

Report on the public health / Southern Rhodesia.

Contributors

Southern Rhodesia. Department of Health.

Publication/Creation

Salisbury : Argus, [1936]

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SOUTHERN RHODESIA.

REPORT

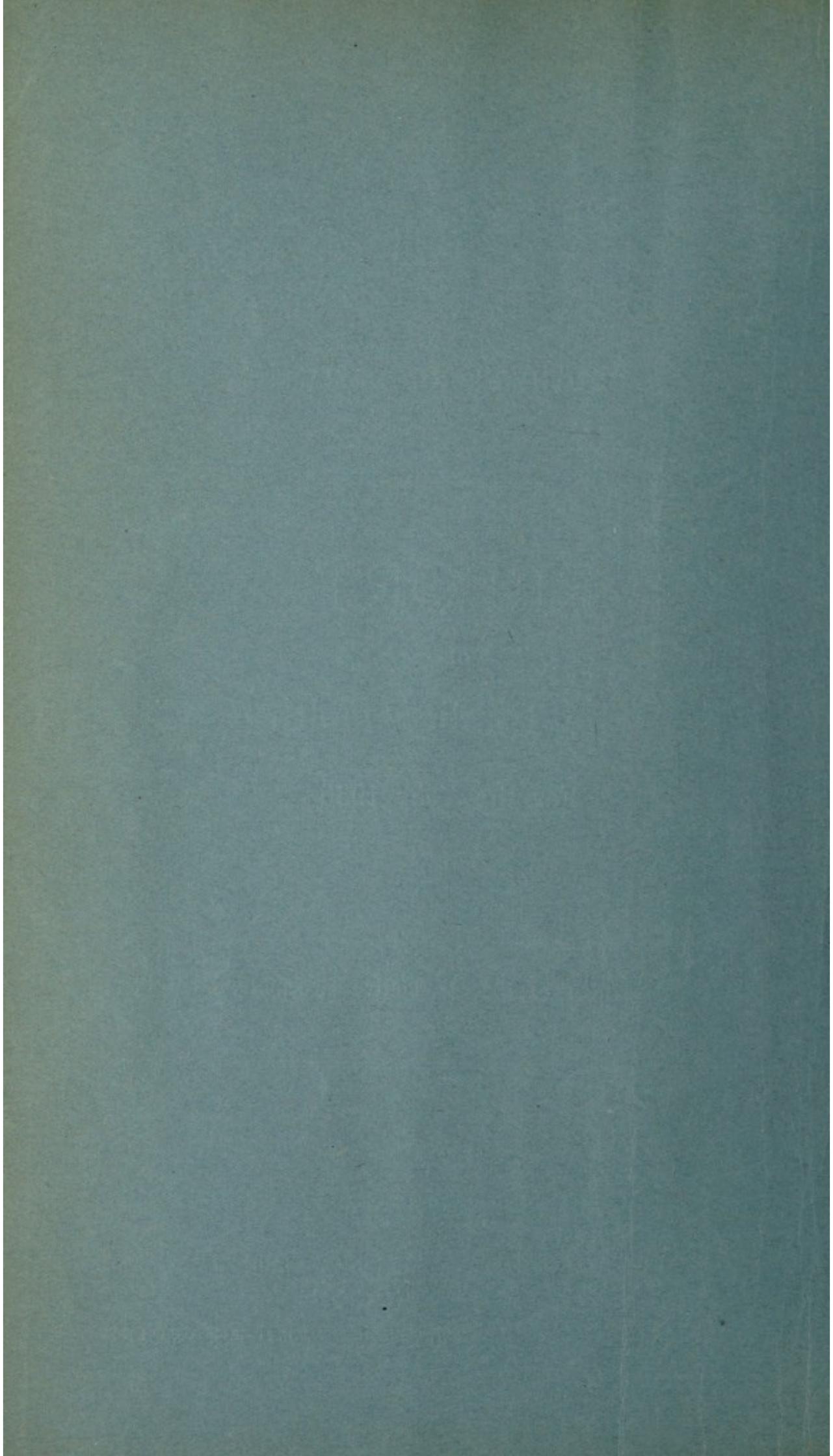
of

The Public Health

For the Year 1936

Presented to the Legislative Assembly,
1937.

Printed for the Government Stationery Office by the
Rhodesian Printing and Publishing Co., Ltd., Salisbury.



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Report on the Public Health for the Year 1936.

THE MINISTER OF INTERNAL AFFAIRS.

I have the honour to submit the Public Health Department Annual Report for the year 1936.

INTRODUCTION.

I. HEALTH OF THE EUROPEAN.

Despite an undue prevalence of malaria, a high standard of health was maintained by the European population throughout the year.

An increasing birth-rate, a falling death-rate, a falling maternal mortality-rate, whilst synchronising with a wave of returning prosperity, are nevertheless clear indications of a betterment in the living conditions of the people.

For this improvement the Public Health Department lays claim to some small measure of credit, in that during the past year we have introduced many reforms, created some new services, and extended the activities and operations of the Department to almost every aspect of the life of the Colony.

Beginning with a survey of the medical and nursing facilities available for the European and Native communities, and ascertaining where deficiencies existed, the Department set itself the task of endeavouring to procure for every district some form of medical or nursing aid which would not only meet the present needs of the people, but which would also relieve the minds of settlers in the outlying areas of that ever-recurring fear of sudden and disabling sickness far away from skilled assistance.

1. Hospitals.

In pursuit of this object, hospitals, designed on a smaller scale than was formerly the custom but affording all necessary facilities, have been built at Bindura and Que Que. Both these hospitals will be ready for occupation in the first quarter of the coming year. In addition, plans for a still smaller but more compact type of rural hospital have been prepared, and it is hoped within the next few months to build one of these at Filabusi, and another at Belingwe.

2. Medical Services.

The medical service has also been increased by the creation of a new post in the appointment of a medical officer to Chipinga. This appointment will bring facilities for skilled attention within the reach of a large area which hitherto has depended upon the generosity of the Mount Selinda Mission staff for attendance in illness.

I would wish here, in passing, to pay a well-deserved tribute to the medical staff of the Mission who, though primarily constituted for work amongst the native people, have nevertheless for many years past at great inconvenience and at no inconsiderable expense to themselves accepted ungrudgingly the responsibility of the medical care of the European community in this large district. Now that the Mission is at last being relieved of this burden, I feel confident that the settlers at Chipinga who have benefited by the kindness of the Mission staff would wish me to make on their behalf, as well as on behalf of Government, a fitting acknowledgment of the splendid services so generously rendered in past years.

Appointment of Aided Government Medical Officers.—Other parts of the country also have had medical facilities provided for them by one method or another. New appointments of Aided Government Medical Officers have been made during the year at both Hartley and Umvuma, and arrangements have already been completed for the creation early in the coming year of similar services at Belingwe, at Inyati, and in the Antelope area. It is unnecessary to expatiate upon the benefits which must accrue to the local communities by the provision of these services. But in furnishing these facilities the Department

had in mind not only the needs of the individual communities, but the still wider field of national health where the well-being of the whole population depends upon the condition of its individual units and where localised areas of ill-health or infection react adversely upon the strength and stamina of the common stock. I say quite definitely that if we wish to create and maintain a sturdy European population we must look to it that no section of the community is allowed to become depleted in health by reason of the lack of medical advice and assistance. In a young country like Southern Rhodesia where a recognition of the symptoms and an elementary acquaintance with the simpler forms of treatment of tropical disease have not yet had time to become part of the general knowledge of the community, medical facilities are still a matter of primary importance. Where such facilities are unavailable there is a definite danger of a gradual deterioration taking place in the physical and mental capacity of the section of the community so penalised. The local effects of this are to be seen in the lowering of the standard of life and in the tendency towards that condition known in the Union of South Africa as "poor Whiteism," where numbers of the community become too physically reduced to be able to sustain the strain of hard manual labour and too mentally enfeebled either to desire or to be capable of learning any of the methods by which their condition might be improved. If the effects of this weakening of the fibre of the community remained localised the situation would be difficult enough, but unfortunately effects of this nature cannot be limited and eventually by marriage and inter-marriage they begin to exercise their malevolent influences upon greater and greater numbers of the population until the general physical standard of the race is definitely weakened. I do not for a moment suggest that these effects have yet become apparent in Southern Rhodesia, but I do reiterate that for the welfare of the people in the rural areas of this country an active and highly qualified medical service is necessary if health is to be maintained and the physical condition of the people kept up to normal standards.

Creation of Sub-centres.—In further pursuit of this ideal the Department has recently arranged for the institution of various sub-centres in the districts surrounding each Government Medical Officer's station. Under this new scheme the local Government Medical Officer will visit his sub-centres at regular intervals and on these occasions the cost of transport between the station and the sub-centre will be borne by Government; all transport charges from the sub-centre to the patient's residence will, however, be the responsibility of the patient, as will also the payment of fees for the Medical Officer's professional services.

This new provision should go far to relieve the country patient of what has always constituted the heavier part of the burden of medical attention, namely the unavoidable charges for mileage and detention. And if, as is hoped, accommodation can be provided for consultation purposes at all these sub-centres, then the need for attendance at the patient's residence will for the most part be limited to cases of serious illness.

3. Rural District Nursing Service.

A further development of the work of the Department was begun by the inauguration this year at Shamva of a Rural District Nursing Service. This new service has been named "The Lady Stanley District Nursing Service" at the request of the Federation of Women's Institutes of which Lady Stanley is the Patroness. The Federation, by furnishing evidence of the great need of this service, were largely instrumental in persuading Government to adopt the scheme proposed by the Medical Director. Shamva was chosen as the starting point because it was felt that the conditions in that district were likely to afford the experience necessary in adjusting and altering the details of the arrangement before further extension of the work was undertaken. So successful, however, has the Shamva experiment proved, that during the course of the year another district nurse was established in the Sinoia area, and arrangements have been made for similar appointments in at least two other districts of the country during the coming year. The functions of this new service are primarily for attendance upon maternity cases in the rural areas, and it is the earnest hope of this Department that the advice and assistance of these highly qualified nursing sisters will be sought by all pregnant and nursing women.

Indeed, the Public Health Department is looking forward to the day when through the extension of this agency skilled assistance in maternity will be brought within the reach of every expectant mother in the rural districts of this country.

4. *Schools' Medical Service.*

Nor, in our general re-organisation, have the needs of the school-children been forgotten, and many reforms were introduced last year to ensure the maintenance of their good health.

(a) *Appointment of Male Medical Inspector.*—The principal of these was the appointment of a male Medical Inspector who, together with the Lady Medical Inspector, will be engaged throughout the whole year in the work of examining schoolchildren, and in investigating and reporting upon the conditions under which they live and are educated. This entails a detailed consideration of the amount of space available per scholar in the classroom and in the dormitory, the adequacy of the ventilation, lighting, and heating apparatus, the water supply and sanitation, and the general condition of the school and hostel in their relation to the health of the child.

(b) *Examination of School Hostels.*—In addition to this, arrangements have been made in collaboration with the Education Department for the examination and, where necessary, the correction in conformity with modern principles of dietetics, of the menus and diet sheets used in all school hostels, and in order to ensure that a high standard of efficiency will be maintained a special Medical Officer has recently been appointed, one of whose functions it will be to visit the hostels, inspect the food, examine and report upon the manner and method of its preparation and service, and upon the cleanliness and adequacy of the hostel kitchens where the food is prepared.

(c) *Regular Visits to be Paid to Rural Schools by Local Government Medical Officers.*—A still further contribution to the health of the school-child is the new system just recently introduced whereby the local Government Medical Officer visits at regular weekly intervals the various rural schools situated in the districts round his station. Prior to the inauguration of this new scheme, the cost of the doctor's transport from his station to the rural school and the costs of the time spent in travelling in addition to the fee for professional services were all borne by the School Hostel Committee.

It was felt, however, that that practice might militate against the health of a child in that a Committee of a rural school situated at some considerable distance from the township or village from which medical attention had to be procured might not unnaturally be influenced by the high cost entailed and might hesitate before requisitioning the services of the doctor. In order to obviate all risk of delay, Government has now undertaken to pay the full costs of transport, leaving the School Hostel Committee to meet only the small charge for professional services. In this way the rural hostels are placed on an almost equal footing with the urban centres where medical attention is provided by the Government free of charge.

(d) *Schools' Dental Service.*—Further, the schools' dental service has undergone a minor process of re-organisation, and now to the long list of the work already performed by the two zealous and enthusiastic Government Dental Surgeons has been added the additional inspection of the pupils attending the European orphanages and the children attending the Coloured and Indian Schools throughout the country. Whilst we are bound to respect the rights of private enterprise and in no way to interfere with the legitimate scope of the dental profession, it can nevertheless be said with accuracy and confidence that under our new arrangements there is no school child in this Colony who need be deprived of skilled attention by reason of the inability of his parents or guardians to meet the cost of the necessary treatment. This is a bold claim, but it can readily be substantiated, and in making it I would wish to acknowledge with gratitude my indebtedness to the dental profession not only for the broad views they have taken of the scope of the Government dental service, but also for their unfailing helpfulness and courtesy in all matters relating to the dental health of the school child.

There are many other matters relative to the health of the school child which are at present under discussion, but as most of them form the subjects

of enquiry by the various panels appointed by the Education Committee and will no doubt appear in the reports of that body, it does not appear necessary for me to touch upon them here.

(c) *Representation on the Education Committee.*—A certain amount of criticism, however, has been levelled at Government for its inclusion of the Medical Director in the composition of the Education Committee. As a public health officer I advance no personal claim to be considered an expert educationist—and in that it would appear I differ from many in Southern Rhodesia—but a long and intimate knowledge of the processes of the mind in health and disease, acquired not merely by an arduous and protracted scientific training, but augmented in the course of a fairly long practical acquaintance with the Rhodesian schoolchild, cannot reasonably be regarded as a barrier to the formation of sound judgments in educational affairs.

Apart, however, from this consideration, sufficient I think has been related to impress upon the public the need for the closest co-operation between the Department of Education and the Public Health Department. There is scarcely a single aspect of the life of the school child in which the expert guidance and assistance of the Public Health Department is not required; the type and structure of buildings, the sanitation, the ventilation, the lighting, and in school hostels the diet and dormitory accommodation, etc., are merely major items which he who runs may read, but the detailed effects upon the physique and mentality of the child resulting from the length of hours of study, the type of print used in the text-books, the intervals of recreation and study, the stress of examinations, the reactions of the normal and of the sensitive nervous child to work and discipline and school surroundings are almost equally important problems to the Public Health Officer, whose duty it is to see that the child presented to the Education Department is not merely educable but also that he sustains neither physical nor mental damage in the course of that process. A quotation from a recently published article by a professor of the Cornell University in America appears to me extremely apposite. The professor states that "Adequate medical supervision in the Public School system is an absolute essential; without it the whole system of universal education for our youth becomes a questionable asset." Read "Government" for "Public", and the statement is equally applicable to Southern Rhodesia.

5. *Re-organisation of the Nursing Service.*

One further major re-organisation undertaken by the Department in the course of the past year was in connection with the conditions of employment of the Nursing Service of the Colony. This re-organisation was to some extent forced upon us by reason of our inability to obtain adequate supplies of trained nurses either from the Union of South Africa or Great Britain. Under the new regulations at present in practice but not yet gazetted, various reforms have been introduced. Every qualified nurse is now entitled to three weeks' occasional leave in the first and second years of her three-year contract. At the end of the third year long leave becomes available, therefore no occasional leave is granted in that year. This is in contrast to the previous practice where two weeks' leave was allowed each year, but the nurses found that two weeks was too short a period to permit of their having a few days by the seaside, and the leave in the third year was often not taken because it resulted in a disbursement of funds which the nurse was saving for the better enjoyment of her long vacation at the end of that year. Hence the alteration to two periods of three weeks in the first and second year of the contract. Under the new regulations, at the end of her three-year contract the nurse now becomes entitled to six months' leave on full salary, including an allowance for board and lodging together with a cash bonus of £85, provided that she signs a contract for a further three years' service on her return from her holiday. Should the nurse fail to return to duty at the expiry of her leave she becomes liable to refund the whole amount of the £85; or should she leave the Service without completing a full year of work subsequent to her return she becomes liable for a refund of half the sum of £85. If, however, she completes one year of service on her return to duty, all liabilities for refund are discharged and she is free to leave the Service without penalty on the completion of the normal three months' period of notice.

This provision replaces a condition in the previous contract which was rightly considered to be harsh and oppressive. Under the old contract, a nurse at the end of three years' service was entitled, if she signed a new contract for a further three years' period of service, to a first-class rail return ticket to the coast and a second-class steamship return to England. Many of our nursing staff were recruited from South Africa and after one visit to England had no desire to return to a place where they had neither home nor friends. As a consequence they very naturally felt themselves deprived of a privilege which they considered they had earned and which they saw enjoyed by their sisters recruited from England who regularly made use of this facility at the end of every period of service. It was to rectify this inequity that the value of the rail and steamship fare was converted into a cash bonus of £85, which is now available to all nurses on the completion of their three years' contract.

The other and still more serious cause of complaint was the liability of refund imposed by the previous contract on a nurse who left the Service during the first year of employment subsequent to her return to duty, in that she was compelled to refund the total value of the return half of her rail and steamship fare; if she left in the second year subsequent to her return she was compelled to refund one half of that amount; and if in her third year, one-third of the sum. This practically amounted to a perpetual servitude upon the life of the nurse, since at no part of her contract was she free from the penalty of refund. It further acted detrimentally upon the opportunities of the nursing staff in regard to matrimony, since in most instances there was this continuous penalty to be faced if the contract with Government was broken. Under the new regulations this state of affairs has happily disappeared, and the immediate result has been that to a recent advertisement which was published in the English nursing papers announcing a few vacancies in our Nursing Service we had no fewer than 400 applicants, although the advertisement appeared only for one week. Further, the numbers of the nursing staff have been increased by an additional 33 members who are entirely designed to augment the present staff in the existing hospitals and not to meet the requirements of new hospital additions. This increase in number should, we believe, meet the criticism of those who asserted that the hours of nursing duty in this country were too long. This contention may or may not be true, but it is definitely not supported by a comparison of the hours of service in other countries similarly situated. In my opinion it was not so much the long hours but the high tension at which an insufficient staff was compelled to work which resulted in the numerous complaints and in the many cases of physical breakdown. At all events, the present increase in numbers is an honest attempt to remedy conditions admittedly bad, and if it does not prove to be the real solution to the problem the Medical Director will have no hesitation in approaching Government with a request for a reconsideration of the hours of duty, with a view to a reduction.

It has not been felt necessary to make any major alterations in the conditions of employment of student nurses in training, since the increase in the numbers of qualified staff has inevitably resulted in a lessening of the amount of work previously thrown upon the shoulders of the probationers. At all events, no complaints have been received during the past year, and the conditions of the probationer staff in this country appear to compare favourably with conditions in training hospitals elsewhere. Further, there is one consideration which the public of this country should realise, and that is that the profession of nursing, like that of medicine, is essentially a hard and arduous one, and that there are limits to the lengths that one can go in the endeavour to alleviate its difficulties. Nursing is not a "feather-bed" occupation, but a real vocation which none should follow who is not animated with a spirit of service and a strong desire to be of assistance to her fellow-man. This entails hard work and a considerable amount of sacrifice, and any attempt to remove completely these elements of discomfort and to render the nursing profession one of ease and pleasure will only succeed in producing a nurse who is not merely useless for the purpose she is designed to serve, but who will be a menace to her patient and a burden to the family or State whom the adverse buffets of fate compel to employ her.

So much for the reorganisation of the nursing profession, and now to turn to other activities which the Department has been employed upon during the course of the year.

6. *Additions to Hospital Buildings and Equipment.*

At Salisbury, the new hospital block is nearing completion, and already there is installed and functioning a modern highly efficient deep X-ray therapy unit which at the moment is unequalled in Africa. By means of this apparatus and with the help of the Radium so generously donated last year by the State Lottery Trustees, all forms and conditions of cancer can be treated, together with numerous types of disease which formerly it was not possible to deal with in Southern Rhodesia. In addition, the new massage department is now open, and a number of new machines have been installed, which provide many forms of treatment not hitherto available. To the staff of the hospital, also, there has been added a trained dietitian, whose function it is to frame the diet sheets, to supervise the preparation of all food, and to ensure that it reaches the patient temptingly served and in an appetising condition. I have little to say of this appointment beyond stating that it was long overdue and to express a very fervent hope that it will achieve all the success that is desired for it.

At Bulawayo, a considerable addition was made to the amount of accommodation by the leasing of the building previously known as the Desia Nursing Home, and the taking over of another cottage for the housing of the chronic sick. At the present moment the accommodation for Europeans is equal to the demand, and it is hoped that this position will be maintained until the new hospital is completed and ready for occupation. For a period of last year the work of erecting the new hospital was to some extent retarded by the uncertainty of the position consequent upon the discovery of a gold-claim adjacent to the hospital site. This difficulty, however, has now been overcome, and it is understood that additional efforts will be made to compensate for the time that has been lost. It would appear necessary, however, to remind the public of Bulawayo that hospitals of this magnitude cannot be completed in a year, or even three or four years. According to advices from the Union of South Africa, the Pretoria Hospital, which is no bigger than that contemplated for Bulawayo, took ten years to build, the Cape Town Hospital even longer, and the Bloemfontein Hospital, which was built on the plans previously used for the Pretoria Hospital, took six years to complete.

The public has no idea of the amount of labour involved in the preparation of the plans of such a highly technical structure as a hospital of this size; and it is extremely difficult for anyone not equipped with professional knowledge to realise the meticulous care required in examining every detail of the construction. The aim of this Department, as well as of the Public Works Department, is to have the Hospital completed with as much expedition as is compatible with efficiency and with the high standard of construction it is desired to achieve.

At Gwelo, the Nurses' Home has been completed and is ready for occupation. The new European Hospital is proceeding apace and is expected to be in readiness for the reception of patients in September of the coming year. Through the generosity of Mr. Delano Thompson a motor ambulance of modern design and equipped with every requirement has been made available for the use of the people of the township and district. It is needless for me to speak of the value of such a gift, or of the comfort and freedom from anxiety it brings in its train; only the patient afflicted with sickness or writhing in pain can truly appreciate the many blessings it confers and the great discomforts and hardships from which it saves him.

At Fort Victoria a portable X-ray plant has been installed for the benefit of the people of the town and district and many minor alterations have been made to improve conditions in the Hospital. At Enkeldoorn the new Native Hospital of excellent design was completed during the course of last year, and for many months past has been fully occupied. At Sinoia, additions have been made to the Hospital and the Nurses' Home in order to meet the growing needs of that district. The Native Hospital has also been extended and new huts have been built for the accommodation of native patients suffering from venereal disease. At Mtoko, a completely new leper compound has been erected, affording accommodation for some 300 native leper patients. The old compound has now been abandoned and partly demolished, and the conduct of the institution has undergone a complete reorganisation. At Gwanda, the new Nurses' Home is nearing completion and early in the coming year work will be commenced

on the much-needed extension of the Native Hospital and on the alterations and additions to the European block.

It was found impossible during the course of the past year to undertake the large amount of alteration required at the Gatooma Hospital, but preparations have now been effected to commence the additions to the Nurses' Home and as soon as these are completed, to continue with the work of extending and altering the European section of the Hospital. The Gatooma public have been long-suffering in the matter of their hospital extensions, but with a completely new orientation of the European block, a new children's ward, larger and better accommodation for the Secretary, an X-ray plant, a much-needed and well-designed extension to the Nurses' Home, additional assistance for the Secretary and a European Hospital Orderly, they may perhaps find some justification for their patience and forbearance. Umtali is another station where it has not been possible so far to effect the alterations so urgently required. But here also, in the course of the next few months, work will be commenced on the plans already prepared to erect a new Asiatic Block, a new European Block, and additional rooms in the Nurses' Home. At Ngomahuru Leprosy Hospital, a dam on the adjacent river is at present under construction in order to provide a sufficient water supply for the needs of this large settlement.

This completes the tale of the Department's activities during the past twelve months in providing and extending the hospital facilities of the country, but it by no means completes the records of the Department's operations in other parts of the field of Public Health.

During the course of the year the Department took over and reorganised the laboratory services previously maintained at Bulawayo by the private enterprise of Dr. George Ross. The growing needs of the people of Matabeleland and the threat of plague from Bechuanaland and the Union of South Africa were decisive factors in determining Government to furnish laboratory facilities at least equal in resources to those available at Salisbury. Bulawayo has reason to be grateful to the enterprise of Dr. Ross, who for many years past has, single-handed, provided a standard of service of high quality which suffered nothing in comparison with the work of many other laboratories far more expensively equipped both in apparatus and in staff. At Salisbury the Pasteur Institute has proved too small to meet the expanding needs of the bacteriological laboratory and the work of the Government Analyst. In order to obtain additional accommodation for both parties, an old building recently vacated by the Veterinary Department was taken over and reconditioned in a most ingenious manner by the Public Works Department. This building now provides an admirable laboratory for the Government Analyst and his small staff.

I find it difficult to speak in words of sufficient praise of the work of this small sub-department so little known to the members of the public but so valuable not only to the Public Health Department but to almost every other branch of the Service. All sorts and types of enquiries and investigations are addressed to this laboratory, ranging from requests for the testing of the insulation of cables for the Department of Posts and Telegraphs and the examination of the alcoholic content of wines and spirits for the Customs Department, to all the minute medico-legal tests required by the Police in the pursuit of evidence in criminal charges. Every variety of food and drink is at some time or other submitted to them for examination, and it is no uncommon sight to see such strange and incongruous things as pork pies, sausages and ice-cream all laid out upon the tables of this laboratory awaiting the attention of the examining chemist. The details of the work of the Pasteur Institute, Salisbury, will be found in the admirable report prepared by Dr. Orpen, who acted as Director during the absence on leave of Dr. Blackie. Much work has already been done but still more remains to be achieved, and we are hoping that time will be found for a greater amount of research than was permitted under the rush and stress of previous conditions.

During the course of the past year very little field work has been attempted through lack of the necessary staff, but with the contemplated appointment of a Field Officer in the coming year, this defect in the organisation will be remedied and plans have already been prepared for the conduct of many necessary investigations. Opportunity was, however, found to carry out a survey of the field where sleeping sickness was previously present in the Umniati and

Umfuli districts, and it is gratifying to be able to report that, despite a careful and exhaustive investigation, no human cases of sleeping sickness were found.

One other long and important investigation carried out last year was the enquiry into the incidence of Silicosis, Pulmonary Tuberculosis and Asbestosis among persons employed in mining in Southern Rhodesia. The results of this investigation were presented to the Minister in a lengthy memorandum which was laid on the Table of the House of Assembly last April. As a result of the discussion aroused by that statement, the enquiry has been continued throughout the whole of the past year, and a further report embodying the findings of our examination will be framed for the consideration of Government in the early months of 1937. As a consequence of this enquiry, many minor reforms have already been instituted, principally in the way of obtaining early information of the occurrence of any of these diseases, and facilities for free X-ray examination have been offered to all medical men in order to assist in their early recognition.

In the sphere of legislation the Department presented for the consideration of Parliament two new Bills, one for the Regulation and Inspection of Nursing and Maternity Homes, and the other for the improvement of the law relating to mental disorders in order to bring our legislation into line with modern practice. A further Bill consolidating and amplifying the laws relating to the production and distribution of Milk has already been prepared and will be presented to Parliament in the coming year. Many other minor reforms and alterations have been made in the routine work of the Department which cannot and need not find a place in this Report. But I think it will be gratifying to the public to know that, despite an acute shortage of professional staff throughout the year, the Department has not only been able to carry out its ordinary routine work of controlling and supervising the general health of the country, but has in addition been able to undertake and bring to a successful issue the many new operations and activities indicated in the present Report.

So far I have dealt only with the numerous increased provisions which Government has made for the European population during the past year, but in addition to this long tale there remain to be recounted many generous contributions made to the betterment of the Public Health by the Beit Trustees and the State Lottery Trustees. During the past year, two more maternity homes have been added to the lengthy list of those already provided through the generous financial assistance of the Beit Trustees. At Gatooma, a splendid maternity home, well-built and excellently equipped, has recently been opened for the benefit of the people of that town and district.

7. Financial Assistance to Homes Already Established.

In addition to its work of subsidising the erection of these new maternity homes, the Beit Trustees have also contributed the sum of £1,423 5s. 4d. for the support and maintenance of the nine homes already in existence.

At Fort Victoria a maternity home which must rank amongst the finest of its class in Africa was opened in May to replace the old home which had outlived its usefulness, although for many years it had faithfully served its purpose. At Enkeldoorn a new maternity home is in process of erection, and it is expected that this home will be ready for occupation in the early part of next year.

It is impossible to speak too highly of the immense benefits which accrue to the country from these particular benefactions of the Beit Trustees, and it is only those parents who remember the anxieties and perils attendant upon maternity in the days prior to the creation of these homes who can appreciate to the full their enormous value to the people in the rural areas. In addition to the Beit Trustees, Southern Rhodesia has to-day another fairy godmother in the committee of the State Lottery Trustees. Through the instrumentality of that committee, the Public Health Department has received unstinted assistance in the fulfilment of its duties as curator under Government of the health of the people.

In the early part of the coming year convalescent homes in two well-chosen sites at Bulawayo and at Marandellas will be available for the accommodation of patients who formerly, by reason either of expense or inability

to endure the long journey to the coast, were compelled to struggle back to health without the assistance of the stimulus of change of environment, often a much-needed adjuvant in tardy convalescence. Within the next few months this hiatus in the social services of the Colony will be filled by the wisdom and generosity of the State Lottery Trustees. A further benefaction which will prove of inestimable value to convalescent patients is the installation in all Government hospitals of "wireless" apparatus. Head-phones, for the use of the individual patient, are being attached to every bed so that each patient, if he or she so wishes, can listen to the various programmes without disturbing any other person too sick to be interested. The amount of relief this installation will bring to the tedium of weary hospital days requires no elaboration. The Trustees have also provided each hospital with two sets of funds; one to be used for the benefit of individual patients who may require special apparatus in their treatment, and the other for the benefit of the hospital in general to enable extra comforts to be provided which are not ordinarily found in State hospitals. By means of these funds many patients have already been provided with artificial limbs, special chairs, and special surgical apparatus of all types, and the hospitals have benefited by the acquisition of special equipment which does not usually find a place in hospital furnishings. A "talkie" machine for the entertainment of the patients has recently been installed in Ingutsheni Mental Hospital. In Bulawayo Hospital an Electro-Magnet of great power for the extraction of foreign bodies from the eye has also been provided.

At the moment the Trustees are engaged upon obtaining a site and preparing plans for the establishment of a sanatorium for Tuberculosis. The district selected for the erection of this building is Marandellas, and it is anticipated that a suitable site will soon be found and the work of building commenced. This sanatorium, when completed, will afford accommodation for at least fifty cases of Tuberculosis, but the intention underlying the project is that the building will form the nucleus for further extensions and for the eventual creation of a Tuberculosis colony, considerably smaller in size but organised on somewhat similar lines to those on which the famous Papworth Industrial Colony is founded. In that institution, the tuberculosis patient progresses from the hospital ward to the convalescent block, and from the convalescent block in process of time to his own home in the Industrial Colony and to his own place in the scheme as a wage-earner capable again of taking his own part in life and discharging his own responsibilities to his family and the State—in a word—the tubercular patient is cured of his disease and placed in surroundings where he is not only protected from the results of his infection, but is afforded the opportunity of earning his own living in whatever trade or occupation is best suited to him. That this is a big undertaking no one connected with the project has any doubt, but at least it has the merit of being inspired by wide and generous ideals of service to one's fellow-man and of service to the State.

Of one other project of the State Lottery Trustees I speak with diffidence and with a sense of great humility. To any man or woman upon whom has fallen the sad lot of watching with helpless eyes the gradual mental breakdown of some loved relation or friend, struggling gallantly but unavailingly against some adverse circumstance of chance or fate, there must often have come a deep and bitter sense of the utter futility of present institutions to prevent the impending tragedy or to afford any reasonable conditions of recovery once the blow has fallen. General hospitals on the one hand with their atmosphere of sickness and the bustle of trained efficiency are of little assistance to the mind needing peaceful and quiet surroundings and an atmosphere of tranquillity and kindness. Mental hospitals on the other hand, excellent as they are for the treatment of the insane, only produce a shudder of horror in the patient already fearing for his own sanity and battling with all his capacity to prevent the breakdown of his mental powers. Some other type of place is urgently required for the patient depleted of nervous energy or temporarily unbalanced either by strain or sickness; some place where, away from the stress and turmoil of every-day life he can regain in quiet and peaceful surroundings the mental health and balance he has temporarily lost. To this task the State Lottery Trustees have set themselves, and within the coming year an institution for the care and treatment of these cases will have been created at Bulawayo. I know of many worthy objects for the alleviation of the ills that flesh is heir to,

but I know of none which, in the particular circumstances of this country, is likely to be productive of greater relief in mental anxiety and distress than is this work of the State Lottery Trustees. Nor does this end the tale of the activities of the Trustees in the sphere of Public Health. By means of funds provided by the Trustees plans have already been made for an extensive investigation into the bionomics of the various intermediary hosts of the Bilharzial parasite in the hope that the evidence elicited may be productive in furnishing means of controlling the disease.

Through the kindness of Sir Malcolm Watson the interest of the London School of Tropical Medicine has already been engaged and it is probable in the coming year that a member of the School, of world-wide authority in his knowledge of this disease, will come to Southern Rhodesia to initiate the scheme of investigation. The public health of the country has profited by many minor benefactions made by the State Lottery Trustees, which are too numerous to mention here, but which will be well known to all persons engaged upon either health or charitable work throughout the country.

II. HEALTH OF THE NATIVE.

In the sure and certain belief, so often expressed by this Department in the past, that the health of the European community was inextricably bound up with, and even dependent upon, that of the native people, the Department has made strenuous efforts during the past year to increase both medical and nursing facilities throughout the country to meet the needs of the native population. As part of an organised scheme accepted by Government last year, a series of small base hospitals, numbering 25, have been built at various points throughout the country. These provide both theatre facilities and ward accommodation, and, in addition, a number of huts for the use of convalescent and outdoor patients. With these clinics as bases, the scheme purposes to establish rings of smaller outpost stations in the Reserves and districts around each centre. In this way, it is intended to create a network of clinics and dispensaries for the needs of the native people throughout the whole colony. The cost of these buildings is remarkably small and ranges from £250 for some of the smaller type to £600 for some of the larger size. In most instances, the dispensary is served by the local Government Medical Officer and is under the administrative supervision of the local Native Commissioner. Staffed by trained native orderlies and equipped with modern facilities, the clinic brings to the native people of the Reserves and districts all the advantages and amenities of modern scientific treatment. How great the effect of this will be on the health and physique of the native people yet remains to be seen, but, undoubtedly, it will improve their physical condition, reduce the abnormally high infant mortality rate, increase the number of the population, and in terms of human happiness and prosperity confer benefits of incalculable value. But, apart from all humanitarian reasons and to place it at its lowest level, it is reasonable to regard this enterprise as an insurance for the protection of the health of the European and as an investment by the nation for the better maintenance of its labour supplies in quality and quantity.

Happily, however, in Southern Rhodesia it is not necessary to base the defence of this work on considerations so mercenary and so ignoble, for, thanks chiefly to the excellent work of the Native Welfare Societies of the country, public opinion, in quarters not easily accessible to official action, is being gradually educated to the acceptance of responsibility in regard to the conditions of life of the native people. The old idea that the native has no claims upon the consideration of Government and that he should be left to fight his own battles without any assistance that would involve the expenditure of public funds is rapidly dying. I am no sentimental negrophilist, but I am completely convinced that the attitude of mind which considers the welfare of the native to be purely the concern of missionaries and other philanthropists is detrimental to the interests of the European community, and all my training and experience as a medical man force me to the belief that the sooner the European population awakes to the fact that the native people are as much their individual as their collective concern, the sooner shall we be able to look forward to the day when many of the illnesses which at present afflict us will disappear almost entirely from the list of European diseases. No matter how much we may dislike it, the native will not permit us either to ignore or forget him unless under penalty

of extreme peril to ourselves, since, for a great number of the diseases which worry us, the native provides the infected reservoir and, until we treat these diseases at their source, the European community will continually be exposed to constant re-infection with its inevitable sequel of chronic ill-health and persistent lack of fitness. Industry, too, is continually crying out for further labourers, but how can further labourers be forthcoming from a people many of whom are affected by disease, undernourished from lack of proper food, and whose women are barren from venereal infection? Until we are prepared, as individuals and as a population, to regard the native people as human beings with a claim upon us, the dominant race, for succour in illness and for the means of obtaining and maintaining good health and a modicum of this world's comfort, then so long will the present state of affairs continue with industry crying out for labour where there is none, and the European population suffering infection from a people whose needs it is, at times, too apathetic to consider.

Let it be said at once, however, that the position is clearly recognised by Government and that the establishment of the clinic system is but one of many major efforts to deal with the situation.

Perhaps it might be of interest if I related the circumstances attending the establishment of some of these clinics. The clinic at the Makumbi Mission in the Chindamora Reserve was created as a result of the Prime Minister's insistence that the work previously done in the Reserve by the Domboshawa School's Hospital staff should not be allowed to lapse by reason of the closing of that Hospital. As a consequence, Makumbi was chosen because it afforded a central site in the Reserve and because it provided the European supervision which we believe to be necessary for all these clinics. In addition, the Mission authorities offered the services of the native nuns lately professed at that institution for nursing duties in the clinic. This is an experiment we shall watch with interest since it is the first time in the history of this country that native nuns have devoted themselves to the nursing care of their own people. Another place of much interest is the clinic at Kutama, in the Zwimba Reserve. Kutama is a Roman Catholic Mission Station in the Zwimba Reserve where Government was able to acquire at a very moderate price a fine Hospital building recently erected by the Jesuit Fathers. Almost all the work of native education in this Reserve is carried out by the Roman Catholic Fathers and the Wesleyan Missionaries. These two religious denominations by agreement between their respective local representatives, the Rev. Father O'Hea and the Rev. Mr. Frank Noble, have amalgamated and pooled all their resources to make a success of the work of treating the sick. Each of the 19 schools in the Reserve has a medicine chest containing ordinary simple remedies with printed instructions for their use. These are under the charge of the school teacher, who issues them as required. In addition, the Rev. Father O'Hea, one of the Roman Catholic priests attached to Kutama's Missions, has persuaded some of his friends to provide him with a motor ambulance, and in this he conveys patients to the clinic when they are too ill to walk. All this work is done for Government by these two religious bodies absolutely free of charge, and Father O'Hea provides and maintains the ambulance, supervises the clinic, and, indeed, does a great part of the first-aid treatment without any cost whatsoever to Government. The example of these two religious bodies might with advantage be followed by other religious denominations operating in other Reserves.

Another interesting clinic is the one recently opened at Selukwe, where, through the helpfulness and enthusiasm of the local Native Commissioner, Mr. Franklin, the grounds and external surroundings of the clinic resemble the approach to some extremely comfortable and well-cared-for nursing home. One other clinic of great importance is that at Fort Usher. Here, through the generosity of the Trustees of the Lees Bequest, Government was presented with an already established clinic whose buildings must have cost at least £1,000. The intention behind the acquisition of this rather large clinic is that, in addition to providing accommodation for the treatment of other diseases, it shall function as the central Matabeleland station for the treatment of the more serious cases of Venereal Disease, in the same way as Gatooma will act as the centre for Mashonaland.

Almost all the other clinics have some little interesting history or story behind their creation, but it would take too much time to relate them here.

Suffice it to say that the reports already received go to show that not only are these places an unqualified success, but it would appear that even more accommodation will be required in the very near future.

So much for the direct work of Government in the Reserves and districts, but, in addition, there fall to be recorded the new facilities provided by Government for Mission Stations doing medical work amongst the natives whereby many of the Missions now receive regular weekly or fortnightly visits from the local Government Medical Officer in order to assist them in the treatment of their patients and to advise them generally in the conduct of the Medical Mission work. Local authorities, too, particularly the larger municipalities, are becoming increasingly active in their care of the native people employed within the areas of their jurisdiction, but much yet remains to be done in the various locations in the way of providing sufficient houses of suitable size and construction and reasonable rental for the accommodation of natives employed within the township.

In this field of work, I have nothing but the highest praise for the care bestowed upon their native employees by the larger mines of the country. Good houses, excellent food, facilities of various descriptions for recreation are the common signs of the large employers, be they companies or private owners. But the records of this Department show that much education is yet required to persuade some of the small-working mining community that an ill-nourished native labourer, badly fed and badly housed, is not worth even the miserable wage he is earning. Last year when the compulsory minimum scale of rations was raised by the addition of a half-pound of meat per head per week—which addition at that time muled the mine owner in something less than a penny per week per boy—the action evoked much derision from some of the small-workers, who wished to know if the Government desired them to provide sundowners for their native employees and to engage rooms for their accommodation at the local hotels. A complete answer to this question is to be found in the health returns from some of the smaller mines of the country. One hundred and twenty-nine cases of scurvy admitted to the Bulawayo Hospital during the course of the year and 270 cases of the same disease admitted to the Gwanda Hospital, with six deaths, and an annual total for the whole country of 617 cases, with 10 deaths, provides little occasion for either merriment or satisfaction. In these days the prevalence of scurvy amongst an otherwise healthy native staff is not merely stupid, but is, in addition, very bad economics. Largely at the instance of the Department the various citrus companies in the country are producing a concentrated form of orange-juice reasonably moderate in price and well within the reach of the small-worker, which, if utilised in time, will prevent the occurrence of scurvy amongst mine-labourers in districts where supplies of fresh vegetables are, at some seasons of the year, difficult to obtain. It is hardly credible that, despite the warnings of the Department and despite the cry of the depleted labour supplies, some owners still allow large numbers of their employees to become affected with scurvy, and so, in addition to exposing their labourers to unnecessary suffering, deprive themselves of the native's services for long periods at a time. It is scarcely to be expected that when the native comes to realise, as he is rapidly realising, the connection between inadequate diet and the occurrence of scurvy, he will be likely to return to the mine where the disease once overtook him.

I repeat in this country, at this date, continued attacks of scurvy amongst natives who have been employed for more than six months upon a mine are merely indications either of the incompetence of the manager or of the culpability of the owner. I stress the incidence of scurvy amongst natives employed on mines because it is so eminently a preventable disease, and, indeed, in these days has no justification for its existence. But the incidence of other diseases, such as malaria and pneumonia, has also risen during the course of the past twelve months. These are diseases which much can be done to prevent; better drainage in and around the compound in the case of malaria, and better housing and feeding in the case of both malaria and pneumonia.

Now, I do not want it to be assumed from what I have said that I consider native employees, in general, to be harshly or unjustly treated, or that I consider them to be so stricken with disease that they are dying rapidly from its effects. On the contrary, the bulk of the employers of labour in this country

bestow a considerable amount of care and attention upon their native employees, and the conditions, especially on some of the larger mines, are all that could possibly be desired.

Nor am I unduly perturbed about the amount of disease prevalent amongst the native people, though even here there is vast room for improvement and much remains to be done before it can be said that the health of the native is of the standard that can reasonably be looked for in a simple pastoral people living under decent sanitary conditions and provided with an adequate supply of wholesome and energising food. But what I do fear are the results of the contact between native and European under the present unhealthy conditions where the native lives in a hovel and where his contacts with the European are of the closest and most intimate kind.

As far as his own diseases are concerned, the native, luckily for himself, has established a state of equilibrium with most of what I may be permitted to call his indigenous infections, and though they may deal with him harshly when he is transferred from his own environment, at all events they cause him little discomfort or anxiety as long as he is permitted to remain in his natural surroundings and can obtain a sufficiency of food without having to labour too hard in the winning of it. But the European has no such immunity to the native's disease, and as a consequence can and very readily does contract any infection to which contact with the native exposes him. It is the results of this contact which I am endeavouring to urge upon the public consciousness, and which I desire to take steps to prevent, both by the treatment of the diseases at their source in the native, by raising and bettering his conditions and standards of life and by urging the European community to assist as far as they can by providing better care and better treatment for the native in food, housing, sanitation, and even in wages, wherever he makes contact with European life.

If I can succeed in awakening the public conscience in this regard, I shall feel that I have performed a greater service to the European community than to the native people, however bountiful and productive it may be to the latter in material comforts and in the general betterment of their conditions of life.

One other provision for the assistance of the native people which ought not to be omitted from this report is the recent creation by His Excellency the Governor, Sir Herbert Stanley, of a fund to supply crutches, artificial limbs and artificial eyes for the benefit of natives who have lost these members, either through accident or by disease. His Excellency generously allocated to the creation of this fund part of the donation given to him by Sir Ernest Oppenheimer, and since then has been instrumental in persuading both the Beit Trustees and the State Lottery Trustees to augment this amount by handsome contributions. The fund is under the control of the Medical Director, to whom application should be made by anyone desiring to avail himself of the assistance it affords.

CHAPTER I.—VITAL STATISTICS.

(1) POPULATION.

The estimated European population for 1936 was 55,590, an increase over last year of 1,590. The Coloured population was estimated at 3,189, an increase of 579 over the previous year. The Asiatic population was estimated at 2,191, also an increase over the figures of the previous year of 141.

The native population, concerning which no really accurate figures are available, was considered to be in the neighbourhood of 1,249,621. The total estimated population is therefore 1,310,591. The European rate of annual increase per thousand population (excess of births over deaths) shows a marked improvement over the previous year, being 13.13 per mille, as against 11.88 in 1935. This compares very favourably with older countries such as England and Wales, where the annual natural increase in the last recorded year, namely, 1934, was only two per thousand of the population. In the Union of South Africa the rate of natural increase for 1935 was 13.93, only slightly better than that of Southern Rhodesia, but in the former country the rate has been falling steadily for some years past, due, it is considered, to a declining birth-rate.

The gross number of immigrants was 2,586, an increase of 370 over the previous year's figure of 2,216, though the estimated net immigration was only 575, as compared with 739 in the previous year.

A population may increase by the excess of immigration over emigration and by the excess of births over deaths. Whilst the former rate of increase declined in 1936, the latter or natural rate of increase showed such a striking improvement that the total rate of increase rose from 11.88 in 1935 to 13.13 in 1936.

(2) BIRTHS.

In 1936 there were 1,302 European births as compared with 1,205 in 1935; this corresponds to an annual birth rate of 23.42 per thousand of the European population; a very high birth-rate indeed and one which is exceeded by very few countries.

Illegitimate Births.—Of these total births 21 were illegitimate, a very low proportion indeed. This year's annual birth-rate of 23.42 shows a gratifying increase over the rate for the previous year of 22.31. Undoubtedly the improvement in the economic conditions of the country has played a big part in the production of this higher rate, but some merit is due to the Department for the better facilities now obtainable in medical and nursing attention and in the increased accommodation throughout the country for maternity cases.

The birth rates of recent years are given below and compared with those of South Africa and England and Wales.

European Birth Rates, 1921-1936.

	Southern Rhodesia.	Union of South Africa.	England and Wales.
1921-30 (average) — — — — —	24.6	26.6	18.3
1930 — — — — —	24.2	26.4	16.3
1931 — — — — —	23.6	25.4	15.8
1932 — — — — —	22.8	24.2	15.3
1933 — — — — —	21.5	23.5	14.4
1934 — — — — —	22.8	23.4	14.8
1935 — — — — —	22.3	24.5	14.7
1936 — — — — —	23.47	24.7	Not available

(3) DEATHS.

(A) *Number of Deaths.*—In 1936 there were 572 European deaths corresponding to an annual death rate of 10.29 per thousand of the population. Whilst the actual number of deaths was greater than in 1935, the figure for the latter year being 563, the rate per thousand of the population was slightly lower, being 10.29 as against 10.43 in the previous year.

The increase in actual number of deaths is mainly due to fatalities resulting from malaria and from pneumonia, in both of which diseases there was a decided increase during the past twelve months. Deaths from malaria appear to me to be difficult to justify, for with such a wide dissemination of information and with the facilities available to-day for diagnosis and treatment, it seems hardly credible that anyone should die of malaria unless a person isolated from his fellow-men and far away from human help. Malaria is to-day a preventable disease, and easily enough prevented at that, provided a reasonable standard of housing is available and the ordinary precautionary measures observed.

Pneumonia is less easy to control and the long and severe winter of 1936 had much to do with its increased incidence.

The following table gives the death rates of recent years compared with those of the Union of South Africa and of England and Wales. The standardised rates give the alterations necessary to allow for differences in age and sex distribution in the countries compared. It will be noted that the rates for Southern Rhodesia compare satisfactorily with those of the Union and also of England and Wales.

European Death Rates, 1921-1936.

	Crude death rate, Southern Rhodesia.	Standardised death rate.		
		Southern Rhodesia.	Union of South Africa.	England and Wales.
1921-30 (average)	9.5	11.2	10.4	10.6
1930	9.2	10.0	10.1	9.6
1931	8.3	8.8	9.6	10.2
1932	9.5	11.3	10.0	9.7
1933	8.5	9.2	9.3	9.8
1934	9.6	10.9	9.6	9.3
1935	10.4	12.6	<i>Not available</i>	9.0
1936	10.29	<i>Not available</i>	" "	<i>Not available</i>

(B) *Causes of European Deaths.*—The following table shows the causes of European deaths in the last five years. Further details are given in a table at the end of this report:—

Causes of European Deaths, 1932-36.

Name of disease.	1936.	1935.	1934.	1933.	1932.	Totals.	Percentage of total deaths.
1. Cancer	52	46	41	37	49	225	8.76
2. Violence (all forms)	46	55	46	38	43	228	8.87
3. Heart diseases	81	69	63	36	43	292	11.39
4. Pneumonia and bronchitis	58	41	36	31	42	208	8.10
5. Malaria and blackwater fever	66	56	52	47	37	258	10.00
6. Nervous diseases	32	21	33	29	37	152	5.92
7. Premature birth and diseases of early infancy	33	29	25	31	24	142	5.53
8. Tuberculosis (all forms)... ..	4	17	11	14	17	63	2.45
9. Influenza	9	30	20	8	17	84	3.27
10. Diarrhoea and enteritis	4	13	9	11	14	51	1.98
11. Old age	14	9	4	11	10	48	1.87
12. Enteric fever	2	5	10	4	6	27	1.05
13. Diphtheria	6	5	5	8	6	30	1.17
14. Dysentery	2	7	14	13	4	40	1.56
15. Whooping cough ... ..	...	6	1	6	4	17	0.67
16. Measles	1	1	...	...	...	2	0.08
17. Scarlet fever ... ..	...	3	...	...	...	3	0.12
18. Other causes	162	150	138	117	132	699	27.21
Totals	572	563	508	441	485	2,569	100.00

1. *Heart Disease*.—Heart disease is again the chief cause of death, the number of fatalities in 1936 being 81 as compared with 69 in 1935. But heart disease is the death certificate of old age, and as was pointed out in last year's Report, the more old people there are in the country the greater will be the number of registrations of death under this heading and the nearer will our death rate from this cause approximate to that of the longer established populations.

2. *Malaria and Blackwater Fever*.—In spite of intense propaganda, the death rate from these diseases again showed an increase over that of 1935. What is still more distressing is that so many of these deaths occurred amongst children under one year. The apathy of the rural Rhodesian population in regard to this disease is almost proverbial, but surely an attitude of mind which involves the loss of valuable young lives is something worse than mere apathy and borders on downright criminal negligence. I know, of course, that there are cases where the tragedy of death has occurred despite the most loving care of vigilant parents, and for these I have nothing but the most heartfelt sympathy; but that by no means covers all cases, and I feel in duty bound to urge again upon parents the direful effects of malarial infection upon infant life and the grave need there is for taking every means possible to prevent the exposure of children to the risk of this disease. Nor do I speak without knowledge. Year after year have I watched the effects of it in school children from the rural areas allowed to return to their homes from the urban hostels at the end of the first school term; and year after year have I had to attend a certain percentage of them who invariably returned at the end of the holidays with a fresh infection of malaria implanted in them. What always evoked my admiration was the determination of the child to keep up with its school work despite the handicap of ill-health and the long persisting effects of a devitalising infection. But is it not time that this state of affairs was ended? And ended it can be by the determination of the parents. Mosquito nets of adequate length and size cost very little and would remove at least 75 per cent. of the danger. A nightly spray of the bedrooms with a mixture of concentrated pyagra (a pyrethrum compound) diluted 1 in 18 with paraffin, is negligible in cost and would remove at least a further 15 per cent. of the risk. These two simple precautions would between them remove 90 per cent. of the danger and is there any parent in Southern Rhodesia dares face the responsibility of neglecting them?

3. *Cancer*.—Cancer this year shows a decided increase in the number of deaths reported compared with those of 1935. But the increase is more apparent than real, for although the number is bound to be greater with the increasing age of the population, at the same time the facilities now available for diagnosis have resulted in a more accurate recognition of the disease and consequently in a higher number of certified deaths.

4. *Pneumonia and Bronchitis*.—The increased incidence of the deaths from these diseases is correlated with the long and severe winter of 1936.

5. *Nervous Disease*.—The higher number of deaths under this heading occurred from Cerebral Haemorrhage in a population where elderly people are year by year becoming more numerous.

(4) INFANT MORTALITY.

In 1936, there were 64 deaths of European infants under one year of age, and though the actual number was greater than in 1935, in which year only 58 deaths of infants occurred, at the same time the figure for 1936 represents the very low infant mortality rate of 49 per thousand. In addition to this figure, however, 27 still-births occurred in 1936, which was considerably higher than the figure of 18 for 1935.

Whilst the infant mortality rate of Southern Rhodesia compares most favourably with those in the Union of South Africa and in England and Wales, nevertheless there is tragedy to me in these figures, in that ten of these infant deaths occurred from the preventable cause of malaria. How many also of the still-born babies died from this cause it is not possible to determine, since no evidence is available; but it is safe to say that some percentage of them lost

their chance of life through the effects of this disease. Tables showing the infant mortality rates over a period of years in Southern Rhodesia, in the Union of South Africa and in England and Wales are given below :—

European Infant Mortality Rates, 1921-1936.

	Southern Rhodesia.	Union of South Africa.	England and Wales.
1921-30 (average)	63	70	72
1930	45	67	60
1931	45	63	66
1932	55	69	65
1933	55	61	64
1934	45	61	59
1935	48	62.8	57
1936	49	59	Not available

Causes of Infant Deaths for Ten Years, 1927-1936.

Disease.	No. of deaths.	Percentage.
Premature birth and diseases of early infancy	262	43.10
Bronchitis and pneumonia	73	12.00
Diarrhoea and enteritis	71	11.68
Malaria	64	10.53
Measles, whooping cough, diphtheria, dysentery	39	6.41
Various, not classified above	99	16.28
Totals	608	100.00

Causes of European Infant Deaths, 1936.

Disease.	No. of Deaths.
Measles	1
Dysentery	1
Malaria	10
Rickets	1
Diseases of the Thymus	1
Meningitis	1
Bronchitis	1
Broncho-pneumonia	6
Pneumonia, not otherwise defined	2
Diarrhoea and enteritis	2
Intestinal haemorrhage	1
Congenital malformations	5
Congenital debility	1
Premature birth	19
Injury at birth	3
Other diseases peculiar to early infancy	5
Attack by venomous animals	1
Ill-defined diseases	3
Total	64

Infant Deaths during Different Months, 1927-1936.

	No. of deaths.	Percentage.
First month	302	49.67
Two months to six months	184	30.26
Six months to twelve months	122	20.07
Totals	608	100.00

Neonatal deaths, i.e., deaths of babies within the first month of life, are still responsible for almost half of this mortality rate. Improved attention before and at the time of birth can go far to reduce these figures.

The new District Nursing Service commenced during the course of this year at Shamva and already extended to Sinoia will, it is hoped, eventually

provide the necessary facilities for a substantial reduction in the number of these deaths. Two more nurses will be established in other parts of the rural areas during the coming year, and it is intended gradually to increase this service until the whole country is covered in its operations. In the townships much can be effected by the activities of the Child Welfare Societies, but so far very little has been done in this direction outside Salisbury, Bulawayo and Umtali.

The Salisbury Municipality have taken over the work of the local voluntary Society and now employ two Health Visitors in this important branch of municipal activity. The services rendered by these two ladies are of the highest order and of inestimable benefit to the community, but much greater advantage could still be taken by the public of the facilities offered. In Bulawayo, on the other hand, the work is still performed under the auspices of a local voluntary organisation whose enthusiasm, enterprise and efficiency might well serve as a model for the rest of the country. The Umtali Society, also, a small but hard-working organisation, battles on in this great work despite the handicap of insufficient funds, and makes up in energy and enthusiasm for what it lacks in financial help. But what of the other parts of the country? Is there no need for Child Welfare work in the other townships of the country? Are the children of these places so healthy that none need think of them beyond now and again arranging for a few of them to participate in a trip to the seaside, and are the facilities provided by a Government limited in the amounts of funds at its disposal adequate to meet all needs in the way of advising the mother before and after the birth of her child and sustaining and comforting her in the rearing of her child and assisting with the knowledge derived from experience and a wider acquaintance with the facts of life.

And yet, during 1936, ten children died from malaria before they attained the age of one year, 19 died from premature birth and 27 were still-born. The facts speak for themselves, and need no further elaboration. But may I be permitted to repeat what I said in last year's Annual Report—"The conservation of infant life is surely a high purpose of which any local authority or public body might well be proud." And may I also be allowed to urge upon all local authorities that their first duty to the nation is to preserve the infant life of the coming generations and to take all possible steps to ensure that the children of to-day and to-morrow are born in healthy and reasonably decent conditions and come eventually to take over their inheritance of the work of carrying on this country unmaimed and unmarred by preventable disease and by the preventable accidents of infancy and childhood which have taken such a heavy toll of our infant life during the past year.

(5) MATERNAL MORTALITY.

During 1936, there were nine deaths of European mothers directly attributable to child-birth. This figure corresponds to a maternal mortality of 6.91 per thousand live births and is slightly lower than the rate for 1935, which was 7.47. Whilst this slight decrease is in itself very gratifying, at the same time one hopes that it is merely an earnest of the better things to come, for a maternal mortality of 6.91 is still much too high and compares unfavourably with the figures for the Union of South Africa and for England and Wales.

European Maternal Mortality Rates, 1921-1936.

	Southern Rhodesia.	Union of South Africa.	England and Wales.
1921-30 (average)	5.4	5.1	4.1
1930	6.0	5.3	4.4
1931	5.1	4.7	4.1
1932	6.0	5.3	4.2
1933	6.3	4.8	4.5
1934	7.46	5.99	4.6
1935	7.47	4.73	4.1
			(per 1,000 total births.)
1936	6.91	Not available	Not available

The causes of maternal deaths during the last ten years were as follows:—

European Maternal Deaths, 1927-1936.

Cause of death.	No. of deaths.	Percentage of Total.
Puerperal sepsis	24	34.29
Accidents of pregnancy	11	15.71
Other accidents of childbirth	5	7.14
Puerperal haemorrhage	9	12.86
Puerperal albuminuria and toxæmia	10	14.29
Other causes	11	15.71
Totals	70	100.00

The enquiry into the causation of maternal deaths has been continued throughout the year, and again it has become evident that puerperal sepsis is the chief cause and is mainly responsible for the high figure. This is paralleled by the results in other countries where similar investigations have been undertaken, and puerperal sepsis is now generally recognised to be the one factor which causes more death and injury in maternity than any other complication. And yet of all causes it should be the most easy to prevent, since a rigid adherence to the known principles of antiseptic procedure should eliminate its occurrence in most cases. As was stated in last year's Report, a greater amount of skilled ante-natal care, the services of a qualified and properly-trained midwife and reasonable conditions of comfort and cleanliness would go far to reduce the high incidence of this maternal death rate. Government, by inaugurating this year a Rural District Nursing Service primarily intended to meet the needs of maternity and by contributing generously in collaboration with the Beit Trustees to the erection and equipment of maternity homes throughout the country, is doing as much as it possibly can with the means within its command. A 33½ contribution to the capital cost and £ for £ contribution for every donation received, are substantial indications of the anxiety of Government to assist in every way possible the improvement in maternal conditions.

To these efforts also must be added the provisions of the new Act for the Registration and Inspection of Nursing and Maternity Homes, which was passed by Parliament at its last session and which comes into operation on the 1st January, 1937. By means of this Act, the Department hopes that a more rigid control will be exercised over the conditions provided by private maternity homes, though it should at once be stated that the services and facilities made available by the Beit Homes throughout this country are excellent in character and worthy of the highest commendation. But not all places where maternity patients are received are Beit Homes and it is expected as the result of the operation of this Act that some at least of these will be closed or compelled to bring the conditions they offer to the public within the standards demanded by modern scientific procedure for the protection of the life of the mother and child.

As an instance of another though somewhat smaller contribution to the solution of the difficulties of this problem, the Public Health Department has available a series of nine letters on maternity which are forwarded month by month to every expectant mother who cares to ask for them. These letters, which contain all requisite information, can be had from the Public Health Department, Salisbury, and from the various Child Welfare centres and maternity homes throughout the country.

But in addition to the efforts of Government, which must necessarily be limited by financial considerations, there is a great amount of service which can be rendered by local voluntary organisations and by local authorities. Much that I have already said in regard to infant and child welfare applies with equal force to maternity, and indeed these two phases of social work are generally combined and form the two-fold function of one organisation.

Government, the Beit Trustees, and the State Lottery Trustees have all shown themselves willing and anxious to assist the efforts of local organisations and it would indeed be a terrible commentary on the apathy and indifference of the people if, outside Salisbury, Bulawayo and Umtali, none can be found

sufficiently interested in the care of the mother and the child and in the future of the nation, as to be willing to devote some of their leisure hours to such small part of the work as can easily be performed by the funds already made available.

To emphasise the necessity for local interest in this work I would again draw the attention of the public to the self-evident fact which in this country appears to have been overlaid by so many other material considerations, that the continuance of the life of a nation depends upon its ability to reproduce itself in a healthy generation of children, and that no nation can attain that goal without devoting a certain amount of thought and care to the achievement of this purpose.

CHAPTER II.—INFECTIOUS AND COMMUNICABLE DISEASES.

(1) NOTIFICATION.

Although the notification of the more important infectious diseases is compulsory under the Public Health Act, the returns rendered are still very far from complete. A definite improvement has, however, been evidenced during the course of the past year which we trust will be maintained and augmented as time goes on.

The following figures, which are taken from various returns, give some idea of the infectious diseases prevalent among the European population. The figures for the native population necessarily deal with only a small proportion thereof:—

Infectious Diseases reported during the Calendar Year, 1936.

Disease.	European.		Natives.		Total.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Chickenpox	231	—	183	—	314	—
Measles	136	—	49	—	185	—
Whooping-cough	83	—	19	3	102	3
Typhoid	18	—	24	3	42	3
Mumps	51	—	41	—	92	—
Diphtheria	58	6	14	5	72	11
German Measles	77	—	2	—	79	—
Erysipelas	4	—	—	—	4	—
Cerebro-spinal Meningitis	—	—	21	13	21	13
Scarlet Fever	48	—	—	—	48	—
Poliomyelitis	1	—	—	—	1	—
Para-typhoid	3	—	—	—	3	—
Malta Fever	—	—	—	—	—	—
Anthrax	—	—	—	—	—	—
Puerperal septicaemia	7	3	5	3	12	6
Smallpox	—	—	17	—	17	—
Bacillary dysentery	—	—	—	—	—	—
Trypanosomiasis	—	—	4	2	4	2

(2) MALARIA AND BLACKWATER FEVER.

In 1936, 50 deaths were registered as occurring from malaria and 16 from blackwater—total 66. This increase from the previous year, when 39 deaths from malaria and 17 deaths from blackwater were registered, is correlated with the fact that climatic conditions in 1935-36 were extremely favourable for mosquito breeding, and that activity in small mining ventures under primitive conditions of living was still maintained. One would expect that the magnitude of these figures would give pause to the public of Southern Rhodesia and would call for their most serious consideration. Unfortunately that does not appear either evident or likely. In spite of the amount of information available on the means of preventing this disease, the numbers of people who left Salisbury for the Easter holidays in 1935 and returned with heavy malarial infection assumed almost the proportions of an epidemic. Indeed, the Municipal authorities were put to some considerable expense in order to satisfy themselves that the cases of the diseases were not originating in some overlooked cause in the town itself. What was true of Salisbury was equally true of the other larger townships of the country. Urban dwellers protected throughout the year from the ravages

of this disease by the vigilance of their local health authorities migrated to the veld for their holidays without taking thought of even the most elementary precautions, and as a result returned to their homes heavily infected. One wonders when the public will ever learn that rural dwellers have, as a result of many previous infections, acquired a certain amount of tolerance to malaria which is not enjoyed by towns people, and that moonlight picnics by the river bank, which are no doubt extremely enjoyable and from which the local inhabitants take little harm, are extremely dangerous forms of amusement for the town dweller absolutely defenceless against the attacks of malarial disease.

I have already mentioned under the heading of "Causes of Death" the simple precautions of mosquito-nets and a nightly spray of the bedrooms. If to these were added the compulsory mosquito screening of all houses in the malarious districts of this country—a procedure whose value was proved so long ago by the experiment conducted in the Roman Campaign by Drs. Low and Sambon under the guidance of Sir Patrick Manson in 1900, then the number of cases of malaria would be reduced to negligible proportions.

The type of the disease was as usual almost entirely subtertian, occasioned by the *plasmodium falciparum*. The incidence of the disease gradually rose from February, reached its culmination in May, to diminish again rapidly in June.

Blackwater fever had its highest incidence in April with nine cases, then commenced lessening in May with seven cases, falling through June with six cases, until finally in July and August only two cases were reported for each month.

The anopheline vectors were, as usual, *A. Gambiae* and *A. Funestus*, with *Funestus* causing most of the infections in the earlier and later parts of the year and *Gambiae* becoming predominant in March, April and May.

Malaria is a disease widespread throughout Africa, and whilst a few simple but effective precautions can be taken by Europeans against its contraction, it must nevertheless be realised that the reservoir of infection lies almost wholly in the native people, and that efforts for the control and ultimate elimination of the disease must be directed not only to the production of a lessening of the incidence amongst the indigenous population, but also, and perhaps still more, towards a permanent raising of the economic status of these people without which no abiding results are likely to be obtained.

(3) HELMINTHIASIS.

Sufficient evidence has accumulated to show that bilharzial infection must now be regarded as one of our major problems. Many of the rivers in the northern and eastern portions of the country carry large numbers of infected snails, and almost every farm has its bathing-pool in which these infected snails can be found with great regularity. Bathing is indulged in freely in a variety of pools and rivers all over the country, and infected natives wander over the territory to carry the infection to wherever the suitable snail intermediate hosts exist. The problem is one of extreme difficulty, for it does not appear possible with the knowledge at present available to render these long rivers snail-free. As was mentioned, however, in the introduction to the Report, a scheme of research into the bionomics of the snail-hosts has been drawn up and submitted for approval to the London School of Tropical Hygiene. It is hoped to obtain from this investigation some evidence, not at present available elsewhere, to guide us in an attack upon the problems presented by this disease. The funds for this study are being supplied through the generosity of the State Lottery Trustees, and negotiations are at present proceeding to obtain the services of a world-wide authority to supervise and direct the initiation of the work.

In the meantime a pamphlet containing all the requisite information in regard to the prevention, diagnosis and cure of the disease can be had from the Public Health Department, Salisbury.

There is no other helminthic infection in Southern Rhodesia comparable in importance with Bilharzia, though numerous cases of hookworm of light infection are reported as occurring amongst natives. Hookworm disease, as opposed to hookworm infection, is not of frequent occurrence, and its incidence

can be materially reduced by the use of common salt in and around native latrines—a procedure whose efficacy has been abundantly demonstrated on the Rand mines.

A summarised account of helminthic infections in general is given later in the report of the Public Health Laboratory, Salisbury.

(4) HUMAN TRYPANOSOMIASIS.

Four cases of human trypanosomiasis were recorded amongst natives during 1936, with two deaths, but in no instance was the patient an inhabitant of Southern Rhodesia. In each case the person concerned came from territories to the north and east of this country, and contracted the infection either in his own country or whilst in transit through another territory to Southern Rhodesia.

No European cases of this disease were recorded this year, and none occurred amongst the indigenous population of this country.

(5) SMALLPOX.

Smallpox is endemic in neighbouring territories, from which there is extensive immigration of native labour each year. The Government adopt three main preventive measures:—

1. Vaccination of all immigrant natives at the frontier.
2. Vaccination of all natives in a considerable area surrounding any outbreak.
3. Annual routine vaccination of large sections of native population in different parts of the country.

Although minor outbreaks occur from time to time, those measures have proved effective in preventing the disease from obtaining a footing in the country, and no epidemic of any importance has taken place for several years. During 1936, a small outbreak occurred in the Melsetter area near our Eastern border. The disease, which was imported by natives travelling from a neighbouring territory where cases of smallpox were known to have occurred, was quickly limited and suppressed. In all, only 17 native cases were reported. No European case has occurred of recent years among our well-vaccinated European population. The expenditure on lymph in 1936 amounted to £1,684. The position in regard to smallpox is therefore eminently satisfactory.

(6) DIPHTHERIA.

During 1936, there were notified 58 cases of diphtheria and six deaths, as against 53 cases and five deaths in 1935. All the fatalities occurred amongst the non-immunised. Greater advantage, however, is being taken of the facilities offered by the Department in this direction, and a record is now being kept of the number of persons utilising this method of protection. As the result of a careful investigation by the officers of the Department, many of the difficulties of which we were fearful last year have been cleared away, and it can be stated with confidence that the immunisation process as advocated by this Department affords the public a safeguard against diphtheria which is at least 90 per cent. effective.

The procedure we recommend is the 3-injection method, and we further strongly urge that every child between the ages of nine months and two years should be afforded this measure of protection. Every child is believed to be immune to diphtheria at birth, but this immunity, it is held, diminishes between birth and the age of nine months. Subsequent to that period, immunity may again develop, but will not be really effective until the end of the child's second year. In a great many children, no immunity at all will develop, or certainly not sufficient to defend the child from an attack of this virulent infection if exposure to the disease takes place. It is therefore the obvious duty of every parent to recognise the grave dangers of this disease and to take advantage of this simple method of defence which is now available throughout the whole country. It is not necessary until the end of the second year of life to precede the process of immunisation by Schick-testing, since it is assumed that until that age all children are susceptible to the disease. After the age of two years, Schick-testing should be done in order to ascertain whether or not immunity

has developed. If immunity is present, there is no need for immunisation, but unfortunately this will not apply to more than a certain percentage of children. A great number of the children will be found to be non-immune, and for these, immediate immunisation by the 3-injection method should be adopted.

Six months subsequent to the completion of the immunisation injections—and may I be permitted to urge this strongly upon all concerned, both parents and medical men—a further Schick-test should be performed to ascertain whether the desired protection has been obtained. Again it is emphasised that no European child in Southern Rhodesia need suffer from diphtheria, and still more certainly no child should die from this disease.

(7) ENTERIC FEVER.

There has been a marked diminution in the number of European cases of this disease during the past twelve months. Only 18 European cases, with no deaths, were reported during 1936, as compared with 52 European cases and five deaths notified in 1935. Even the native cases declined from 42 in 1935 to 24 in the present year. This is a very satisfactory position indeed, but can still be improved. The extension of water-borne sewerage, the better protection of food supplies, the elimination as far as possible of fly-breeding, the protection of water supplies, and better accommodation for native employees constitute the more important measures in combating the disease.

(8) VENEREAL DISEASE.

Though no reliable figures are available, nevertheless medical men report from many parts of the country that venereal disease is increasing amongst the European population. This appears to be particularly applicable to areas where mining is active, and where the camps are situated at distances from European townships. In the known circumstances, it is a fair inference that a great many of these cases are occurring as the result of intercourse with native women. It would appear necessary, therefore, to issue a warning of a fact upon which all medical men are agreed, that venereal disease contracted from a native is generally of intractable character and noticeably resistant to treatment. By that I do not mean that it is impossible of cure; the disease can quite definitely be cured, particularly if the patient seeks treatment early; but the process is slower and the damage resultant may consequently be much greater. In all cases, early treatment of the disease is essential if serious consequences to the individual are to be avoided.

Government, recognising the destructive effects of this disease on foetal and infant life, has accepted the responsibility of providing free treatment for all European sufferers from this disease, and for all native patients outside the boundaries of a local authority. Outdoor free treatment can therefore be had at all Government Hospitals, and it is hoped that it may be possible later to provide a certain amount of indoor accommodation for the treatment of the more serious cases of this condition. As far as the native people of the rural areas and reserves are concerned, the new system of clinics and dispensaries will afford widespread facilities for free treatment of this disease, and it is intended to utilise a portion of the large native hospital at Fort Usher as the centre for the more serious cases occurring amongst natives in Matabeleland. Hitherto the Gatooma Venereal Disease native station was the centre for the whole country, and considerable expense was incurred by Government in bringing native patients to that centre from far-distant parts of Matabeleland. Now, with the new facilities available at Fort Usher and with the provisions afforded by the many clinics, it is possible to concentrate upon a determined effort to reduce the incidence of this disease. Local authorities, also, are being encouraged to recognise their responsibilities to the State in this matter by a generous contribution from the Central Government of two-thirds of the capital cost and two-thirds of the maintenance cost of any approved scheme for the combating of this disease, and in addition all anti-venereal drugs used in the treatment of this condition are being provided by Government free of charge. It should be acknowledged here with gratitude that one of the largest mining companies of the country, the Rhodesian and General Asbestos Corporation, Ltd., at Shabani, have generously granted to Government free of charge the services of their mine doctor, Dr. Ireland, to assist in the treatment of native sufferers from

venereal disease in the Shabani ara. That is a gesture of practical value which is commended to the consideration of other mining companies in the country. How far these new efforts may be expected to result in a diminution of the incidence of the condition it is difficult as yet to forecast, but it seems justifiable to infer that as time goes on, the influence of these measures will become increasingly greater and that a marked reduction in the number of cases may be legitimately hoped for as a result of their operations.

(9) LEPROSY.

The Government maintains two leprosy hospitals of practically equal size—one at Ngomahuru, near Fort Victoria, and one at Mtoko in the north-eastern end of our territory. In addition, Mnene Medical Mission, which is subsidised by Government, has a leprosy section attached to its hospital. The leprosy hospitals are really large estates in which the patients' mode of life approximates as nearly as possible to their natural conditions. The leprosy laws are in force, but these hospitals, as far as is possible, resemble voluntary institutions. The number of cases treated during the past year fell to 1,315, a reduction of 44 on the figures for 1935. This reduction, it is satisfactory to learn from Dr. Moiser, Leprologist to the Government of Southern Rhodesia, is due in his opinion to a definite reduction in the incidence of the disease and has become evident despite the increased activities of officials of the Native Affairs Department in seeking out lepers and despatching them to the Leper Settlements for treatment.

The specific form of treatment used in the Leper Hospitals are the Iodised Esters, B. W. Moogrol, Bayer's "4828 A.J." and Bayer's Jantol. From the use of these Iodised Esters extremely satisfactory results have been achieved. At Ngomahuru, a dam has been built across the Tokwe River to provide an adequate water supply for the needs of the settlement. In addition a small dam has been erected on the Gobogwe River in order to furnish water for the vegetable gardens. In both Government leper settlements regular exercise and occupation play a great part in the treatment, and tree planting, road making, hut building, carpentry, and gardening, all afford various outlets for the energies of the patients. Many forms of recreation are encouraged, but dancing, singing and football still retain the premier places in the affections of the patients. At Mtoko, the general reorganisation commenced in 1935 is now practically completed. During the past year 108 well-built huts have been erected for the accommodation of the patients and the old compound has been abandoned. The staff has been increased by the addition of a Jeanes Teacher and his wife, the latter of whom is also a nurse. These two helpful people, in the words of the Medical Superintendent, "act as a sympathetic and happy link between the patients and the European staff." The nurse works amongst the women and children and her husband teaches and encourages the men and young boys.

Leprosy institutions are now looked upon as curative hospitals and not as prisons. A large number of "arrested" cases are discharged each year—159 from Ngomahuru and 54 from Mtoko in 1936. The return of these patients to the kraals has an excellent effect, and the number of patients who come voluntarily for treatment increases every year. The Government are greatly indebted to the British Empire Leprosy Relief Association for the generous grants they have made from time to time, especially towards the erection of the leprosy hospital at Mtoko, and also for assistance in obtaining leprotic drugs, some of which are very expensive. The following table shows the working of the above-mentioned institutions during the year:—

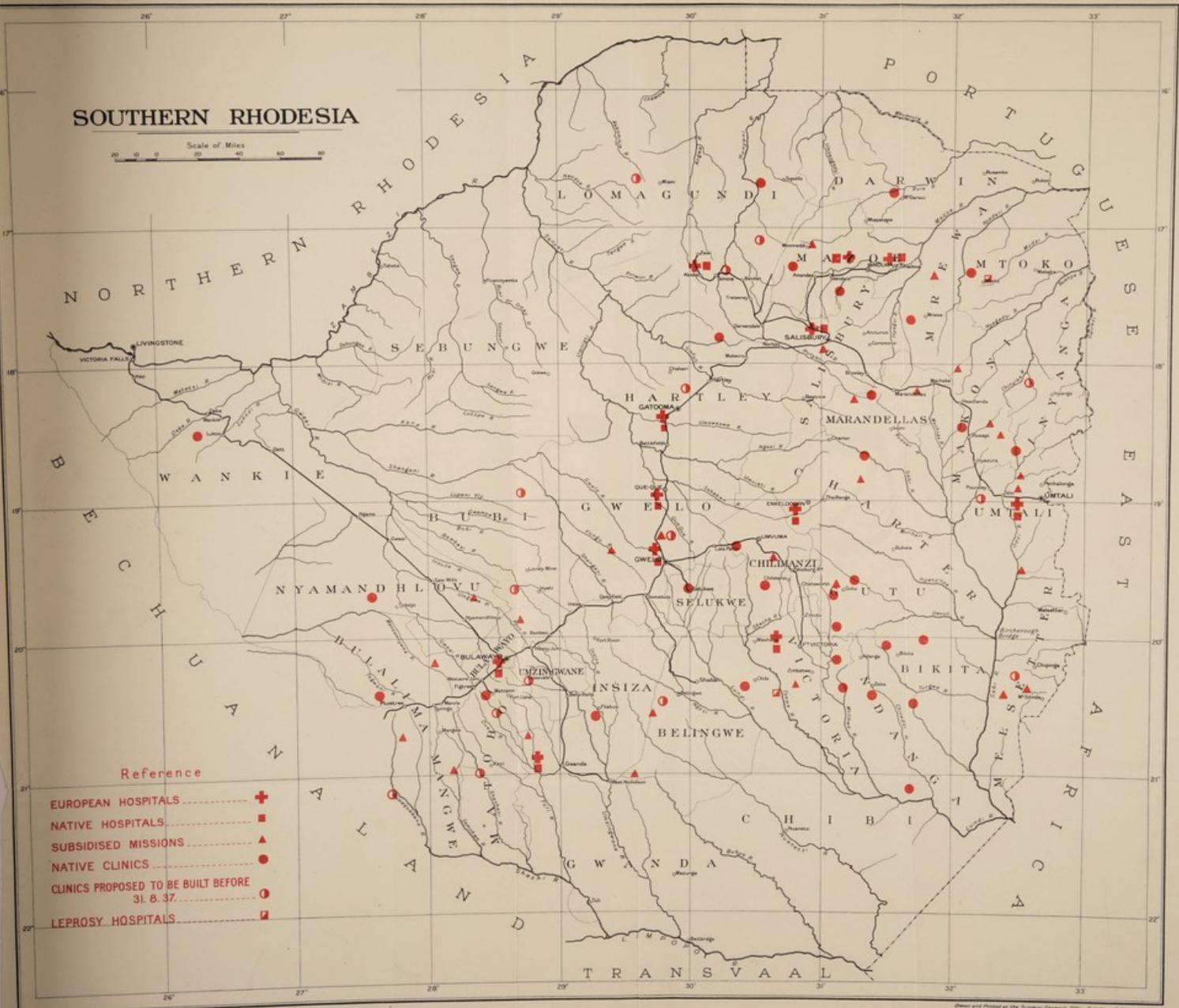
Lepers Treated during 1936.

Institution	On register, 1.1.36	Admitted, 1936	Discharged or died	On register, 31.12.36	Total cases treated
Ngomahuru	515	85	196	407	600
Mtoko	*326	341	384	283	667
Mnene Mission	42	6	10	38	48
	883	432	590	728	1,315

*In the 1935 Annual Report the number remaining on the Register of Mtoko was given as 432. This included those on leave and those who had deserted. The figure 326 represents those being maintained at the Institution at that date.

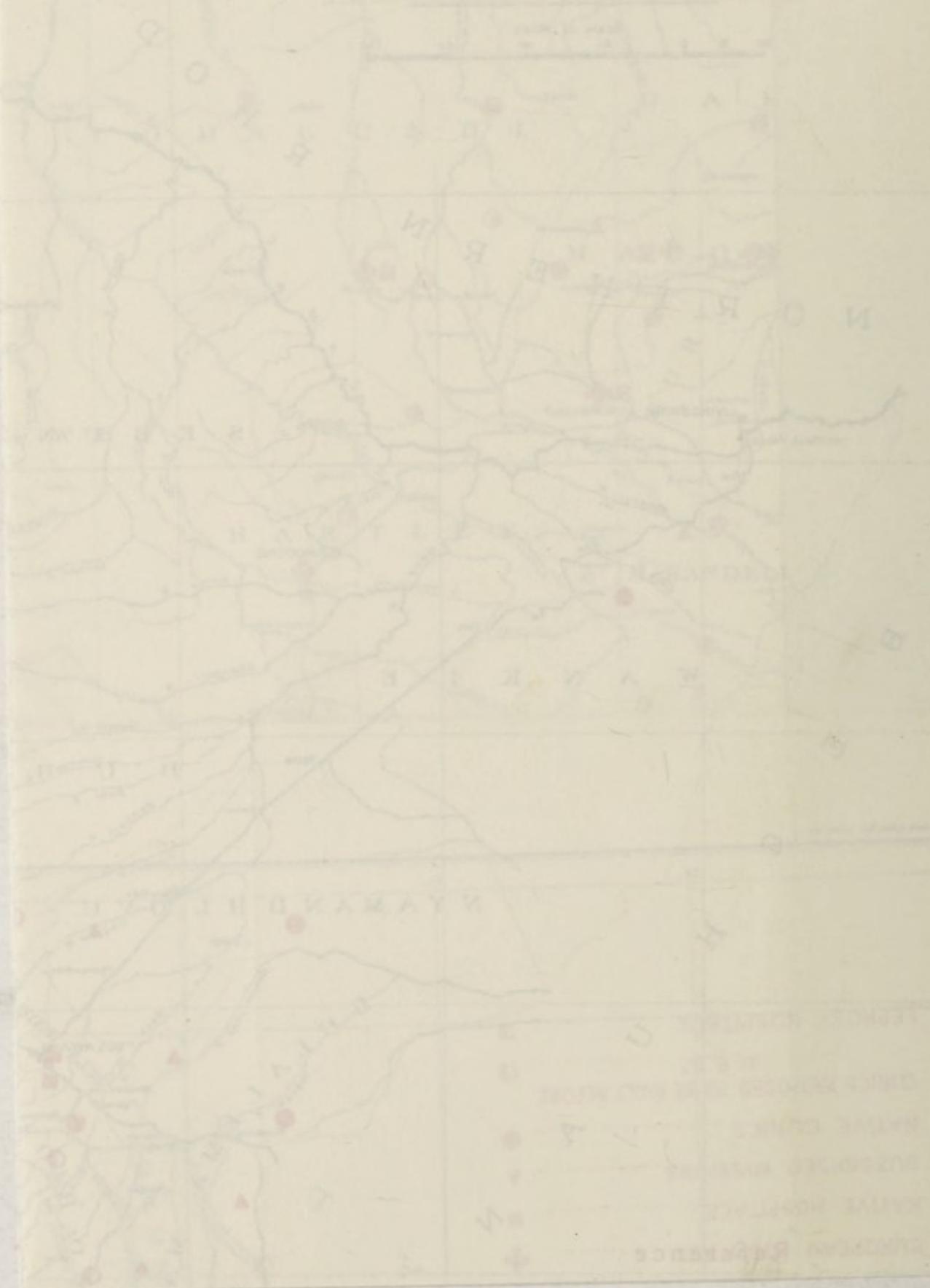
SOUTHERN RHODESIA

Scale of Miles
0 20 40 60



- Reference
- EUROPEAN HOSPITALS +
 - NATIVE HOSPITALS □
 - SUBSIDISED MISSIONS ▲
 - NATIVE CLINICS ●
 - CLINICS PROPOSED TO BE BUILT BEFORE 31.8.37 ○
 - LEPROSY HOSPITALS ◻

SOUTHERN RHODESIA



(10) TUBERCULOSIS.

There were four deaths from all forms of Tuberculosis in 1936 as against 17 deaths in the previous year. This might be regarded as a satisfactory position, did not investigations show that the disease is definitely on the increase and particularly among the native population. As this subject was discussed very fully in my report on "Silicosis, Pulmonary Tuberculosis, and Asbestosis in Southern Rhodesia," submitted to Government in April of this year, and will again form the subject of a separate report in 1937, it does not seem necessary to enter into further details at the moment.

(11) TYPHUS, RABIES, UNDULANT FEVER, CEREBRO-SPINAL MENINGITIS.

No notification of the occurrence of any of these diseases amongst Europeans was received during 1936.

(12) WHOOPING-COUGH, MEASLES, SCARLET FEVER, CHICKEN-POX, GERMAN MEASLES.

As is the case in other countries, these infectious diseases occur from time to time amongst European children, especially in centres where there are large schools. They can be controlled only to a limited extent. In 1936, the incidence of these diseases, with the exception of Chicken-Pox, was considerably lower than that of the previous year, and no deaths were reported as having occurred from the effects of these infections.

CHAPTER III.—GENERAL.

(1) NATIVE CLINICS AND DISPENSARIES.

Sufficient has already been said of the endeavours of the Department during the past year to establish clinics and dispensaries in as many parts of the Reserves and districts as time and funds would permit. Whilst several dispensaries were already in existence, the bulk of the work has been accomplished since 1st September, 1936.

The basis of the present scheme is exactly the same as that which was presented to Government in 1929 by the present Medical Director. Unfortunately the Government of the day was unable to accept my recommendations and beyond the expansion of the clinic at Ndanga taken over by Dr. Kennedy from Dr. Williams on the latter's retirement in 1932, and the erection later of a few small buildings at Marandellas and Plumtree mainly through the efforts of Mr. Posselt, of the Native Affairs Department, and Dr. McLaren, very little was done to meet the medical needs of the native people. The Ndanga dispensaries, first started by Dr. Williams and later splendidly developed by the energy and enthusiasm of Dr. Kennedy, were the only places where the clinic system was really adopted and given a fair trial. The success of that system is to-day beyond all dispute. But much valuable time has been lost; the needs of the native people are greater and more urgent than ever and the leeway now to be made up is involving Government in expense which would have been more easily borne had it been spread out over the past seven years.

In 1936, however, Government determined that the situation must be dealt with and authority was issued for the carrying out of the scheme of clinics with all possible speed. The attached map will furnish some evidence of the Department's endeavour to comply with the instructions of Government. In addition to the efficient native sections attached to the Government European Hospitals, some thirty clinics are either now functioning or are at the moment in process of erection at the following places:—

Wankie.	Fort Victoria District—two new
Filabusi.	dispensaries in Reserve.
Tjolutjo Reserve.	Chibi Reserve.
Plumtree.	Ndanga (seven, of which three
Selukwe.	new dispensaries in Reserve)
Kutama—Zwimba Reserve.	Rusape.
Chindamora Reserve.	Sipolilo.
Umvuma.	Mount Darwin.
Chilimanzi Reserve.	Amandas.

Marandellas.
Mrewa.
Mtoko.
Tzozzo Reserve.

Fort Usher.
Wedza.
Bikita.

Further, before the year of work ends on 1st September, 1937, it is hoped to have six Government clinics operating at the following places:—

Inyati.
Belingwe.
Matopos.

Chipinga.
Hartley.
Inyanga.

The great advantages of the clinic system are the rapidity with which the buildings can be erected and their remarkably small cost. In 1936, the amount provided by Government was £4,800 for the erection, equipment and maintenance of new clinics, and yet with that sum of money 18 new clinics were provided. When this is compared with the cost of any of the existing native hospitals, the cheapest of which cost more merely to erect than did the building, equipment and maintenance of all these 18 clinics together, then the advantages of the scheme become apparent.

Throughout the year also, arrangements have been made for regular visits to be paid by Government Medical Officers to Missions doing medical work in their areas amongst natives and under this scheme many missions are now receiving the benefits of free medical advice and surgical assistance. In addition, Government subsidised the medical work of missions to the extent of £4,000 in 1936. From this recital it must be apparent that a very great effort has been made by Government not only to bring direct and effective assistance to the native people, but also to include in their efforts the co-operation of the missions by providing the latter with added facilities and funds for the extension of medical work amongst the native people. A table at the end of the Report gives the number of patients treated during the year at the various native medical clinics and dispensaries throughout the country.

(2) NATIVE LABOUR ON MINES.

Disease.—The incidence of pneumonia amongst mine natives was greater during the past year than in 1935, the number being 1,770 cases with 421 deaths as against 1,632 with 406 deaths in the previous year.

Influenza, however, was considerably less rife in 1936, there being 6,268 cases with 27 deaths, compared with 10,946 cases with 85 deaths in 1935. These diseases are difficult to control and will remain so until the mining community appreciate that a reasonably comfortable standard of housing, adequate supplies of good, wholesome food, and facilities for the minimising of the risk of sudden emergence from warm workings to cold open air, are main factors in their prevention.

Syphilis.—The rise in the incidence of syphilis from 759 cases with 22 deaths in 1935 to 1,041 cases with 26 deaths in 1936 was probably due to the greater facilities for diagnosis than to any marked increase in the disease itself. Nevertheless, it is quite certain that the venereal diseases are becoming more widespread amongst mining native labourers, and this increase is correlated with the greater facilities available to the travelling prostitute by the improvement in the roads and the increase of motor traffic.

Scurvy.—In spite of our warning of last year, the incidence of Scurvy rose from 154 cases with 22 deaths in 1935 to 617 cases with 10 deaths in 1936. This disease has already been discussed under the heading of "The Health of the Native," but I again emphasise the grave responsibility there rests upon mine managers and owners to make use of the means available for its prevention.

Accidents.—The death-rate from accidents showed a definite decrease to the low rate of 2.26 per thousand. Every death from accident is the subject of careful enquiry, and it is probable that this rate is as low as can be expected in an occupation which contains unavoidable risks.

Whilst the sickness and mortality rates amongst natives employed on mines are distinctly better than the figures for 1935, there still remains much room for improvement in the conditions existing on the smaller mines. In a large number of these, no attempt whatsoever is made to provide medical attention

and natives are allowed to drift into grave and serious illnesses, then hurriedly removed to the nearest hospital to obtain, often when too late, the medical advice and attention which, if sought earlier, could have prevented the condition arising. The small mine owners must realise their responsibilities to the State in this matter and I would strongly commend to them the formation of local groups paying a moderate but reasonable amount per native per month in order to obtain the professional services of local medical men. This could be done without imposing any great strain on their own financial resources yet making it worth the medical man's while to undertake this type of work. What might be a great burden to one person becomes hardly noticeable when spread over the shoulders of many. I feel quite convinced that such an arrangement would be feasible and would be quite acceptable to the medical profession and I know that Government would welcome the assurance that medical facilities were being provided for a great number of native mine employees who at the moment are not receiving the attention they require. Unless some such arrangement as this is made, it would appear absolutely essential that an alteration be made in the Mining Regulations to ensure that regular medical attention is provided long before the number of native employees reaches the figure laid down in the existing law.

Two senior officers of the Native Affairs Department are seconded for service on the staff of this Department and devote the whole of their time to supervising the health conditions of native mine employees. The beneficial results of supervision by skilled officers, who are in an entirely independent position, cannot be overestimated. A table concerning the health and mortality of native mine employees appears at the end of the Report.

(3) SCHOOL MEDICAL SERVICE.

Owing to the Schools Medical Officer being on study leave, only a small proportion of schools were visited this year. The Acting Schools Medical Officer completed 752 routine European examinations, 40 Coloured, 32 Hindoo and 45 for certificates to those going, under the Education Department scheme, to the Johannesburg Empire Exhibition. In addition, three central schools were visited, in conjunction with other members of the Boarding Facilities Panel. The following figures are calculated on the 752 European children examined by the Acting Schools Medical Officer. For comparative purposes the above number is small, and no co-efficient of correlation between disease incidence and climatic conditions has been estimated.

Parents attended the examination in 149 cases. Boarders were, in most cases, examined at the school hostels, where the school matron attended the inspection as the parents' representative; 263 children were thus examined, so that the total number of children examined in the presence of a parent or representative was 412, i.e. 54.4 per cent. In each case, special problems were discussed with the parent or representative, and advice given about feeding, exercise and general hygiene.

Vaccinations.—A considerable number of children are unvaccinated when they enter school. The total number of unvaccinated pupils was 146, or 19.4 per cent., most of these being entrants or in the sub standards. The majority of these children were vaccinated at school by the Acting Schools Medical Officer.

Malnutrition.—"Malnutrition" is rather a vague term. It is not possible to detect the condition in its earlier stages with any degree of precision. Many children are, however, on the borderline, as evidenced by sallowness, depressed vitality and histories of frequent furunculosis. Enquiries into diets from the children themselves reveal a shortage of fruit, green vegetables and dairy products, especially in late winter and spring. "Sir F. Gowland Hopkins, President of the Royal Society, claimed that the outstanding social (and educational?) duty of the moment was to see that all sections of the people were properly nourished. Indeed he went so far as to add that, in his opinion, this was even more important than the housing problem"—(F. W. Fox, in "Diet and Health in South Africa"). If this holds for England with its inhospitable climate, how much more for South Africa where our climatic conditions are so much more friendly. Malnutrition here seems to be due to wrongly balanced dietaries rather than to insufficiency of food.

Malaria.—Enquiries were made as to the number of children who gave a history of one or more definite attacks of malaria which had been diagnosed by a medical practitioner. Vague histories of feverish attacks are not included in this list. The true incidence of malaria is, therefore, somewhat higher than the figure given. The number of children giving a history of malaria was 232, or 30.8 per cent. The spleen rate was found to be 3.2 per cent. as against 2 per cent. last year. This is probably due to the bad malarious year of 1935.

Incidence of malaria in the visited districts is shown in the following table:—

Table I.

Table re Incidence of Malaria.

School.	Number examined.	History of malaria.	Percentage.	Enlarged spleens.
Convent, Salisbury	193	52	27	6
Daisyfield	75	23	30.6	6
Enkeldoorn	58	23	39.6	2
Fort Victoria	51	21	41.1	1
Girls' High, Salisbury	312	96	30.7	6
Lauder Farm	19	7	36.8	2
Somabula	32	9	28.1	—
Willoughby Spur	12	1	8.3	1

Malaria is one of the chief causes of ill health amongst school children and responsible for a large proportion of the absence rate. On the other hand, diseases such as rickets, pulmonary tuberculosis, and rheumatic fever, which cause much disability in colder countries, are rare.

Bilharzia.—In Somabula Central School there were ten cases of bilharzia. In other schools histories of schistosomiasis were obtained in some instances, but only one actual case was found. It therefore appears as if streams in certain districts are more heavily infected than those in others.

Other parasitic infections were rare. Two cases of threadworm and two of sarcoptes scabiei were observed.

Enlarged Tonsils and Adenoids.—Owing to its close association, the pharyngeal tonsil is here included with the faucial tonsils. The percentage of enlarged tonsils was found to be 13.8, of which only 4.5 per cent. were advised for removal. In the majority of cases the condition seemed to be a simple hypertrophy giving rise to no symptoms. Only in cases where frequent sore throats and chronic tonsillitis was removal advised. Even so, the proportion requiring removal seems much greater than in England, where lymphoid hypertrophy has been largely superseded by various forms of vasomotor rhinitis. Those who had had their tonsils removed previously were 11.7 per cent. Great improvement was noticed in the children's general physical condition after tonsillectomy.

Mental Defect.—The number of children referred by teachers for special mental examination was 5. Of these, one was a congenital spastic paraplegia, with retarded mental development; one a moron, one with behaviour disorder, one had "word blindness," and one was an epileptic with tendencies to cruelty and retarded mental development.

Postural Deformities.—A very large number of children are seen who have bad habits of posture. They stand on one leg, with drooping shoulders, flat chest and prominent abdomen. Many of these have scoliosis, lordosis and kyphosis of a mild degree, curable by simple remedial exercises. The fully trained physical instructors in the larger schools are responsible for regular execution of these exercises as well as for the usual physical instructions. In many country schools no facilities are available for physical instruction, since the teachers have no training in the subject. Some schools are visited at regular intervals by trained instructors who are able to supervise the teachers in this work. But there is much room for expansion in this direction. Fifteen to twenty minutes daily, preferably in the open under cover, as early in the day as possible, will probably yield the best results.

Dysmenorrhoea was found to be unexpectedly common amongst the young Rhodesian girls. Usually no physical cause could be detected. Exercises and general healthy hygienic living was advised in most instances.

In the Hindu and Coloured Schools, particularly the latter, the only factor that calls for comment is the large proportion of children with cervical adenitis with or without tonsillar hypertrophy. No other signs of tuberculosis were detected, so that these are more probably due to dirty heads than any more serious cause.

Table II.
Findings of Medical Inspection.

School	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Total	Per-centage
All Schools Examined in 1936.	Entrants	Born 1927	Born 1924	Born 1922	Re-examinations	Specials		
<i>No. Examined</i>	229	115	121	117	56	44	752	
<i>Malnutrition</i>	1	—	1	—	1	—	3	0.4
<i>Skin Disease</i>	3	3	1	1	1	—	9	1.2
<i>Defective Vision</i>	15	9	14	17	10	11	76	10.0
1. Req. treatment	6	5	6	7	5	8	37	4.8
2. For observation	5	2	1	3	—	—	11	1.5
3. Treatment obt.	4	3	7	7	5	3	29	3.8
Strabismus	1	—	1	—	2	1	5	0.7
Other conditions ..	2	—	—	—	1	1	4	0.5
<i>Defective Hearing</i>	2	—	1	2	1	1	7	0.9
1. History of otitis media	2	—	—	1	—	1	4	0.5
2. Adenoids	—	—	—	—	—	—	—	—
3. Other causes	—	—	1	1	1	—	3	0.4
Active otitis media	1	—	—	—	—	—	1	0.1
<i>Tonsils and Adenoids :</i>								
1. Enlarged	43	15	20	12	7	7	104	13.8
2. Removal advised	17	6	5	1	1	4	34	4.5
3. Removed previously	33	18	21	13	—	3	88	11.7
<i>Heart :</i>								
Organic Disease—								
1. Rheumatic	—	—	—	—	—	—	—	—
2. Other causes ..	—	—	—	—	—	1	1	0.1
Functional Disease—								
1. Murmurs	1	1	3	6	—	—	11	1.5
2. Otrythmia	—	—	—	—	—	—	—	—
3. Anaemia	1	1	—	—	—	—	2	0.26
<i>Lungs :</i>								
1. Bronchitis	2	—	—	—	—	—	2	0.26
2. Asthma	—	—	—	—	—	1	1	0.1
<i>Postural Defects</i>	4	1	2	3	1	—	11	1.5
<i>Deformities</i>	2	—	—	2	—	—	4	0.5
<i>Enlarged Spleens</i>	14	4	2	3	1	—	24	3.2
<i>Nervous Diseases :</i>								
1. Epilepsy	1	—	—	—	—	1	2	0.26
2. Chorea	—	—	—	—	—	—	—	—
3. Others	1	—	—	1	—	—	2	0.26
<i>Speech</i>	1	—	—	—	—	—	1	0.1
<i>Other conditions :</i>								
1. Bilharzia	—	2	4	—	—	5	11	1.5

(4) GOVERNMENT DENTAL SERVICE.

The Government employs two whole-time Dental Surgeons, one for the eastern division of the country with headquarters at Salisbury, and one for the western division with headquarters at Bulawayo. There is a clinic at both these centres.

Their work includes (1) the examination of school children and the provision of treatment in necessitous cases; (2) dental treatment of the B.S.A. Police and Permanent Staff, Defence Force; (3) dental treatment of European patients at Ingutsheni Mental Hospital. In addition to the above, urgent cases among prisoners are dealt with, and from time to time, when opportunity offers, a limited number of indigent patients are treated at the Salisbury and Bulawayo clinics. Once a week the two Government Dental Surgeons hold clinics at the Salisbury and Bulawayo Hospitals.

Dental Treatment: B.S.A. Police.

	Salisbury Division	Bulawayo Division
No. of examinations	754	545
No. of extractions	196	116
No. of fillings	222	226
No. of sealings	47	100
No. of other operations	176	48
No. of dentures supplied	44	19
No. of dentures repaired	19	6

Indigent Europeans and Natives.

	Salisbury Division	Bulawayo Division
No. of extractions	1,051	510
No. of fillings	—	92
No. of sealings	6	10
No. of other operations	14	15
No. of dentures supplied	2	3
No. of dentures repaired	1	2
Vulcanite fracture splint	—	1

School Dental Service.

	Salisbury Division	Bulawayo Division
No. of children examined	3,487	4,605
No. of children treated	709	692
No. of fillings:		
Temporary teeth	81	172
Permanent teeth	851	797
No. of extractions:		
Temporary teeth	1,254	1,097
Permanent teeth	310	215
No. of other operations	15	8
No. of sealings	32	10

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

European.—During the year the number of cases receiving attention for illness or injury was 943, as compared with 1,051 during the previous year, necessitating abstinence from duty for 7,803 days and light duty for 4,026 days. This compares favourably with the previous year's figures, when the Force numbered 540 as against 573 this year.

Analysis of causative diseases for 1936 shows that the main decrease was in regard to influenza (43) and minor injuries (11). Knee injuries appear to have rather a high incidence and to have increased considerably during 1936 (i.e., by 12).

The number of appendicitis cases increased by eight, intestinal diseases by three, and malaria by one. No cases of syphilis were reported and no cases of blackwater or enteric.

There were four discharges as medically unfit during the year. This compares favourably with the seven of the previous year. Of these four, one was on account of epilepsy which resulted from an injury sustained prior to attestation.

One death due to peritonitis occurred, whereas during the previous year there were two deaths.

Natives.—There were 1,037 natives employed, which is an increase on the 979 of the previous year; 1,535 native sick cases were reported, as compared with 1,443 during 1935, the number of days being 7,755 no duty and 3,081 light duty, as against 7,974 and 2,866 respectively of the previous year. The average number of days lost per case was .45 less than in 1935.

Malarial cases increased by 117, knee injuries by 17, minor injuries by 21, and intestinal diseases by 15. Influenza decreased by 45 and venereal diseases by 12.

Three natives died of disease and one by suicide. Eight were discharged as medically unfit.

General.—On a basis where the European strength is estimated as 573, the number of days lost per man was 17.13; for natives, the corresponding figures are 1,037 and 8.96 respectively. In the calculation of these figures light duty is counted as being equal to half a day lost. The above figures show an improvement on last year's sickness absence, when the figures were 18.09 for Europeans and 9.6 for natives.

(6) MENTAL DISEASE.

Dr. Rodger, the Medical Superintendent, Ingutsheni Mental Hospital, reports as follows:—

On the 1st January, 1936, there were 379 patients on the register. During the year 232 patients were admitted, 146 discharged and 54 died; 610 cases were treated, that is 91 European males, 65 European females, 362 native males, and 92 native females. There remained on the register on the 31st December, 1936, 410 patients—that is, 61 European males, 44 European females, 240 native males and 65 native females, an increase of 31 over the number on the register on the corresponding date in the previous year.

Discharges.—Of the 130 certified cases discharged, 76 were discharged recovered, 19 were improved and handed over to the care of relatives, and 33 were discharged by the order of the Magistrate on or before the expiration of the Urgency Order. Of the 16 voluntary patients who left this Hospital, 14 were relieved of the symptoms which caused them to seek treatment, and two were not improved. One European male patient and one native male patient were discharged by escape.

The recovery rate, calculated on the number of certified patients admitted was 32.75 per cent., European recoveries being 19.29 per cent. and native recoveries 37.71 per cent. The total recovery rate, including voluntary patients, was 39.22 per cent. The poor recovery rate of Europeans was due to the large ratio of mental defectives admitted for whom recovery cannot be expected.

Deaths.—Fifty-four deaths occurred during the year; of these 4 were Europeans and 50 were natives. The death rate calculated on the number of patients treated was 8.85 per cent. The rate for Europeans was 2.56 per cent. and for natives 11.01 per cent.

Repatriations.—During the year all alien natives were repatriated on recovery, Northern Rhodesia and Nyasaland being the principal destinations.

Probation.—Liberation on probation was allowed in 14 cases. Four recovered and ten, five European males, four European females, and one native female, have not yet completed probation.

Voluntary Patients.—Twenty-two patients applied for admission for voluntary treatment; of these six remained to undergo further treatment.

Health.—The health of the Hospital during 1936 remained satisfactory. No epidemics of a serious nature took place. Casualties have been slight and call for no special remarks. Dental inspection and treatment is carried out satisfactorily.

Occupations and Amusements.—The occupation of patients is still adequate. The European males are doing more gardening and are generally more fully employed than has been the case in the past. The native males continued to provide sufficient farm labour. In addition, more use is being made by the other hospitals in the Colony of the mattress-making department. This work provides employment for a type of native unsuitable for field labour.

The European females continue to perform domestic duties, sewing, etc. Recently an attempt has been made to make up the patients' dresses in the hospital, thus ensuring a better fit and encouraging patients to take more interest in their appearance. In the native female yard, also, the patients have been encouraged to trim the uniform with material provided. The native females work on the lands and in their own gardens.

Occupational therapy suffered a temporary set-back owing to the departure of the Instructress, but is again being practised with satisfactory results.

The standard of entertainment has been improved. Talkie apparatus was provided by the Rhodesian State Lotteries Trustees, and is now working efficiently. The patients greatly appreciate the pictures provided and the fortnightly performances are much enjoyed. Toe H, who used to run the silent film entertainments, have transferred their energies to visiting patients and to organising picnics and concert parties for them. Their entertainments are always greatly appreciated and the staff and patients have reason to be very grateful. The ladies of the Jewish Community have organised several concert parties and provided a Christmas Tree and party which the patients thoroughly enjoyed.

During the year many of the out-of-date books in the library were discarded and several hundred new ones acquired by purchase and by gift. The shelves are by no means full yet, but what is on them is readable.

Additions, Alterations and Improvements.—Little has been achieved under this heading, but some improvements have been made in the bathing accommodation in the European female ward, and the laundry additions referred to in last year's report have been completed. Two boreholes have been sunk with excellent results, and the installation of the necessary engines, piping, etc., is now proceeding. When this is completed it will result in considerable economy and in a great improvement of the farm and garden.

Acknowledgments.—I have to express the gratitude of the hospital to the proprietors of the Empire, Princes and Palace Theatres for permission for patients to attend matinee performances; to the various sporting associations in Bulawayo for men to attend matches; to the various clubs and hotels for gifts of periodicals, and to the Rhodesia Printing and Publishing Company for the supply of newspapers. Special gratitude is due to the Toe H for their continued interest in the welfare and entertainment of the patients. In conclusion I wish to express my gratitude to Mr. McLean, the Matron and the Head Attendant for their assistance and support throughout the year.

Divine Services.—The clergy of Bulawayo continue to provide Sunday morning services and visit the patients regularly.

Parole.—Thirty-five European male patients and five native male patients were on parole.

Staff.—An Assistant Matron and a staff nurse were imported from England during the year, but the former only remained in the Service a few months. Probationers, as usual, have come and gone. The female probationers get married and the males go to the Railway Service or the mining industry. However, one female probationer passed the Final Examination of the Royal Medico-Psychological Association and is now employed as a staff nurse, while two more have passed the Preliminary Examination.

Revenue and Expenditure.—Revenue from paying patients and the sale of Government property amounted to £3,029 18s. 2d., maintenance fees £2,922 13s. 8d., and sales £107 4s. 6d., supplies from farm and garden amounted to £852. Outstanding earnings amounted to £2,537 7s. 10d., as against £2,498 17s. 4d. at the end of December, 1935.

The total expenditure including the value of farm and garden produce supplied to the hospital was £14,326. This works out at £38 per patient per annum.

The daily cost of maintenance, calculated on gross expenditure, was 2s. 1d. per caput per diem. The net cost to the Government after deducting the revenue and the value of farm and garden produce was 1s. 6d. per caput per diem.

(7) RED CROSS SOCIETY AND ST. JOHN AMBULANCE BRIGADE.

There are two societies doing medical work in Southern Rhodesia whose activities deserve notice in this Report; one is the St. John Ambulance Brigade and the other is the Red Cross Society.

The St. John Ambulance Brigade has for many years past confined its recruitment and its activities almost entirely to railway employees. So excellent has been its work and so valuable the services it has rendered to the public that one feels that the time has come when the field of its operations might with great profit to the community be considerably widened, and that an attempt should now be made to bring all mine workers, both European and native, within the scope of its activities. A start might be made with the establishment of units on the larger mines, and I am quite sure that not only would the work be taken up with enthusiasm but that the knowledge acquired in the training would prove of immense value to the individual in private as well as in industrial life.

The Red Cross Society has done extremely useful work in Salisbury, but its efforts in the country have languished, and it has not yet succeeded in establishing itself as part of the national life. That is a matter for regret, for in almost every country of the Empire the Red Cross Societies constitute a national organisation and play a large part in the education of the people in health matters and in stimulating local efforts for the improvement of local conditions. There is plenty of scope for such a national organisation in Southern Rhodesia. The most recent work of the Salisbury Society in establishing classes and training location natives in first aid methods deserves the commendation of all sections of the community. It is hoped that this work will be extended and that greater efforts will yet be made to establish this new branch of the Society's activities.

CHAPTER IV.—HOSPITALS AND LABORATORIES.

(1) HOSPITALS.

In Southern Rhodesia, the Government Hospitals not only afford accommodation and treatment for the indigent, as is the practice in other countries, but here, in addition, all classes of the population are admitted and treated. Private patients, who, in other countries become the inmates of private nursing homes in times of illness, find suitable accommodation in the private wards of the Government Hospitals. This arrangement, whilst necessary in the present stage of the country's development, adds considerably to the size and cost of Government Hospitals. Expenditure on Government Hospitals, not including salaries of Government Medical Officers, amounted to approximately £134,675 in 1936. Revenue received was approximately £45,262; Government thus bore 66.39 per cent. of the cost. This shows a slight improvement on last year's figure, which was 69.21 per cent. Of a total of 7,642 European patients admitted to hospital during 1936, only 1,784 were free patients. It is abundantly clear from the above figures that Government is bearing a large proportion of the cost of accommodating and treating paying patients in addition to bearing the total costs in respect of free patients.

Admission of European, Asiatic, Coloured and Native inpatients and outpatients for the last four years have been as follows:—

<i>Inpatients.</i>				
	1933	1934	1935	1936
European	5,822	6,264	6,820	7,642
Asiatic, Coloured and Native	10,057	10,727	10,717	12,328
	<hr/>	<hr/>	<hr/>	<hr/>
	15,879	16,991	17,537	19,970
<i>Outpatients.</i>				
	1933	1934	1935	1936
European	8,996	10,135	11,866	14,345
Asiatic, Coloured and Native	13,563	27,273	24,700	36,895
	<hr/>	<hr/>	<hr/>	<hr/>
	22,559	37,408	36,566	51,240

Salisbury Hospital.—The work of the Salisbury Hospital for 1936 shows an all-round increase on the figures for 1935. European admissions amounted to 2,876, being an increase of 278 over the figure in 1935, which was a record. European outpatients numbered 5,782, an increase of 1,247 over the previous year. Native and Coloured admissions totalled 2,436, an increase of 327 as compared with 1935. Native outpatients treated numbered 13,302, showing an enormous increase of ~~4,425~~ ^{4,525} over the figure for 1935, which had almost doubled that of 1934.

This year 2,072 operations were performed, showing an increase of 410 on the figure for 1935. Of these 1,731 were European—394 being major and 1,337 minor. Three hundred and forty-one operations were performed on natives. These figures do not include those performed on outpatients. The X-ray department dealt with 2,524 patients—an increase of 518 over last year. The new block is not yet completed, but X-ray department and administration offices have been taken over.

Memorial Hospital, Bulawayo.—The number of European admissions to this Hospital continues to rise. This year 2,148 cases were admitted, an increase of 184 on the figure for 1935. In the European Outpatients' Department 6,022 cases were treated, an increase of 691 on the number in 1935. The figures for the native hospital also show considerable increase both in admissions and in outpatients' department. Native inpatients numbered 3,432, an increase of 229 on the admissions for 1935, and 16,111 outpatients, an increase of 4,602 on the number treated in 1935.

In the operating theatres of the hospital, 1,963 operations were performed, 564 being classed as major and 1,399 as minor. These figures represent increases of 124 major operations and 402 minor operations on the previous years' work. During 1936, 2,465 patients have been radiographed in this department. The gravity of venereal disease is emphasised, the number of patients treated being 436. Scurvy continues to be a source of great invalidity amongst native employees and, in spite of the early rains, 129 cases have been admitted to hospital during this year.

Umtali Hospital.—During the year 1,574 cases were admitted for treatment in the hospital; 709 of these were Europeans and 865 natives. This shows a big increase on the previous year which numbered 1,257 cases. The increase in the number of outpatients is remarkable, being more than twice as much as the previous year; 2,859 outpatients were treated as compared with 1,154 in the previous year, 2,707 being natives.

There is a considerable increase in the number of operations performed, 357 as compared with 200 of the previous year. The number of X-ray cases shows a similar increase, being 297 for 1936 compared with 155 for 1935.

Malaria showed a considerable increase amongst Europeans but a decrease amongst natives. The figures for the former were 164 and the latter 127 as opposed to 107 and 159 in the previous year. Three cases of blackwater fever were treated amongst Europeans and there was one death. There were 12 European cases of pneumonia with three deaths, and 68 native cases with 13 deaths.

Finally, whereas in 1935 there were no cases of scurvy, this year there were 15 native cases.

Gwelo Hospital.—Admissions were 429 Europeans and 1,059 natives, making a total of 1,488. This shows an increase of 73 on the total for the previous year, when 419 Europeans and 996 natives were admitted. Operations performed numbered 224, of which 90 were major and 134 minor. The number of outpatients treated was 570 Europeans and 1,506 natives.

The building of the Nurses' Home and of the European orderly's quarters is now completed and the work on the new European Hospital is well advanced.

Accommodation at the native hospital has become insufficient for the growing needs of this district.

Gatooma Hospital.—The total number of admissions to this hospital during 1936 was 1,778, of which 622 were Europeans and 1,156 natives. These figures show an increase of 78 on last year's figure. In the outpatients' department 2,515 cases were treated, 2,032 of these being native. Operations performed numbered 269, 76 of which were major and 193 minor. European cases of

malaria treated number 217, showing an increase of 41 on the figure for 1935; all these cases were of the subtertian variety. One thousand three hundred and sixty-two cases of venereal disease were admitted to the Gatooma Venereal Disease Clinic. This is an increase of 241 admissions on last year. Immunisation against diphtheria was continued and 150 Schick-tests were performed during November and December; those positive have been immunised.

Fort Victoria Hospital.—The number of admissions shows an appreciable increase. There were 671 admissions as compared with 596 last year, 197 of which were Europeans and 474 natives. The number of operations has diminished somewhat—the number being 50 as compared with 113 last year. The principal diseases encountered amongst Europeans during the year were malaria which accounted for 67 as compared with 42 in 1935, and blackwater which accounted for three. Amongst the natives, it is noted that there were 237 cases of venereal disease, of which 33 cases were gonorrhoea and the remainder were syphilis.

Gwanda Hospital.—This hospital dealt with 112 European cases as compared with 78 last year, and 856 native cases as compared with 613 last year. The figures—324 as compared with 220—show a marked increase in the number of natives treated for venereal disease. Malaria is common amongst the natives, there being 49 cases during the year. Scurvy, although still occurring all too frequently in mine compounds, is being more adequately guarded against than in previous years. There were 270 cases of scurvy, six of which were fatal.

Enkeldoorn Hospital.—As a result of the opening of the new native hospital, there has been a marked increase in the total number of admissions. European and native admissions numbered 191 and 916 respectively as compared with 148 and 476 last year. In addition, 36 natives were treated for venereal disease. The new Maternity Home is in course of construction, and will serve a much needed requirement.

Shamva Hospital.—Total admissions were 535, of which 72 were European and 463 native. This shows a total increase of 52 on last year's figure. In addition, there were 224 cases of venereal disease amongst natives. Malaria, pneumonia and dysentery were the most prevalent diseases in the order mentioned. Outpatients treated numbered 130.

Sinoia Hospital.—There was a considerable increase in both European and native admissions; the former total 229 and the latter 595, in addition to 187 venereal disease cases, compared with 206 and 498 respectively last year. Operations performed numbered 111, of which 17 were major and 94 minor. Maternity cases admitted numbered 27 as compared with 13 last year. Tuberculosis continues to exact a toll of native deaths in this district, all cases being foreign natives who were suffering from the disease when they entered the country. The new hospital buildings which are being erected will soon be completed if the present rate of progress is maintained.

(2) LABORATORY SERVICES.

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

We have to report, with deep regret, the tragic death of Mr. A. J. Ledger, Technical Assistant, who was killed in a motor accident in May, the Laboratory thus losing an enthusiastic worker of great promise and of charming personality. His place has been taken by Mr. Vance Carlisle, who arrived in December. The Director (Dr. Blackie) proceeded to England in July on vacation leave, Dr. Orpen acting for him during his absence.

The work of the Laboratory has continued to increase rapidly, the following being the number of laboratory examinations made during the last six years:—6,518 in 1931, 13,305 in 1932, 16,687 in 1933, 18,807 in 1934, 21,224 in 1935, and 31,557 in 1936, being practically a 50 per cent. increase this year.

Note: The figures for 1935 and 1936 in the preceding tables and those quoted in the reports on hospitals do not include natives treated for Venereal Disease.

1. BACTERIOLOGY :

Faeces.—Cultures made numbered 329 (Europeans 243, natives 86), giving 26 positive results as follows :—

	European.	Native.
<i>B. Dysenteriae</i> Flexner	5	0
<i>B. Dysenteriae</i> Shiga	2	5
<i>B. Morgani</i>	2	2
<i>B. Typhosus</i>	1	4
<i>Salmonella</i> Group	1	1
<i>B. Faecalis Alkaligenes</i>	0	1
<i>B. Proteus</i> Group	1	1

Urines.—Cultures made numbered 735 (European 679, natives 56), giving 503 positive results as follows :—

	European.	Native.
<i>B. Typhosus</i>	0	7
<i>B. Proteus</i>	0	1
<i>B. Coli</i>	298	10
Coliform bacilli, <i>staphylococci</i> , etc.	149	1

Blood.—Cultures made numbered 46 (Europeans 42, natives 4), giving 7 positive results, all in Europeans, as follows :—

<i>Staphylococcus Aureus</i>	2
<i>B. Pyocyaneus</i>	1
<i>B. Faecalis Alkaligenes</i>	1
Gram positive organisms	1
Spore-bearing organisms	1
Non-pathogenic organisms	1

The finding of *B. Pyocyaneus* led to further enquiries and investigations, and proved to be a case of *Pyocyaneus Septicaemia* (simulating Enteric) which is a rare condition, and a report on the case has been sent for publication by Mr. Alves.

Throat and Nose Swabs.—Cultures were made from 2,134 Throat Swabs (Europeans 1,685, natives 449) and 379 Nasal Swabs (Europeans 374, natives 5), giving 306 positives for *Corynebacterium Diphtheriae*, as follows :—

	European.	Native.
Throat Swabs	208	37
Nose Swabs	61	0

The above positive results do not, of course, represent the actual number of cases of diphtheria; some represent repeated examinations of cases until declared free of infection; others represent detection of diphtheria bacilli in carriers; and others represent non-virulent diphtheria bacilli. Whether the bacilli are virulent or non-virulent is determined by biological tests.

Sputa.—Four hundred and sixty-eight examinations (286 Europeans, 182 natives) were made for *M. tuberculosis* giving 67 positive results (39 Europeans, 29 natives). Some of these are repeat examinations for the same case.

Urethral and Cervical Smears.—Four hundred and seventy-nine examinations (305 Europeans, 174 natives) were made for gonococci, giving 136 positive results (93 European, 43 native). Many of these are repeat examinations of the same cases.

Leptotic Material.—Two hundred and thirty-seven examinations (all natives) for leprosy bacilli gave 117 positive results. Many of these are repeat examinations of the same cases at the Mtemwa Leper Clinic.

Pus.—In addition to the usual pyogenic organisms, actinomycete-like organisms were found on two occasions, one case being clinically actinomycosis of the skin. These organisms have not been found previously.

Cerebro-Spinal Fluid.—Forty-four examinations (seven Europeans, 37 natives) gave positive results as follows:—

	European.	Native.
Meningococci	0	10
Pneumococci	0	8
<i>H. Influenzae</i>	1	0
Streptococci	1	1
Unclassified	1	3

Water, Milk, etc.—

Water Analyses	127
Milk Analyses	19
Ice Cream Analyses	6
Cream Analyses	3

Numerous milk samples were also subjected to the Methylene Blue Reduction Test, and two buckets from school boarding houses were examined for sterility.

Vaccines.—One hundred and sixty-five autogenous vaccines were prepared, usually for bronchitic and catarrhal conditions. Stock vaccines and sera are issued by the Laboratory when required.

2. SEROLOGY.

Agglutination Tests.—Three hundred and forty-two tests (207 European and 135 native) were made, giving 142 positive results as follows:—

	European.	Native.
<i>B. Typhosus</i>	54	36
<i>B. Para-Typhosus A</i>	29	4
<i>B. Para-Typhosus B</i>	6	5
<i>Br. Abortus</i>	3	0
<i>Br. Melitensis</i>	1	0
<i>B. Proteus X₂O</i>	2	1
<i>B. Proteus XKO</i>	0	3

Many of the typhoid and para-typhoid positives were the result of an investigation of the results of "T.A.B." Vaccine. The *B. Proteus* results were in cases of Tick typhus.

Complement Fixation Tests.—Two thousand six hundred and fifty-two Wassermann Tests (416 Europeans, 2,236 natives) were made, with the following results:—

European: 35 positives, 24 doubtful, 357 negative.

Natives: 562 positives, 199 doubtful, 1,475 negative.

Many of the above are routine repeat examinations.

3. PARASITOLOGY:

Faeces.—Two thousand eight hundred and eighty-seven examinations (1,033 European and 1,854 native) for worms and protozoa, gave 891 positive results as follows:—

	European.	Native.
(a) <i>Protozoa</i> —		
<i>Entamoeba Histolytica</i>	11	18
<i>Entamoeba Coli</i>	4	20
<i>Giardia Lamblia</i>	9	11
Dead <i>Amoebae</i>	4	2
<i>Trichomonas hominis</i>	1	—
<i>Iodamoeba Bütschlii</i>	—	2
Charcot Leyden Crystals	8	5

	European.	Native.
(b) <i>Helminths</i> —		
<i>Bilharzia mansoni</i>	30	115
<i>Bilharzia haematobium</i>	—	8
<i>Bilharzia matthei</i>	0	7
Hookworm	4	253
<i>Enterobius vermicularis</i>	4	—
<i>T. trichiura</i>	2	—
<i>S. stercoralis</i>	1	5
<i>Taenia saginata</i>	2	1
<i>Taenia</i> sp.	1	23
<i>H. nana</i>	—	5
<i>H. radicicola</i>	—	1
<i>H. diminuta</i>	—	1
<i>Trichostrongyle</i> sp.	—	1
<i>Ascaris lumbricoides</i>	5	9

Urine.—3,620 examinations (1,525 European, 2,095 Native) were made for worms and protozoa, giving 482 positive results as follows:—

	European.	Native.
<i>Bilharzia haematobium</i>	107	366
<i>Bilharzia mansoni</i>	2	1
<i>T. vaginalis</i>	1	2

Blood.—(a) *Malaria*: 2,562 blood smears (2,043 European, 519 Native) gave 519 positive results as follows:—

	European.	Native.
<i>P. falciparum</i>	372	124
<i>P. malariae</i>	6	2
<i>P. vivax</i>	1	1

The predominant form was, as usual, *P. falciparum*. *P. ovale* has not so far been found.

(b) *Babesia*: 446 blood smears from animals were examined, giving 256 positives: *B. canis*, 250; *B. equi*, 5; *A. marginata*, 1.

(c) *Relapsing Fever*: This *spirochaete* was found 14 times, all in Natives.

(d) *Filaria*: Europeans: *Mf. loa loa* was found twice. Natives: *Mf. loa loa* was found three times; *Mf. perstans* twice.

4. PATHOLOGY:

(a) *Post-mortems*: 223 post-mortems were performed (a few of them by the Government Medical Officer). In 37 cases, death was due to injury and its results (accidents, assaults, burns and occasionally operation) and there were three cases of poisoning, one of electrocution, and 2 of *Tetanus* following injury.

Lung conditions showed 32 lobar pneumonia (two of which were streptococcal, and one a terminal infection in leprosy), broncho-pneumonia 28, congestion of lungs 3, acute collapse of lungs 3, bronchitis 1, bronchiectasis 3, fibrosis 1, pleural effusion 1, empyema 3, abscess of lung 3, and influenza 1.

Heart and Blood Vessels: 3 endocarditis, 1 hypertrophy, 1 congenital heart disease, 3 pericarditis, 3 arteriosclerosis and 1 aneurysm.

Abdominal Conditions: 2 mesenteric thrombosis, 3 volvulus, 1 ileus, 1 intussusception, 2 cirrhosis of liver, 1 multiple hepatic abscesses, 1 suppurative cholecystitis, 1 gastric ulcer, 3 gastroenteritis, 2 peritonitis, 1 strangulated hernia, 1 rupture of spleen, 1 rupture of cystic ovary, and 1 pyelonephritis.

Cerebral Conditions: Chronic meningitis 2, septic meningitis (from otitis media) 1, cerebral haemorrhage 2, cerebral abscess 1, glioma 1, and cysticercus twice.

Cancer was found five times (all visceral).

Tuberculosis (7 lung, 1 intestine) caused 8 deaths.

Dysentery (mostly bacillary) caused 19 deaths, and enteric 4. Marked *bilharzial infection* was found 8 times (in addition to more local infections) usually associated with lobar pneumonia and in one case with purpuric haemorrhage in the viscera. There was one case of haemorrhagic jaundice, one of Henoch's purpura (complicating malignant tertian malaria) and there were two cases of onyalai (one with cerebral haemorrhage). Other causes of death were anaemia 1, toxæmia 1, marasmus 2, and agranulocytosis (with angina) 1.

(b) *Histology*: Specimens of morbid tissue were examined at the Laboratory until the death of Mr. Ledger, after which they were sent in formol-saline to the South African Institute for Medical Research, Johannesburg, by whom the necessary section-cutting, staining and report were made. This work is now being resumed, as the new technical assistant has arrived.

The tissues sent for examination during the year numbered 265, and the following is an analysis of the main conditions found:—

(1) *Tumours*:

Benign tumours numbered 40, the most noteworthy being myoma of uterus 3, fibroma 3, neurofibroma 1, fibroadenoma 3, adenoma 3, multilocular cyst-adenoma of ovary 2, goitre 1, dermoid cyst (of testicle) 1, osteoma 1, lipoma 2, and myxoma of jaw 1.

Malignant tumours numbered 42, cancerous growths were found 31 times (5 in breast, 10 abdomen, 3 mouth, 11 elsewhere and 1 in dog); a pre-cancerous chronic mastitis once; sarcomatous growths 3 times; melanoma twice; mixed parotid tumour twice; astrocytoma once, and malignant papilloma of bladder once.

(2) *Bacterial Infections and Inflammatory conditions*:

Appendicitis 27, chronic mastitis 5 (one being a case of Gynaecomastia as well), chronic cholecystitis 6, endometritis 18, endocervicitis 7, and salpingitis 2 were the main conditions.

Tuberculosis supplied 17 specimens from lung, spleen, glands, liver, kidney, heart and eyelid, and one from a pig.

(3) *Parasites*:

Bilharzial appendicitis occurred 5 times, and lung infestation twice; *Cysticercus* was found 3 times.

(4) *Miscellaneous*:

Ovarian cysts 3, cirrhosis of liver 2, and a specimen of Mönckeberg's arterial sclerosis were the most noteworthy.

The remainder were chiefly simple inflammations, or normal tissues, or unimportant. Curettings showed products of conception 9 times, and there was one case of tubal pregnancy.

5. **BIOCHEMISTRY**:

279 Biochemical tests were carried out as follows:—

(a) *Blood*:

Fasting Sugar	49
Sugar Tolerance	12
Urea	74
Non-Protein Nitrogen	65
Calcium	22
Phosphorus	7
Urea Nitrogen	2
Van den Bergh	16
Blood Chloride	11
Cholesterol	10
Albumin	1
Globulin	1
Bence Jones Protein	2
Formol-Gel	1
Volume Index	4

(b) *Cerebro-Spinal Fluid:*

Lange's Colloidal Gold	7
Nonne Apelt	1
Albumin	2
Sugar	3
Chlorides	3
pH determination	2
Urea	2
Non-Protein Nitrogen	2
Globulin	1

(c) *Urine:*

Bile	10
Spectroscopic	50
Urobilin	95
Indican	1
Quinine	7
Copper	1
Diastase	1
Sugar (quantitative)	2
Urea	12
Urea Clearance	1

(d) *Stools:*

Occult Blood	11
Total Fats	3
Neutral Fats	3
Bile Pigments	1

(e) *Stomach Contents:* Fractional Test Meals 79.

(f) *Miscellaneous:* One renal calculus chemically analysed, and one specimen of "Diabetic Bread" examined for starch. The Government Analyst and his assistant have hitherto done all biochemical tests, but as they have now a separate laboratory, these tests are now done by the Public Health Laboratory staff.

6. SKIN TESTS:

(a) *Hay Fever, etc.:* 78 tests with 55 positive reactions as follows:—

Mixed Grasses Extract	23
Mixed Compositae Extract	7
Khaki Weed Extract	7
Pepper Tree Extract	5
Orris Root Extract	4
Wild Als Extract	3
Mixed Animal Epidermis Extract	3
Mimosa Tree Extract	3

(b) *Mantoux Tests:* 110 skin tests for Tuberculosis were carried out giving 68 positive (6 Europeans and 62 Natives).

(c) *Schick Tests:* 481 skin tests for susceptibility to Diphtheria were carried out, giving 236 positives. Those giving a positive reaction are subsequently immunized to Diphtheria by a course of injections.

7. CLINICAL PATHOLOGY:

(a) *Blood:* 1,010 blood examinations were carried out as follows:—

Red Cell Counts	337
White Cell and Differential Counts	395
Differential Counts only	253
Sedimentation rate	4
Coagulation time	1

(b) *Cerebro-Spinal Fluid:*

Cell Counts	8
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8. BLOOD GROUPING:

The blood grouping of 40 Europeans was ascertained for purposes of blood transfusion; and of 91 Natives for the purpose of an investigation into the blood groups of the Native races of the Colony, as mentioned in last year's report.

9. URINE ANALYSIS:

Cytological and chemical analysis was carried out on 3,620 specimens of urine. A full analysis is carried out whether asked for or not, as this often leads to unsuspected cases of disease being brought to light.

10. BIOLOGICAL TESTS:

(a) *For Tuberculosis*: Inoculations were made from 21 urines and 5 sputa, with one positive result.

(b) *For Virulence of Diphtheria Bacilli*: 18 inoculations with throat and nose cultures gave 8 positive results. The large number of negatives is very interesting, showing that non-virulent Diphtheria organisms are quite common in carriers and even recovering cases.

(c) *For Pregnancy*: The Friedmann modification of the Zondek-Asheim test was carried out with 29 urines, giving 15 positive results.

11. SPECIAL INVESTIGATIONS:

Several hundred sera (submitted for the Wassermann test) from Natives, were examined for agglutinins for the dysentery organisms, in an endeavour to establish the type distribution of bacillary dysentery. As was expected, a fairly high percentage of the sera reacted positively with *B. dysenteriae* Shiga and *B. dysenteriae* Flexner, and no positive results were obtained with *B. dysenteriae* Sonne. It is hoped to publish the results soon.

A study of the means of prevention of Bilharzial infection has been planned for next year, and the appointment of a Field Worker is under consideration. If the Natives of the Colony were taught not to urinate or defaecate near streams or ponds, these would become free of infection.

Other special investigations are given in the list of publications at the end of this report.

12. PASTEUR INSTITUTE:

A further increase of rabies outside the Colony (over that mentioned in last year's report) occurred, apparently, as 77 courses of anti-rabic vaccine were supplied during the year, as compared with 53 the previous year. Twenty-three were for Northern Rhodesia, and 54 for Nyasaland. Southern Rhodesia has been free from rabies, apparently, since 1913.

13. GENERAL REMARKS:

A financial statement of revenue and expenditure has been omitted from this report of late years. But it is worth mentioning that if fees, as laid down in the Laboratory Tariff, had been charged for the 31,557 examinations made during the year, they would have totalled £15,500. The value of the research work done cannot, of course, be represented in figures.

The actual fees received, however, only totalled a few hundred pounds, as most of the work is done free, and the whole expenditure on the Laboratory, except for a grant of £300 from the Municipality, was borne by the Government. As over 90 per cent. of the work done is for the benefit of Salisbury patients or the Municipality, it is in my opinion time that the Municipal grant was substantially increased. This grant was first made in 1929, since when the work has increased six-fold.

14. PUBLICATIONS:

The following papers were prepared by members of the Laboratory staff during the year:—

BLACKIE, W. K.—“Observations on the Anaemia Problem in Southern Rhodesia,” *South African Medical Journal*, 1936, Vol. X., No. 11.

ALVES, W.—“T.A.B. and Brucella Agglutinins in an Uninoculated Native Population,” *South African Medical Journal*, 1936 (Quarterly Scientific Number), Vol. X., No. 1.

- ALVES, W.—“‘O’ Agglutinins for *B. typhosum* in an Uninoculated Native Population,” *ibid.*, *ibid.*
- ALVES, W.—“Normal Agglutinins and their Bearing on the Diagnosis of Typhoid Fever by Agglutination Tests,” *ibid.*, *ibid.*
- ALVES, W.—“*B. asiaticus*: its Relation to *B. coli*.” To be published, *Journal of Pathology and Bacteriology*.
- ALVES, W.—“Blackwater Fever: Laboratory findings and methods in the study of the disease.” To be published, *Laboratory Journal*, London.
- ALVES, W.—“Immunological Tests in the Diagnosis of Typhoid Fever.” To be published, *Laboratory Journal*.
- ALVES, W.—“A Case of Bacteraemia due to *Ps. pyocyanea*.” In the Press.

L. J. JOHN ORPEN,
Acting Director.

(b) REPORT OF THE DIRECTOR, BULAWAYO PUBLIC HEALTH LABORATORY.

From September 1st, 1936, the Bulawayo Bacteriological Institute, which from its establishment in 1930 had been merely Government subsidised, became a purely Government institution under the name of the Public Health Laboratory, Bulawayo.

Additional staff and equipment have been, or are in process of being, provided by this reorganisation, and it is anticipated that the scope and usefulness of the Laboratory will be greatly increased.

Prior to the reorganisation, however, the demands on the Laboratory had shown steady increase and the number of specimens received for the year 1936 is greater than in any previous year. The figure of 3,605 represents a 32 per cent. increase on the figure of 2,735 for 1935. The work which has been done in the Laboratory has been almost entirely of a routine nature as the additional staff only commenced duties towards the end of the year. Details of some of the commoner Laboratory investigations which have been performed are as follows:—

BLOOD:

Parasitological.—Three hundred and twenty bloods were specifically examined for the presence of parasites. Of these 54 contained malarial parasites.

Pl. vivax was demonstrated on one occasion, while the infecting parasite in the remainder was *Pl. falciparum*. The predominance of the latter parasite as the cause of malaria in this district continues.

In four bloods all derived from natives *Sp. duttoni* was present and in two *Trypanosoma Rhodesiense* was found. Both cases of trypanosomiasis occurred in immigrant natives.

Clinical Pathology.—58 complete blood counts were made and 22 differential counts. Apart from several well defined cases of primary and secondary anaemia a case of agranulocytosis, which ultimately proved fatal, was demonstrated. Blood grouping was performed on 19 occasions and greater use is now being made of the local blood transfusion organisation.

Serology.—Eight hundred and thirty-one Wassermann reactions were done, of which 255 were positive, 77 partial or doubtful and 499 negative. Eighty-nine sera were tested by the Widal reaction and of these 16 gave results indicating infection with a member of the enterica group. The majority of these sera were also tested for their agglutinin content against the Brucella group, but only one case of undulant fever was diagnosed thereby. This occurred in a native.

Biochemistry.—Investigations performed were:—

Sugar tolerance test	3
Fasting sugar	41
Non-Protein Nitrogen	15
Calcium	1

URINE:

Parasitological.—Of 195 urines specifically examined for evidence of Bilharzia disease, in 56 ova of *B. haematobium* were demonstrated. These figures include repeat examinations so that they perhaps tend to overstate the actual extent of infestation, but the possible preponderance of positive findings is probably offset by the negatives obtained in adequately treated cases in which the effect of treatment has been checked. The figures, however, afford sufficient indication of the importance of the disease as a menace to the health of the Colony.

Clinical Pathology.—Four hundred and twenty-five urines were examined chemically and microscopically, of which 366 were also cultured. The frequency of urinary infection with *B. coli* or allied coliform bacilli which has been commented on in previous years remains noteworthy.

FAECES:

One hundred and ninety-four specimens of faeces examined showed the following parasitic investigations:—

Protozoa—

<i>E. histolytica</i>	6
<i>E. coli</i>	1
<i>C. mesnili</i>	2
<i>T. hominis</i>	4
<i>G. lambia</i>	1
<i>Balantidium coli</i>	1

Helminths—

Hookworm	25
<i>B. mansoni</i>	2
<i>B. haematobium</i>	2
<i>A. lumbricoides</i>	1
<i>H. nana</i>	1
<i>T. trichiura</i>	1
<i>S. stercoralis</i>	2
<i>Taenia Spp.</i>	2

B. typhosus and *B. dysenteriae* Flexner were each isolated on two occasions.

CEREBRO-SPINAL FLUID:

In 21 specimens of cerebro-spinal fluid examined the following organisms were found:—

<i>Meningococcus</i>	4
<i>Pneumococcus</i>	3
<i>Staphylococcus</i>	1

One hundred and twenty specimens were submitted to the Wassermann reaction with the following results:—

Positive	13
Partial or doubtful	3
Negative	104

SPUTA:

Three hundred and thirty-four specimens examined showed 31 positive results for *M. tuberculosis*.

THROAT AND NASAL SWABS:

Fifty results positive for *C. diphtheriae* were obtained in a total of 188 swabs examined.

LEPROTIC MATERIAL:

M. leprae was demonstrated four times in 30 smears examined.

WATER EXAMINATIONS:

Nineteen bacteriological examinations were made during the year.

VACCINES:

Thirty-nine autogenous vaccines were prepared.

G. R. ROSS,
Director.

(c) REPORT OF THE GOVERNMENT ANALYST, SALISBURY.

Mr. A. W. Facer, B.A., F.I.C., Government Analyst, reports that 844 samples and exhibits were dealt with as follows:—

Exhibits in connection with Criminal Investigations—

Exhibits for presence of poisons	231
Exhibits for presence of blood stains	40
Exhibits for presence of seminal stains	34
Miscellaneous Forensic Exhibits	30
Total	335

Samples of Water—

General Analysis for human consumption	59
For contamination with poisons	4
In connection with outbreaks of sickness (dysentery, etc.)	7
For industrial and domestic purposes	6
In connection with maintenance of Swimming Baths in hygienic condition	17
Total	93

Customs Control—

Cheese	5
Cleansing Powder	1
Fruit Syrup	1
Matches (for white phosphorus)	1
Condensed milk and milk powders	3
Wines	13
Total	24

Cow's milk	81
Human milk	3
Disinfectants	12
Native Hop Beers	137
Illicit Distilled Spirits (Kachasu, etc.)	8
Miscellaneous	39
Total of above	732
Clinical specimens	112
Total	844

Although the results of the clinical chemical analyses are of great importance in the diagnosis and treatment of sickness and disease, the greater part of the actual determinations are comparatively simple routine procedures which do not require any high degree of chemical knowledge and training in their performance. It is therefore gratifying to record that arrangements have been made for us to be relieved of most of this type of work, and only to perform the more difficult clinical investigations in the future. This will make it easier for us to approach some of the numerous important problems which await investigation.

The marked development in the services rendered by the Branch is shown in the increase of the non-clinical specimens from 567 in 1935 to 732 in 1936—an increase of practically 30 per cent.

Criminal Investigation.—The development of the co-operation between the Police and the Laboratory and the increasing utilisation of scientific investigation for furnishing cardinal evidence in the most varied types of serious crimes is shown by the fact that the criminal exhibits have increased from 171 to 335—nearly 100 per cent. Numerous analyses are often required upon different portions of a single exhibit; e.g. in one case the study of the nature of three different types of stains found upon one garment went far in establishing the identity of the culprit in a dual charge of rape and murder.

In all the cases submitted the object of analysis is not merely to prove that a certain crime has been committed; endeavours have to be made to discover the means employed and the manner adopted, and to establish evidence which will lead to the conviction of the culprit.

Two hundred and thirty-one exhibits were submitted in connection with 78 cases of suspected poisoning, in 28 of which death from poisoning was proved, and in many cases evidence as to the identity of the culprit was furnished. Cyanide was found in 13 and arsenic in 12 cases. Another aspect of the toxicological work is the increasing tendency to use the services of the Branch to decide whether mine accidents were caused by "gassing." Forty exhibits were submitted in connection with 11 cases—mostly of murder—for examination as to the presence of stains due to human blood. Positive results were obtained in seven of these cases. Thirty-four exhibits were submitted in connection with 12 cases of rape and indecent assault—including some "black peril" charges. Positive results were obtained in six of these cases.

The miscellaneous criminal exhibits were of the most varied type; e.g. identifying motor tyres by a study of spots of duco spray upon them; establishing the nature and origin of some fibres of cloth observed on the casing of a bullet; identifying traces of material connected with a charge of housebreaking; discovering the origin of fragments of hair and cloth fibre on a blood-stained razor blade; establishing the identity of the culprit in a case of indecent assault upon a European woman by the study of a wisp of female hair found on a man's coat. In the majority of the cases the findings were of prime significance. Negative results are often as significant as positive ones, and on one occasion led to the exposure of a trumped-up allegation of serious nature which was wasting the time of several investigating officers.

Water Analysis.—There was a considerable increase in the number of samples submitted. In some cases serious outbreaks of enteritis, etc., were found to be associated with the use of impure water. Serious contamination of a spring water with arsenic (which was mentioned in last year's report) was proved to be due to heavy spraying of the area with locust poison, and completely disappeared during the year. Analytical control of the waters in school swimming baths enabled them to be kept in a clean and sweet condition without the expense and trouble of frequent refilling which would otherwise have been necessary.

Customs Control.—This section of our work prevents the importation of inferior products, and ensures proper assessment of dutiable articles. Several times during the year our reports led to reassessment of imports at much higher rates than those claimed, and were thereby responsible for substantial increases in revenue.

Milk.—Of the 81 samples of cows' milk examined, 18 were found to be of inferior nature, and on the basis of our results proceedings were instituted which resulted in convictions in 17 cases. In some cases substantial fines were inflicted. Six of the inferior samples were seriously below legal nutritional standard. The remaining 12 samples were found to be dirty and unwholesome, and although it is not suggested that this proportion is at all representative the results prove the necessity for the increased control in connection with the hygienic aspects of milk production and distribution which it is hoped to institute at no distant date. In each case the analysis of the samples of human milk revealed the cause of malnutrition.

Disinfectants.—These analyses were mainly for the purpose of selecting the best value for Government contracts. In one case a special study was made of a product which was claimed to have special value in the treatment of skin and other diseases.

Control of Sale of Intoxicants to Natives.—Out of 72 samples of hop beer taken by the Criminal Investigation Department, 32 were proved to be of substantially—and several very highly—intoxicating nature. Convictions were obtained in 31 cases, and the total value of the fines collected was approximately £160.

It is, however, gratifying to record that the better type of native shows an increasing tendency to avail himself of the opportunity offered of obtaining

a "control" analysis of his brew at a small charge. During the year 65 such control analyses were performed and in every case where the sample was overstrength advice and warning were given.

Numerous natives are now preparing hop beer from a formula supplied by the Laboratory with the object of producing a well aerated and refreshing but unobjectionable product. Especially on the eastern border, there are natives who understand and practise the art of distillation. The resulting products, which are sometimes called "Kachasu," are often found to be almost half as strong as neat whisky. During the year eight such distillates were analysed, and in every case results led to convictions with imposition of heavy fines. There can be no question that in connection with illicit liquor control the services of the Branch have been of great value.

Miscellaneous.—The miscellaneous samples were of the most varied and often of very interesting type, and it is regretted that circumstances of space forbid anything approaching detailed discussion. A few selections from the list will, however, serve to give an idea of the range and importance of the matters dealt with, e.g. :—

A deposit which was fouling the bottom of a swimming bath.

A sample of sulphuric acid for examination as to suitability for use in Automatic Exchange batteries.

Samples of Government quinine for control as regards contract specification.

Wheat for adulteration with other flours.

Indian Ghee suspected (but not found) to be adulterated with lard.

Underground telephone cable with a view to contract specification of the best type for Rhodesian conditions.

Samples of paper in connection with Government supplies.

A children's syrup suspected (but not found) to be harmful.

A water softening plant for report on its efficiency in connection with a Government contract.

Samples of native foodstuffs for ascorbic value, etc., etc.

Lectures to Police.—Lectures on the theory and practice of the scientific investigation of crime have been given to all batches of police recruits and refresher groups, and the results evidenced in the keen and efficient performance of the important field investigations continue to be most gratifying.

Original Investigations.—Consideration of the amount and of the urgent and important nature of the work briefly indicated above will show that the small staff of the Laboratory has very little opportunity for research, although a serious endeavour is made to keep abreast of modern developments by studying and card-indexing the leading British and foreign journals. It is therefore very gratifying to record that during the year there was performed in the Laboratory a research investigation of quite outstanding merit and importance. It was done by Mr. Kitto, mostly out of office hours, and has earned for him the well merited award of the M.Sc.

The subject comprised the study of a considerable number of important features in the sanitary analysis of water and the investigation and eventual establishment of numerous rapid methods to replace tedious procedures which are commonly employed. Water analysis is an important section of this Branch, as it controls all Government and many public and private supplies. It is therefore gratifying to know that as a result of Mr. Kitto's researches the methods of examination have been raised to an exceptionally high standard. This work further demonstrates the potential value of the Branch as a research institution in respect of any matters associated with the relationship of chemistry to public health. In this connection there are several important matters which await investigation as soon as they can be dealt with.

General Review.—In the above reference has been mainly confined to the practical work of the Branch, but as the Government Institution dealing with the application of chemistry to matters not directly associated with mining and agriculture it is increasingly consulted by Government Departments and by the commercial, industrial and general public on matters of the most varied

nature. In this connection it is gratifying to record the initiation of a marked inclination to make full use of the Branch in the co-ordination of the work of the Public Health Department. There can be no doubt that as a factor in the inception of a live policy with regard to control of food purity, and the study of deficiency maladies, malnutrition, etc., the Branch can render services of considerable importance.

In connection with the large amount of criminal work the co-operation between the Branch and the Police services continues to be close and keen, and has resulted in the establishment of a well organised and modern system which is operating with a creditable measure of success.

Quarters and Staff.—In view of the increase in the amount and scope of the Branch's work our quarters, which comprised a small section of the Public Health Laboratory, had become quite inadequate and were seriously interfering with efficiency. It was therefore with considerable eagerness that we grasped the opportunity of relief which was presented early in the year when we were asked to decide whether an old pair of semi-detached cottages which for many years were the office of the Chief Veterinary Surgeon could be converted for our purposes. Examination showed that in spite of a generally discouraging appearance the building was well adapted for such conversion, and by the expenditure of a sum which, in view of the effects achieved, must be regarded as surprisingly small, a thoroughly serviceable laboratory, into which we moved early in July, was provided. Meanwhile the limited staff which comprised only the Government Analyst aided by the half-time services of Mr. Kitto was making it increasingly difficult to cope with the work, and therefore relief was given by the appointment of Mr. Kitto as full-time assistant during the second half of the year.

Acknowledgements.—I wish to record my cordial appreciation of the interest which the Minister has shown in our work; of the great help, encouragement and stimulus which I have received from the Medical Director; of the keen, courteous and helpful manner in which the Commissioner of Police, the officers of the Criminal Investigation Department, and all sections of the Police have worked with us, and of the good spirit which has characterised our relationships with numerous other departments.

CHAPTER V.—ADMINISTRATIVE.

(1) STAFF.

1. Doctors (Permanent Establishment, 25; Aided, 7)	32
2. Dentists	2
3. Health Officer	1
4. Schools Medical Officers	2
5. Medical Superintendents	4
6. Directors of Laboratories	2
7. Government Analyst	1
8. General Nurses (Qualified, 135; Students, 110)	245
9. Mental Nurses	20
10. Other European Staff	87
11. Asiatic and Native Staff	414
Total	810

(2) SOUTHERN RHODESIA NURSING SERVICE.

The following were the results of the examinations held by the Southern Rhodesia Medical Council in the nurses' training schools at Salisbury and Bulawayo Hospitals:—

	Number of candidates.	Number successful.	Number unsuccessful.
Preliminary Examination	25	21	4
Final Examination	22	21*	1

* 4 with honours.

Gold medals presented by the British Medical Association of Southern Rhodesia were awarded to the best student at the final examinations held in April and October.

(3) MEDICAL COUNCIL.

The numbers on the registers at the end of 1936 are given below. Not all of these are resident in Southern Rhodesia:—

	Additions 1936.	Total 31.12.36.
Medical Practitioners	10	157
Dental Surgeons	2	44
Chemists and Druggists	2	86
Trained Nurses	29	219
Midwives	4	36
Mental Nurses	—	5
Masseurs and Masseuses	1	4

Included among the medical practitioners are two who are temporarily registered as *locum tenens*.

(4) HABIT FORMING DRUGS.

Import Certificates.—Sixty-seven permits were issued for the importation of the following drugs during 1936 as compared with eighty-three in 1935:—

Drug.	1935. Grammes.	1936. Grammes.
Medicinal opium	612.4	340.0
Opium (in tinctures, extracts and other preparations)	13,907.1	14,060.0
Coca leaves	—	64.0
Extract cannab. indica	113.4	340.0
Morphine alkaloid	889.6	595.5
Diacetylmorphine (heroin)	279.5	104.0
Ethylmorphine	68.0	22.6
Cocaine	963.9	1,026.13
Codeine phosphate	425.2	165.14
Dilaudide	—	0.008

Export Certificates.—Twenty-three permits were issued for the export of the following drugs during 1936 as compared with twenty-two in 1935:—

Drug.	1935. Grammes.	1936. Grammes.
Medicinal opium	167.3	491.0
Opium (in tinctures, extracts and other preparations)	416.7	702.3
Coca leaves	—	128.0
Morphine alkaloid	337.4	15.7
Diacetylmorphine (heroin)	19.8	0.95
Ethylmorphine	4.0	0.8
Crude cocaine	—	2.0
Cocaine	32.3	2.2
Codeine phosphate	9.9	2.0

One permit was issued by the Veterinary Department in 1936 for the purchase of 20 ounces of tincture of opium, as against 9 in 1935 for 116 ounces.

I have the honour to be, Sir,

Your obedient Servant,

ANDREW PATON MARTIN, M.B., Ch.B.,

Medical Director.

CLASSIFICATION OF DEATHS (EUROPEAN), 1936.

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

I.—INFECTIOUS AND PARASITIC DISEASES.		No. of Deaths.
Classification No.	Disease.	
1	Typhoid fever	2
7	Measles	1
10	Diphtheria	6
11	Influenza	9
13	Dysentery	2
16	Acute poliomyelitis	1
23	Tuberculosis of the respiratory system	3
25	Tuberculosis of the intestines	1
34	Syphilis	2
36	Purulent infection, septicaemia	9
38	Malaria	50
44.6	Blackwater fever	16
II.—CANCER AND OTHER TUMOURS.		
45	Cancer of the buccal cavity and pharynx	1
40	Cancer of the digestive organs and peritoneum	28
47	Cancer of the respiratory organs	2
48	Cancer of the uterus	2
49	Cancer of other female organs	2
50	Cancer of the breast	6
51	Cancer of the male genito-urinary organs	7
52	Cancer of the skin	1
53	Cancer of other or unspecified organs	3
54	Non-malignant tumours	2
55	Tumours of undetermined nature	3
III.—RHEUMATISM, DISEASES OF NUTRITION AND OF ENDOCRINE GLANDS AND OTHER GENERAL DISEASES.		
56	Rheumatic fever	2
57	Chronic rheumatism, osteo-arthritis	3
58	Gout	1
59	Diabetes	10
63	Rickets	1
66	Diseases of the thyroid and parathyroid glands	1
67	Diseases of the thymus	1
69	Other general diseases	1
IV.—DISEASES OF THE BLOOD AND BLOOD-FORMING ORGANS.		
71	Anaemia, chlorosis	1
72	Leukaemia, aleukaemia	3
73	Diseases of the spleen	1
74	Other diseases of blood-forming organs	2
V.—CHRONIC POISONING.		
75	Alcoholism	1
VI.—DISEASES OF NERVOUS SYSTEM AND SENSE ORGANS.		
78	Encephalitis	1
79	Meningitis	4
81	Other diseases of spinal cord	3
82	Cerebral haemorrhage, apoplexy, etc.	19
86	Infantile convulsions	3
87	Other diseases of the nervous system	2
VII.—DISEASES OF THE CIRCULATORY SYSTEM.		
91	Acute endocarditis	3
92	Chronic endocarditis, valvular disease	17
93	Diseases of the myocardium	34
94	Diseases of the coronary arteries, angina pectoris	11
95	Other diseases of the heart	16
96	Aneurysm	3
97	Arterio-sclerosis	9
99	Other diseases of the arteries	1
VIII.—DISEASES OF THE RESPIRATORY SYSTEM.		
105	Diseases of the larynx	1
106	Bronchitis	7
107	Broncho-pneumonia	20
108	Lobar-pneumonia	17
109	Pneumonia (not otherwise defined)	14
112	Asthma	6
114	Other diseases of the respiratory system	6
IX.—DISEASES OF THE DIGESTIVE SYSTEM.		
115	Diseases of the buccal cavity, pharynx, etc.	3
117	Ulcer of the stomach or duodenum	6
118	Other diseases of the stomach	2
119 & 120	Diarrhoea and enteritis	4
121	Appendicitis	12
122	Hernia, intestinal obstruction	7
123	Other diseases of the intestines	1

Classification No.	Disease.	No. of Deaths.
124	Cirrhosis of the liver	2
125	Other diseases of the liver	1
126	Biliary calculi	1
127	Other diseases of the gall bladder and ducts	5
129	Peritonitis, without stated cause	6

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

130	Acute nephritis	2
131	Chronic nephritis	8
132	Nephritis, not stated to be acute or chronic	6
133	Other diseases of the kidney and annexa	1
134	Calculi of the urinary passages	2
135	Diseases of the bladder	1
137	Diseases of the prostate	3

XI.—DISEASES OF PREGNANCY, CHILDBIRTH AND THE PUERPERAL STATE.

141	Abortion not returned as septic	1
142	Ectopic gestation	1
144	Puerperal haemorrhage	1
145	Puerperal sepsis not returned as post-abortion	4
145	Puerperal albuminuria and convulsions	1
148	Puerperal phlegmasia	1

XII.—DISEASES OF THE SKIN AND CELLULAR TISSUES.

Nil.

XIII.—DISEASES OF THE BONES AND ORGANS OF LOCOMOTION.

154	Acute infective osteomyelitis and periostitis	2
156	Diseases of the joints and other organs of locomotion	1

XIV.—CONGENITAL MALFORMATIONS.

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

158	Congenital debility	1
159	Premature birth	19
160	Injury at birth	2
161	Other diseases peculiar to early infancy	5

XVI.—OLD AGE.

162	Old age	12
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XVII.—DEATHS FROM VIOLENCE.

163	Suicide, by solid or liquid poisons and corrosive substances	6
165	Suicide by hanging or strangulation	1
166	Suicide by drowning	2
167	Suicide by firearms	5
171	Suicide by other means	2
173	Homicide by firearms	2
178	Accidental absorption of poisonous gas	1
179	Other acute accidental poisoning (not by gas)	2
181	Accidental burns (conflagration excepted)	2
184	Accidental injury by firearms	2
186	Accidental injury by fall, crushing, etc.	12
191	Accidental burning	1
193	Accidental death by electricity	1
194	Other and unstated forms of accidental violence	3
195	Other forms of accidental violence	4

XVIII.—ILL-DEFINED DISEASES.

200	Cause of death unstated or ill-defined	13
	Total	572