was held in Johannesburg in December, 1923, for the purpose of reviewing and bringing into line as far as possible the regulations and requirements in respect of the training of midwives and nurses in the four Provinces. Draft revised regulations have been framed accordingly, but are not yet ready for promulgation.

Various small amendments to the regulations regarding medical practitioners, dentists, poisons, etc., were made during the year. Several disciplinary cases, mostly of a minor nature, have been dealt with by the Medical Councils. An important case, in which the refusal of the Transvaal Medical Council to register as a dentist a person who had been so registered in England under the *Dentists Act (Great Britain)*, 1921, but without having had a course of study and having passed an examination in dentistry as required by the regulations of the Transvaal Medical Council, was contested in the Supreme Court. Judgment was given in favour of the Council.

13. *Military Hospitals and Medical Services.*—The linking up with the Health Department of Military Hospital and Medical Services and Military Pensions Medical work under an Assistant Health Officer who acts as Director of Medical Services for the Defence Department has continued to work satisfactorily during the year.

The military hospitals have been efficiently and economically administered, the daily average cost per patient being approximately 9s. 4½d., inclusive of medical attendance. There have been very few complaints from the inmates of these hospitals during the year. The following table shows the number of patients under treatment at the beginning and end of the period covered by the Report :—

TABLE Y.—(i) NUMBER OF MILITARY CASES, INCLUDING EX-SOLDIERS UNDER TREATMENT IN HOSPITAL AS AT 1ST JULY, 1923, AND 1ST JULY, 1924.

Institutions.	1st July, 1923.			1st July, 1924.		
	Members of Government Forces.	Ex-Soldiers.	Total.	Members of Government Forces.	Ex-Soldiers.	Total.
Military Hospitals.....	73	161	234	84	123	207
Civil Institutions.....	4	21	25	1	16	17
TOTAL.....	77	182	259	85	139	224

The above figures exclude ex-soldiers treated in the mental hospitals. During the year the total admissions of members of Government forces and ex-soldiers was 2,111, as compared with 1,847 during the previous year; discharges 2,111, as compared with 1,839; and deaths in hospital 27, as compared with 31.

The following table shows the average daily number of patients treated in military hospitals and diseases from which they suffered :—

TABLE Y.—(ii) DAILY AVERAGE NUMBER OF CASES TREATED IN MILITARY HOSPITALS, YEARS ENDED 30TH JUNE, 1923, AND 30TH JUNE, 1924.

Disease.	Year ended 30th June, 1923.			Year ended 30th June, 1924.		
	Members of Government Forces.	Ex-Soldiers.	Total.	Members of Government Forces.	Ex-Soldiers.	Total.
Malaria.....	0.5	50.6	51.1	1.5	34.4	35.9
Venereal Disease.....	6.2	—	6.2	12.4	—	12.4
Influenza.....	1.6	—	1.6	4.1	0.3	4.4
Wounds.....	9.1	22.7	31.8	4.2	20.0	24.2
Shell Shock.....	—	—	—	—	—	—
Other Injuries.....	13.0	5.0	18.0	21.5	2.4	23.9
Dysentery.....	0.2	5.2	5.4	1.7	3.8	5.5
Enteric.....	0.5	—	0.5	1.5	0.3	1.8
Tuberculosis.....	0.7	38.4	39.1	0.1	32.0	32.1
Other Causes.....	40.4	52.2	92.6	53.7	40.9	102.6
TOTAL DAILY AVERAGE	72.2	174.1	246.3	100.7	142.1	242.8

It will be noted that the daily average number of patients treated during the year was 242.8, as compared with 246.3 for the year ended 30th June, 1923; that whilst "serving" patients have increased by about 28 per diem, ex-soldier patients have decreased by about 32 per diem; also that the daily average of venereal disease patients has doubled, the figures for last year including cases from the police.

The increase in the serving element is due to the increase in the number of serving soldiers and to the fact that the facilities for the admission of South African Police have been somewhat more freely taken advantage of. The decrease in ex-soldiers is due partly to the fact that the year under review was a good year from the point of view of malaria, partly because a certain number of chronic patients have died, but mainly because most ex-soldiers are now on permanent awards and do not have to be brought into hospital to the same extent to be assessed by the pensions authorities. There are approximately 10,000 ex-soldiers in the Union who are entitled to receive necessary hospital treatment from the Union Government for disabilities contracted on or aggravated by active service, and about 2,000 more who are entitled to similar treatment at the cost of the Imperial Government. It is improbable, therefore, that there will be any great reduction in the number of pensioners requiring hospital treatment within the next few years.

14. *Central Medical and Veterinary Stores.*—All drugs, dressings, and appliances required by Government hospitals and similar institutions or by Government departments are obtained through the Central Medical and Veterinary Stores. The system works smoothly and well and results in a large annual saving to Government. The following table shows how the work has increased since this system was organized:—

TABLE Y.—(iii) CENTRAL MEDICAL AND VETERINARY STORES TRANSACTIONS AND STAFF, 1921-22, 1922-23, AND 1923-24.

Details.	Year ended 31st March.			Staff.							
	1922.	1923.	1924.	Year ended 31st March.	Officers.	Warrant Officers.	Non-Commnd. Officers.	Privates.	Civilians.	Natives.	Typistes (part-time).
Indents (No.).....	331	974	1,684	1922	1	1	3	1	1	2	1
Value.....	£4,799	£13,024	£20,806	1923	1	1	3	1	1	3	1
Weight.....lb.	25,686	81,767	115,881	1924	1	—	4	1	1	3	1
Vouchers.....	626	1,518	2,541	—	—	—	—	—	—	—	—

Apart from the articles handled directly by the stores, a very large quantity of goods are ordered through the Stores for delivery direct from oversea to institutions, thus securing the advantages of bulk purchases without the cost of sub-division and repacking. The following figures show the indents on the High Commissioner for the Union in London during each of the past two years :—

Details.	Year ended 31st March.	
	1923.	1924.
Indents submitted.....	10	12
Number of Items.....	1,456	1,998
Number of Institutions to which Goods were consigned	31	42
Value of Goods.....	£20,417	£42,765

15. *Military Pensions Medical Board.*—During the year 257 Appeal Medical Boards were held. In 82 cases the appeals were allowed; in 171 cases the appeals were disallowed and the assessments confirmed; and in 4 cases the appeals were disallowed and the assessment reduced. In addition, 776 special Medical Boards were held in cases where the advice of specialists or other officers was desired in addition to that furnished by the regular Pension Medical officers. During the year the work of reviewing the Anglo-Boer War pensions and bringing the assessments into line with those of the Great War was completed.

16. *Artificial Limb Factory.*—This factory has been working at great pressure throughout the year. It is becoming clear that it is understaffed and that we cannot cope promptly with all demands made on the factory without an increase in the staff. The following table summarizes the work done in the last two years :—

TABLE Z.—ARTIFICIAL LIMB FACTORY, JOHANNESBURG.
Work done during the two years ended 30th June, 1924.

Year ended 30th June.	Repairs to Artificial Limbs, Boots, and Appliances.	New Limbs, including Peg Legs.	New Surgical Boots.	New Apparatus other than Limbs and Boots.	Total Jobs Completed.
1923.....	661	93	200	88	1,042
1924.....	761	107	249	126	1,243

The cost of the factory to Government has been approximately £9,469, inclusive of all overhead charges.

The average cost of a below-knee limb made in the factory is £17. 10s. 11d., and of an above-knee limb £20. 11s. 10d. These prices are much below what similar limbs could be imported for. The work done at the factory has given general satisfaction to ex-soldiers; the limbs and appliances, and particularly orthopœdic boots, made at the factory are undoubtedly better than those furnished to ex-soldiers in many countries. The estimated market value of the total output of the factory for the year was £16,900.

ANNEXURE "A."

COUNCIL OF PUBLIC HEALTH.

Meeting at Pretoria on 15th and 16th November, 1923.

RESOLUTIONS PASSED.

1. *Vital Statistics :*

"In the opinion of this Council it is of the utmost importance that a competent Vital Statistician be appointed without delay in place of the late Dr. G. D. Maynard."

2. *Health Visitors :*

- "(a) That Health Visitors should be registered trained nurses and certificated midwives;
- "(b) that they should also have a systematic training in matters relating to the feeding and management of infants and children and in domestic hygiene;
- "(c) that Government should promote and encourage, by financial contributions and otherwise, the training of Health Visitors on the foregoing lines and their employment by local authorities."

3. *Smallpox, Vaccination, and Conscientious Objectors :*

"This Council takes a grave view of the present position as regards the enforcement of vaccination against smallpox and considers that under all the circumstances the preferable course would be for the Minister of Public Health to introduce a Bill next Session on the lines of his amendments to the Private Bill which was before Parliament last Session."

4. *Enteric or Typhoid Fever :*

"This Council is of opinion that the utility of inoculation against typhoid or enteric fever, especially in the cases of nurses and of other persons nursing or attending on patients suffering from the disease, should be brought specially to the notice of all hospital authorities, local authorities, and medical practitioners."

5. *Leprosy :*

"This Council, having been informed of the intentions of the Minister in regard to leprosy, expresses approval of the policy of discharging from leper institutions old-standing cases in which infectivity is past or very low. It further considers that in order to promote the early discovery and treatment of cases, inmates of leper institutions should be accorded all freedom practicable in the circumstances, and that the best and most modern methods of treatment should be provided.

"Leprosy is an infectious disease under the *Public Health Act*, and the fact that Government undertakes the removal and segregation of cases in an infective form or stage does not relieve local authorities of their responsibilities under the Act. The Council considers that local authorities should assist and co-operate with the Government in all reasonable ways in dealing with cases of the disease."

6. *Tuberculosis :*

"This Council approves of the principle of providing for possible future extensions of the sanatorium at Nelspoort, Cape Province, and the provision thereof of accommodation for patients from other Provinces and for paying and part-paying patients."

7. *Bovine Tuberculosis :*

"This Council regards the action of the Agricultural Department in withdrawing the restrictions regarding the removal of cattle not tested by Tuberculin from the Cape and Stellenbosch districts as a retrograde step and inimical to the general health of the community, and is of opinion that this prohibition should be restored.

"The Council further desires to draw the attention of local authorities to the serious prevalence of tuberculosis in bovines, and especially in dairy cattle, in the Cape and south-western districts and other parts of the Union, since the drinking of tuberculous milk is a serious menace to the health of the juvenile population and an important factor in the tuberculosis problem. Efforts on the part of the Health Department to secure the co-operation of the Department of Agriculture in the matter having failed, this Council feels that the only solution lies in the hands of local health authorities, who are urged to take steps to establish the 'certified-milk' system and to stop the sale of tuberculous milk within their areas."

8. *Child Welfare :*

"This Council considers that the Minister of Public Health should favourably consider the making of a grant-in-aid to encourage and promote the organization, on a national basis, of Child Welfare throughout the Union."

9. *Town Planning :*

"In view of the enormous development in various parts of the Union, particularly in the coastal districts of the Cape and Natal, this Council places on record its deliberate opinion that there is urgent need for the taking of immediate steps to prevent the indiscriminate cutting up of land in disregard of public health and town-planning considerations, and urges the appointment of a thoroughly competent town-planning expert and the extension of the scope of the Central Housing Board to cover town planning. It further considers that legislative powers should be obtained to deal with land which has already been laid out on unsatisfactory lines but which has not yet been sold or transferred."

10. *Facilities and Resources for Investigation of Human Diseases :*

"That in the opinion of this Council increased resources and facilities for the investigation of human diseases in South Africa are very necessary."

OTHER MATTERS DISCUSSED.

These included : Plague and draft regulations *re* exclusion of rats from buildings in urban areas ; typhus fever ; enteric fever and the question of "carriers" among dairy employees ; malaria in the Natal-Zululand coastal belt, in northern and north-western Transvaal, and on vessels at Union ports after visiting malaria-infected ports ; epidemic cerebro-spinal meningitis ; inspection of slaughter animals and meat, and regulations in connection therewith ; food poisoning ; nursing and maternity homes.

ANNEXURE "B."

PLAGUE INVESTIGATION IN THE UNION.

WORK DONE TO DATE AND FURTHER POINTS REQUIRING INVESTIGATION.

A.—COURSE OF EVENTS AND POINTS ALREADY INVESTIGATED AND CLEARED UP (MORE OR LESS COMPLETELY) BY THE UNION DEPARTMENT OF PUBLIC HEALTH.

Introduction of infection to Cape Town and Port Elizabeth (1901) by infected rats from ships bringing forage from Rosario and other South American ports where plague existed at the time. Subsequent spread to Mossel Bay (1901), East London (1903), King William's Town (1903), Queenstown (1903), etc. (See abstract in *Official Year Book* No. 5, 1910-1921, pp. 226-228 ; also Paper, "Plague in Cape Colony," by Mitchell, *Proceedings*, British Association for the Advancement of Science, meeting at Cape Town, 1903.)

Fresh introduction of infection to Durban (1902)—probably by infected rats from the forage ship "Kassala" from Argentine ports.

Extension to Johannesburg (1904)—probably by introduction of plague-infected rodents from one or other of the infected coastal towns.

Epizootics amongst "domestic" rodents in infected towns, with concurrent epidemics in man.

Spread from rodent to rodent and from rodent to man mainly by agency of fleas.

Infected wild rodents found on outskirts of Knysna, Port Elizabeth, East London, etc., mainly striped mice (*Arvicanthus*).

1912.—Fresh outbreak in Durban, following plague epizootic amongst rodents at the docks—probably a fresh importation of infection.

1914.—Epidemic in Midland districts, Cape Province, commencing on remote farm in Tarka district; continued into 1915; source of infection not discovered at the time.

1916.—Prevalence in north-western Orange Free State; also outbreak in Uitenhage District, Cape Province.

1917.—Outbreak at Welverdiend, Potchefstroom District, Transvaal. Continued prevalence in north-western Orange Free State and Cape Midlands.

1918–1920.—Continued slight prevalence in north-western Orange Free State. Strong suspicion that infection being perpetuated and spread by wild rodents; special investigations and digging experiments instituted. (See Annual Health Report for 1920, pages 13–15.)

February, 1921.—After lengthy investigation, existence of plague infection amongst wild rodents established on farm near Bothaville, where human cases had recently occurred.

Further proof of similar nature found in other localities. (See Annual Health Report for eighteen months ended 30th June, 1922, pp. 15 and 16; also Paper by Mitchell, S.A. Medical Congress, Cape Town, 9th October, 1921, published in *Journal of Hygiene* of 17th January, 1922, Vol. XX, No. 4; and another Paper by Haydon, published in *Transactions of Royal Society of Medicine*, 28th October, 1921, and reprinted in *Lancet*, 26th November, 1921.)

1923.—Wild rodent survey of the Orange Free State and Cape Midlands made; evidence of present or recent plague infection found over wide area. (See Health Report for year ended 30th June, 1923, pp. 18–20.)

Foregoing and subsequent investigations have established the broad facts regarding the perpetuation and spread of plague by wild rodents. The various wild rodents involved and the rôle played by each has been in large measures ascertained. Their fleas and other ectoparasites have been examined and many of them identified; several new varieties of flea found. Information regarding these matters still incomplete.

B.—MATTERS FOR FURTHER INVESTIGATION AND RESEARCH.

1. Zoological.

Careful survey of veld rodents and associated animals, and their habits as regards burrowing, nesting, migration, etc.

Variation of habits owing to droughts, etc.; effects of grain-growing, relationship with domestic rodents.

Part played by different species in (a) perpetuating, (b) spreading, plague infection.

Habits of different species of rodents in regard to travelling by rail or in crates, etc.

2. Entomological.

Fleas and other ectoparasites of rodents, both domestic and veld, and associated animals.

Identification of different species.

The life-history and bionomics of different species under natural conditions.

Conditions favouring flea multiplication and prevalence; effects of climate, rainfall, and season; time of year of maximum prevalence, and whether this varies in different localities.

Breeding and feeding habits of fleas.

Migration or transferability of fleas from one species to another and their biting habits on different animals and on man.

Migratory habits in connection with dead carcasses, deserted rodent-burrows, etc.

Distances to which fleas may migrate without hosts.

Capacity of fleas for survival without hosts under different conditions.

Conditions favouring survival of flea larvae.

Hibernation of fleas and flea larvae—under what conditions and in what relation to their natural hosts?

Other ectoparasites of rodents and their life-history and bionomics.

3. *Bacteriological.*

Strain or strains of bacillus pestis found in rats and man in the Union.

Variability.

Resistance and power of survival under different conditions.

Survival and multiplication in fleas of different species.

Whether larvae of infected fleas contain infection, or whether they may become infected by ingesting the excreta of infected fleas.

Flea "carriers" of plague amongst veld rodents, from veld rodents to domestic rodents, and from rodents to man.

Possibility of "carriage" of plague infection by other ectoparasites of rodents, such as ticks.

Mechanism of persistence of plague infection in deserted veld-rodent burrows and in infected areas generally.

Causes of flaming-up of infection and of explosive outbreaks.

Occurrence of chronic abscesses in rodents or other animals, and persistence of virulence of bacillus pestis therein.

Comparative susceptibility to plague of various veld rodents and associated animals.

Possibility of any such animal acting as a plague "carrier," either after recovery from a subacute or mild attack, or acting as natural reservoirs of plague infection without illness (as nagana in wild game).

Mechanism of natural plague infection in rodents and associated animals; number of flea-bites required to produce infection; incubation period; types of disease; period of infectiveness, etc.

Mechanism of development and spread of pneumonic plague in man.

Plague immunology, utility of vaccines and their preparation; optimum strains; best culture media; degree and duration of immunity in man and animals; standardization of plague vaccine.

Anti-plague sera; curative and prophylactic properties and uses.

4. *Preventive and Eradicative Measures.*

(a) *Bacteriological.*

Possibility of utilization of infective virus, such as Danysz's.

(b) *Chemical.*

Methods of baiting and poisoning rodents, domestic and veld—barium carbonate, arsenic, strychnine, phosphorus, squills, carbon bisulphide, hydrocyanic acid gas, dynamite, or nitrous fumes, etc.—adaptability to problem of rodent destruction in the Union; comparative costs.

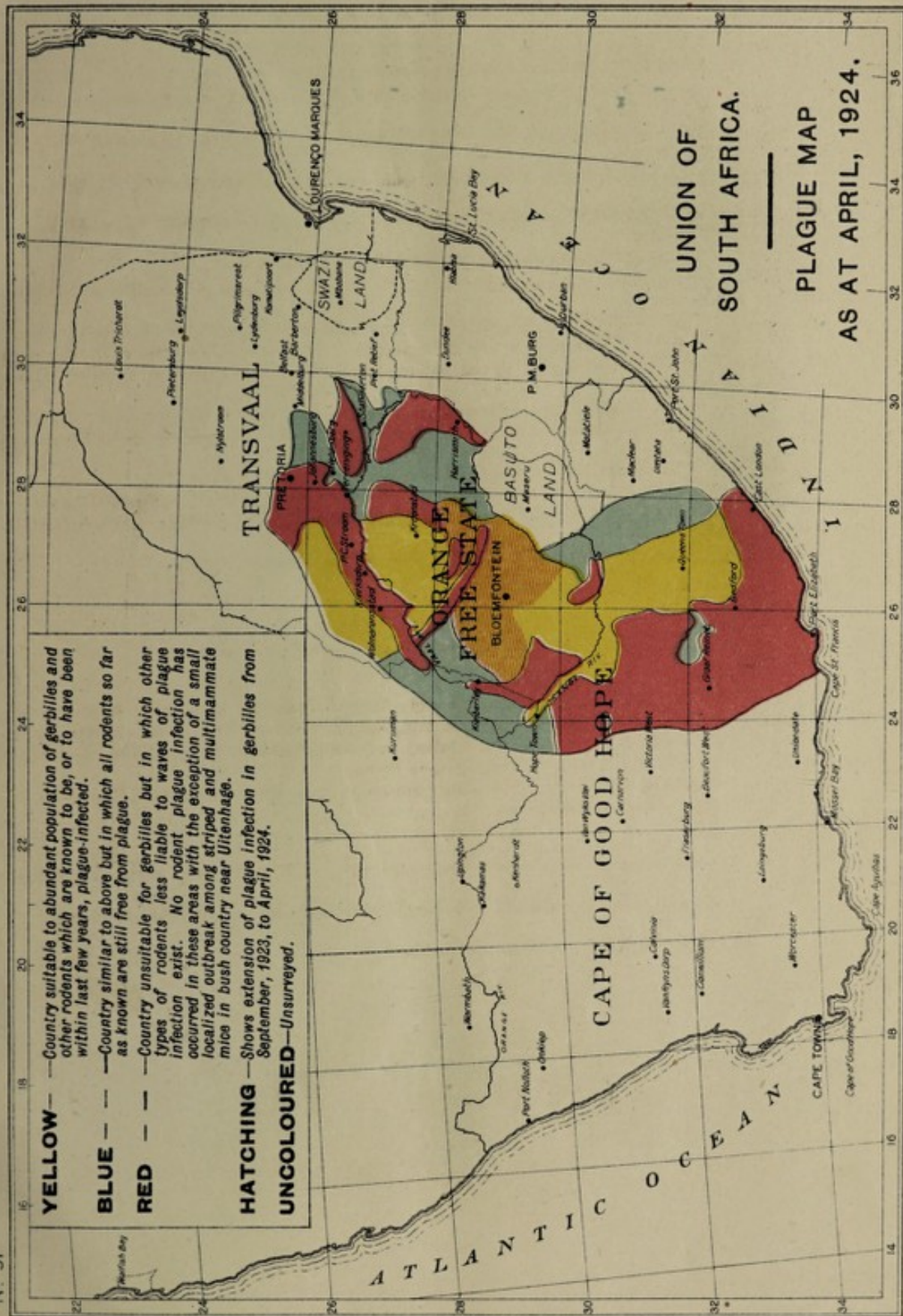
Action and uses of perchloride of mercury in aqueous or alcoholic solution in preventing rodent infestation.

(c) *Zoological.*

Natural enemies of rodents—both domestic and veld—and their respective utilities.

Protection, and methods of encouraging multiplication, of natural enemies of rodents.

Rodier's system of rodent destruction.



1894

1894

1894

1894



THESE ARE THE RESULTS OF THE
SURVEY MADE BY THE
UNITED STATES GEOLOGICAL SURVEY
IN THE YEAR 1894
AND ARE HEREBY PUBLISHED
FOR THE INFORMATION OF THE
PUBLIC
BY THE UNITED STATES GEOLOGICAL SURVEY
WASHINGTON, D. C.
1894



