

WHITE POPULATION OF TROPICAL QUEENSLAND.

Observations on the White Working Population of Tropical Queensland.

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FROM time to time, scientists and others have hazarded opinions as to the possibility of white people living, thriving, and multiplying in the tropics.

It was the traditional and empirical opinion that a white race could not live permanently in the tropics—an opinion modified later by the proviso that, while individuals might so live, they could not work and they could not bring up healthy children—and still more recently modified to the effect that, while they might live and could possibly work, and could perhaps have children, the effect upon themselves and their offspring must be disastrous. Some, like Huntington, have gone even further, and, noting the emphatic trend of present-day facts and figures, have stated that we must judge, not by the immediate effects or by the effects of three or four generations, but by the results that will appear in 30 generations!

It is perhaps permissible to point out that 30 generations is infinitely beyond the scope of argument.

In tropical Australia, 95 per cent. of the population is resident in those parts which are provided with railways, that is to say, in North Queensland, and they are congregated most densely where communication facilities are greatest, and where the opportunities for the import of necessities and the export of the products won from the country can be most readily effected.

There are three misleading statements frequently made about the residents of tropical Australia, the first being that they are very few in number, the second being that they are a "selected population," and the third being that tropical Australia is not truly "tropical."

If one investigates these statements from last to first, it readily becomes apparent that Queensland is between the same parallels of latitude, and similarly located with regard to the continental land mass of which it is a part, as many a country which is regarded as being "typically tropical."

Queensland extends approximately from 10° S. to 29° S. latitude. Localities between similar lines of south latitude are, in Africa, the following territories:—Portuguese East Africa, Nyasaland, Rhodesia, Transvaal, Bechuanaland, and South-west Africa; and comprise, in South America, such areas as the following:—Southern Brazil, Paraguay, Bolivia, Southern Peru, and Northern Chile.

Few southern Australians would hesitate to characterize the climate of the majority of the lands mentioned above as "tropical," "enervating," possibly even "fatal to the white man."

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made a statement that very lucidly expresses a first principle of quarantine and public health practice:—

"A perfect system of public hygiene should aim at the prevention and removal of all the accessory causes, as well as at the exclusion of all the existing causes of disease. . . . The only mode of rendering our system of quarantine more efficient is to make our code of health more perfect, and not to allow the protection afforded by the use and common-sense precautions of quarantine to be weakened by laxity of all other sanitary rules."

The re-action of a ship's company subjected to quarantine always provides an interesting, if worrying, psychological study for the quarantine officer. Dr. Alleyne's reports would indicate that human nature was then much as it is to-day. During the quarantine of the ship *Cinkario*, in 1852, for "typhus" or "spotted typhoid fever," the ship's surgeon would not keep to the Quarantine Ground, and "encouraged people to bring him newspapers"—a practice that landed several of these kindly folk into quarantine. When the superintendent reported the matter to Dr. Alleyne, the erring surgeon excused himself with the explanation that, in his opinion, "the instructions were too rigid." That surgeon's descendants occasionally appear on ships' articles even in these enlightened times. Other reports of the experiences of Dr. Alleyne make equally interesting reading for the quarantine officer of to-day.

We are nowadays prone to sigh for the old-time romance of the waterfront—"the tall ships by the busy quay." Romance there may have been, but there was much personal discomfort, a lack of facilities of every kind, and sheer hard work. Yet in the port health records of 70 years ago there is to be found an inspiration to the quarantine officer of to-day who accepts as a matter of course the modern services of wireless and telegraphic reports, telephone communication with light-houses and the outer harbour, and rapid steam and motor means of transport. Of a contemporary of Dr. Alleyne, the port health officer at the Heads at Melbourne, it is recorded in Fairfax's *Handbook to Australasia for 1859*, that "the average detention of each vessel whilst being 'hove to' for the health officer is only about thirteen minutes." It would be difficult, even to-day, to maintain the record set by that boat's crew of six men. In 1850, during the quarantine of the ship *Emigrant* for typhus at Dunwich, Brisbane, the ship's surgeon had died of the disease, and Dr. Mallon, the port health officer, contracted the infection, but recovered. Dr. Ballow, who relieved him, died of typhus. Dr. F. Sandford Jackson has recently recorded how Dr. Cannan, who then took charge, put his tent on Bird Island, visiting his patients from there. Thus, without fully appreciating the reason why, he escaped the louse-borne contagion. The quarantine work of the early port health officers may appear haphazard and unscientific in our eyes. The bacteriologist may feign pity for these men, who lived and worked in the dark age before Pasteur and Koch. The clinician may smile at their conception of the aetiology and diagnosis of disease. Yet the quarantine officer can find much to emulate in their high sense of duty, their powers of observation, and their sound common sense.

"Excellent hearts had our fathers of old,
None too learned, but nobly bold
Into the fight went our fathers of old."

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As regards German South-west Africa, to which considerable attention has been drawn lately, it is to be noted that it lies approximately between the latitudes of Brisbane and Townsville. One may say, in fact, that the common error of supposing North Queensland to be not "truly tropical" is based on the happy fact that she has no large native population, as a "truly tropical" land should.

With regard to the supposed fewness of numbers, it is sufficient to state that along the coast alone there are 103,000 inhabitants living entirely within the tropics, many of them born there, and to children of old residents. This population represents the greatest collection of a population purely white in any part of the tropical world.

With regard to the remaining statement—the common criticism that the residents of Northern Queensland are a "selected population," comprising practically no old people nor very young people, and consisting for the most part of healthy individuals in the prime of life, who enter the tropics with confidence and re-appear in a few years mere wrecks of their former selves—the statement itself will doubtless appear sufficiently absurd, but it is so frequently repeated that it was determined, at the instance of Dr. J. S. C. Elkington, Director, Division of Tropical Hygiene, to investigate the whole question. The results will be found outlined below.

A point to which attention may be given, and which in the opinion of the writer, is of the utmost importance, is that the white man in tropical Australia is in different circumstances to the white man in practically every other tropical location. Elsewhere in the tropics the white man is an official, a missionary, an overseer of labour—forming an almost negligible white superstratum on the black mass of a native population teeming with disease. In tropical Australia the native population is negligible, and the white man performs every kind of labour, from the most menial to the most intellectual. It used to be held, as stated above, that the white man could not live in the tropics if he worked. The writer holds most strongly that the white man cannot thrive in the tropics *unless* he works.

In order to determine to what extent the population may be described as a selected population, a series of investigations was initiated, as stated, under the Commonwealth Department of Health, and in the immediate charge of the writer, as Director of the Australian Institute of Tropical Medicine, Townsville.

A trained sociological investigator, Miss A. Gorman, was set to collect certain data and figures relating to the conditions of growth and development in school children in North Queensland and to collect also all factors of importance affecting the life and work of women in the same locality.

In order to compare the results obtained, special attention was devoted to the question of length of residence in the tropics, and the figures for immigrants were specially tabulated in contrast to the figures for the tropically born.

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Comfort in the tropics essentially depends upon attention to trifles, and it was a feature of Miss Gorman's investigation that attention should be directed towards determining to what an extent the ordinary comforts of the home were accessible, and to what degree modifications had been introduced to suit the change in climatic environment.

To the southern observer it might be imagined that the question of the stove recess, for example, might be a triviality, and that the situation of the kitchen on the hot side of the house was similarly of little importance. These facts, however, any woman who has ever done her own work in the tropics will readily appreciate.

It was decided to take a certain proportion of the houses in every town investigated at random, and to regard them as a criterion of the whole, but since there are three very different climates in Queensland, it was decided to make the investigations in typical towns in each of the three areas involved.

The hot and humid coastal flats were represented by Townsville and Cairns, in which localities 300 and 123 houses respectively were examined. The coastal plateaux—where an area larger than the whole arable portion of the State of Tasmania is pushed half a mile into the air—were represented by Atherton, Chillagoe, and Charters Towers, where 44, 37, and 132 households respectively were tabulated, while the hot and semi-arid interior was represented by Julia Creek (24 houses) and Cloncurry (80 houses).

The method of investigation was always the same, and figures, therefore, are strictly comparable.

It will be interesting to outline here each set of investigations:

Townsville and Cairns are situated upon the coast, in what should be the least desirable of Queensland's tropical territories.

For purposes of import and export, townships naturally arise upon harbours, which give the greater facilities for these purposes.

They are not by any means, however, the most desirable localities for the establishment of towns, since hot and humid coastal areas subject the immigrant to the greatest measure of environmental disturbance. The method of taking a percentage of houses at random accidentally resulted in the inclusion amongst them of a very considerable majority of poorer houses occupied by the families of men engaged in labourers' work and unprovided with many comforts. As a consequence, the figures which were obtained are even of more value than they would otherwise be, since they are drawn from that part of the population least protected in every sense against climate and disease.

It is to be understood that a very high standard was required in all investigations, so that conditions which were excellent were styled only as "good," and sanitation which was faulty was tabulated as "nil."

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The following is largely extracted from the reports received:—

TOWNSVILLE.

The cottages inspected were largely wooden structures of four rooms and skillion kitchen, with front and half-back verandahs.

Over 50 per cent. were so situated that the kitchen was on the *hot* side of the house. About 7 per cent. of the kitchens were badly ventilated. Only 15 per cent. were *ceiled*.

Water.—Thirty-three per cent. of the houses had no water laid on to the kitchen, the nearest supply being outside the kitchen door or in the bathroom, which is commonly situated 6 to 12 feet from the main building.

Light.—Thirty-five per cent. were supplied with gas, and 3 per cent. with electric light. The majority of householders were using kerosene lamps for lighting purposes, and a wood stove for cooking. This is found less expensive than gas, but is more inconvenient and troublesome.

Stone.—Ninety-five per cent. were in recesses, but only a very small number had a ventilating window and fixed lights. *Servery windows* are not really essential in the ordinary four-roomed cottage, where there is usually a connecting door between diningroom and kitchen.

Washhouse.—Sixty per cent. are shaded benches immediately outside the kitchen door or down several steps (depending on height of piles) having no suitable boiler or set-in tubs.

Bathroom.—About 7 per cent. of the homes have no bathroom nor baths, and 16 per cent. have the bathrooms downstairs, some being from 12 to 16 feet from the main building.

Other Household Facilities.—About 30 per cent. have no *ice chests*, ice being regarded as an unnecessary luxury by not a few housewives. The canvas cooler is sometimes used as a substitute, but it not very satisfactory in the coastal climate. Nearly 40 per cent. are without meat safes, and these people usually have the fresh meat hanging on hooks in the open air, while the cold cooked meats are kept in the ordinary safe or cupboard. Thirty-seven per cent. have no dressers, convenient or otherwise, shelves attached to the walls being used instead, or else the china and utensils are piled up on the table or cupboard. The remaining 63 per cent. have the ordinary dresser, the Hoosier type of dresser being unknown here. The supply of *kitchen utensils* was inadequate in about a third of the homes, and 50 per cent. of the utensils were in a broken or cracked condition.

Very few labour-saving devices were noticeable in any of the homes. About 9 per cent. of the kitchens had *perishable foodstuffs* exposed to flies and cockroaches, and about 12 per cent. had the safes and dressers up against the wall, and accessible to insects.

Yards.—Nearly 50 per cent. of the yards were in a dirty condition, old newspapers, tins, and garbage being scattered about, and in many cases the fowls and goats have free run beneath houses and in yards.

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Drainage.—There was no proper drainage system in about 98 per cent. of the yards, but in most places the soil absorbs very quickly, and only about 5 per cent. had stale water lying about in pools and drains; 95 per cent. of the cottages were built on *pides*, varying from 2 to 12 feet in height. Fifteen per cent. of these cottages had the *subspace* in a moderately dry condition. Three per cent. of the houses were overshadowed by *mango trees*, and about 4 per cent. had the roof-gutterings sagging.

Tanks.—About 55 per cent. have no tanks and are using the piped supply of river water for all purposes. Of the remainder, there were 40 per cent. with their tanks not screened. Only 2 per cent. of the cottages inspected in Townsville were built of iron.

HOUSEWIFE'S DOMESTIC KNOWLEDGE.

Tinned Food.—This is not used extensively, and is far from being the staple diet in any home. Such lines as tinned meats, soups, and vegetables are too expensive for the ordinary citizen to use as a regular diet. A fair amount of tinned fruits is used during midsummer, when other fruits are unprocureable. Tinned milk (condensed and powdered) is used almost universally; the fresh milk supply in Townsville being inferior, and the amount obtainable trifling and variable. It is also too expensive to be used freely in a large family.

Economy.—The housewife's domestic knowledge of economy varies with the amount of her intelligence and common sense and with the home training she has had. About 33 per cent. of the women interviewed could be said to have a good knowledge of economy. This opinion was based upon the information received regarding their ideas of suitable economical food, clothing, house furnishings, &c., and by observing the contents of the home and surroundings. About 46 per cent. have a fair knowledge, some of these women buying their food-stuffs judiciously, but spending money unnecessarily on expensive clothing or furniture, or vice versa, and about 20 per cent appear to have very little knowledge of economy in any form whatever.

Sanitation.—About 25 per cent. of the housewives showed a good knowledge in all matters pertaining to hygiene, personal cleanliness, &c., while 47.5 per cent. have a moderate knowledge, making a fair attempt at keeping their surroundings clean, but failing in such matters as leaving the lids off garbage tins or closet pans, or by using the kitchen-sink or washing-up dish to wash the soiled handkerchiefs, stockings, or clothing in, or as a common washbasin for the entire family. There remain about 27 per cent. who have absolutely no knowledge of sanitation, or, if they have any, fail to apply it. Some of the insanitary conditions noticed in a few homes were the pollution of the soil with urine, the closet pan without a lid, and the contents exposed to flies, &c. (no sawdust or ashes being used), stale kitchen and bath water lying in pools, and uncovered drains, scraps of eatables and garbage lying in yard and drain, dirty condition of kitchen-sink, washcloth, and towels, cooking utensils left exposed to flies, and bedrooms unaired.

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Division of Working Day.—Only about 33 per cent. of the women make any attempt to regulate their working hours so as to obtain sufficient rest and recreation, or arrange matters to allow them to finish their kitchen duties in the cooler hours of the day. Owing to the shortage of domestic help and to the high wages given at the present time, the majority of the women are doing their own housework. Of course, this condition of things is general, and not confined to the tropics alone, but perhaps is felt more keenly here, because the housewife has so many other disadvantages to contend with, such, for instance, as lack of labour-saving devices and the lack of proper facilities in connexion with her laundry work. Again, it often happens in Townsville that the housewife has to carry home the meat and groceries, chop the wood for the fire, and milk several goats.

It will readily be seen that by the time the mother has attended to her husband's breakfast and lunch (the latter he takes with him), sent her three or four children to school, properly fed and cleanly dressed, attended to her own food, baby's bath, &c., there is not much of the morning left in which to complete the rest of her work, such as bed-making, sweeping, &c. Still, some women are naturally more methodical, and others are trained to be so by competent mothers.

A fair percentage of the women are indifferent to the lack of recreation and rest, working all day and late into the night, and are quite satisfied with things as they are; others realize that their home life is a hopeless muddle, but appear to be incapable of improving matters. There is another occasional type of woman who does a minimum amount of work, and who spends her time gossiping over the fence to her neighbours, or lying on a verandah couch reading novels.

These women are, perhaps, not aware that their homes are comfortless and disorderly. There appears to be but a slight chance of arousing in such women a desire to better their home conditions and surroundings, but fortunately they are few.

MOTHERS' KNOWLEDGE OF DOMESTIC SCIENCE.

Infant Welfare.—Only about 5 per cent. have any scientific knowledge of infant welfare, and these are women of higher education, or those mothers who have been keeping in touch with the baby clinics. The majority adhere to the old methods, feeding the child whenever it cries, giving it two or three night feeds, allowing it to suck a comforter, and keeping it in hot, uncomfortable clothes and binder.

The Townsville mothers are noted for a tendency to wean their babies in early infancy, having the mistaken idea that suckling their offspring is detrimental to the health of the mother in "this tropical climate." The clinic has done much to dispel this false notion. The nurses from this institution pay a personal visit to practically every new-born baby in the city and suburbs, instructing the mother in all matters pertaining to infant life, and strongly advising her, when at all possible, to breast-feed her child.

Cookery.—About 5 per cent. of the mothers have what may be considered a scientific knowledge of cookery, and these women have been students at a technical college, where they have been instructed in the

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value of the different foodstuffs and in the buying and cooking of eatables suitable for the climate. Of the remaining 95 per cent., about three-fifths have the ordinary housewife's knowledge, varying, of course, with the intelligence and interest of the individual, and the rest (about two-fifths) have little or no knowledge. I found that, on the whole, people instinctively desire and use a fairly well-balanced diet.

Meat is not taken in such large quantities as is generally supposed. Men doing laborious work, such as stone-breaking, wharf-lumping, &c., take it three times a day, but men doing more moderate labour and the women and children rarely have meat more than twice a day, and many have it for one meal only.

Sanitation.—Insect and Dirt-borne Disease.—Since the Hookworm campaign, the majority of the mothers have a better idea of the meaning of sanitation, but only about 3 per cent. have a good knowledge of insect and dirt-borne disease. Although many of them are aware that disease is transmitted by mosquitoes, few take any steps towards destroying these insects. Most of the women interviewed had known that flies were germ carriers, but a fair percentage were not sufficiently interested to prevent the food and cooking utensils from being contaminated by them.

Finance.—It is a very difficult matter to estimate the amount of financial knowledge of any women during an interview of half-an-hour or so. One can only form a vague idea by observing the quantity and quality of the home equipments, of noticing what number of unnecessary articles are being used in a home, what labour-saving devices there are, and, if possible, finding out from the mother what her husband is earning, how often he has been unemployed since their marriage, and what expenses have been incurred through illness, accidents, &c. It is impossible to collect thoroughly all this information, as the majority of people keenly resent an inquiry into their financial affairs, and the few who volunteer such information exaggerate to a very great extent their failures or their successes. To judge by what could be observed in the home and by the information received, it is thought that 55 per cent. of the mothers have a fair knowledge of finance, spending their money sensibly and wisely, supplying their families with sufficient nourishing food, and furnishing their homes with the necessary comforts and labour-saving devices. Other women live extravagantly, buying expensive unsuitable food and unnecessary clothing, doing without such essentials as ice-chests, comfortable chairs, baths, house linen, kitchen utensils, and china. Others have sufficient home comforts and sometimes expensive furnishings, but live poorly as far as food is concerned, not giving themselves or their families sufficient to eat. There are others again, about 5 per cent. of the people interviewed, who have neither home comforts nor sufficient food. In such cases, one often finds that the husband is habitually unemployed or is an alcoholic, or the mother is an alcoholic.

General Remarks.—Of the 300 homes visited in Townsville, over 48 per cent. were rented, 17s. 6d. being the average rent charged for a five-roomed cottage. About 33 per cent. of the tenants had sub-let a room or half cottage to another family. In several of the homes there were as many as four adults and eight to ten children.

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The homes generally were built on primitive plans, totally unsuited to the tropics. The blocks of land are small, more especially so within the city area; some of the cottages are only 3 to 4 feet apart. Many of the rented homes are badly situated, the front outlook occasionally being into the back premises of a neighbouring cottage. People owning their cottages were disinclined to hear any suggestions for improvements; some were willing to admit that their homes could be made more comfortable, but were not anxious to incur any extra expense in altering or adding to them. On the other hand, those people who were renting homes were only too keen to point out defects in the architecture, &c. They could readily see how the houses could be built more conveniently and more suitably for this tropical climate, but were not desirous of paying the higher rental which such improvements may require.

Of the 300 women interviewed, 51.5 per cent. were born within the tropics, and of the rest—

- 3.45 per cent. have been living in the tropics from 40 to 50 years.
- 9.0 per cent. have been living in the tropics over 30 years.
- 4.5 per cent. have been living in the tropics over 20 years.
- 5.3 per cent. have been living in the tropics over 10 years.
- 20.0 per cent. have been living in the tropics from 2 to 6 years.

A total of almost 70 per cent. of the people examined had been living in the tropics over 20 years.

Average number of children to mothers (from a card record in a second series)—

- 215 mothers born within the tropics average 3.8 each.
- 294 mothers born elsewhere average 4.1 each.

As the average age for the tropical woman was 36 years 10 months, and for the immigrant 40 years and 9 months, it is obvious that the former would have a higher average than the latter at the same age.

The average age at marriage for 153 tropically-born women was 21 years and 5 months.

Age at menopause 44 years (average for eleven women).

CAIRNS.

The homes inspected in Cairns were much of the same type of cottage as those of Townsville, i.e., four to six-roomed wooden structures built on piles varying in height from 2 to 12 feet. Where the higher piles are used, some were utilizing the ground space beneath the house as a kitchen and living-room.

About 56 per cent. of the homes were rented, the average rent charged being 24s. 6d. per week. Overcrowding was even more pronounced here than in Townsville, there being as many as four and five small families occupying one five or six-roomed house. Nor is this disproportion between houses and occupants likely to be much diminished in the future whilst the land in Cairns for building purposes is so expensive and scarce.

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Environmental Circumstances.—About 1 per cent. of the kitchens were ceiled, and 30 per cent. were properly ventilated. Seventy-five per cent. of the kitchens were built on the hot side of the house.

Water.—Water was laid on to the kitchens in 95 per cent. of the homes and gas in 35 per cent.

Ice-chests.—Forty-nine per cent. had no ice-chests, and 23 per cent. no meat-safes, and the same percentage had no dressers. About 80 per cent. had the safes and cupboards away from walls and perishable foodstuffs covered.

Utensils.—Forty-five per cent. had not a proper supply of utensils, and 42 per cent. had them in a cracked or broken condition.

Yards.—The yards were clean in 58 per cent. of the places inspected, moderately clean in 23 per cent., and dirty in 19 per cent.

Drainage.—About 1.5 per cent. had a proper drainage system, but only 8.4 per cent. had insaniitary drains.

Bathrooms.—The bathrooms were inconveniently situated downstairs and some distance from the main building in 45 per cent. of the homes, and about 8 per cent. had no bathrooms.

Washhouse.—About 2 per cent. had suitable washhouses, having set-in tubs, good drains, and copper stand. The remaining 98 per cent. had the commonly-used shaded bench and iron tubs. About 4.5 per cent. of the cottages were built of iron.

Mango trees were overshadowing the house in 1 per cent. of the places only.

Over 80 per cent. had no tanks, and of the remainder, 50 per cent. were not screened from mosquitoes.

Housewife's Domestic Knowledge and Mother's Knowledge of Domestic Science. reach about the same standard as that of the Townsville women. The mothers are gradually becoming initiated, through the efforts of the clinic staff, in a scientific knowledge of infant welfare and care of children, but only a small percentage take advantage of the domestic science classes held at the Cairns High School and Technical College.

Of the women interviewed, 67.5 per cent. were born within the tropics, 5 per cent. have lived within the tropics for over 40 years; 8.5 per cent. have lived within the tropics for over 30 years; 2.5 per cent. have lived within the tropics for over 20 years; 3.0 per cent. have lived within the tropics for over 10 years; 11.5 per cent. have lived within the tropics for from 1 to 10 years.

A total of over 80 per cent. of these women have lived more than 20 years in the tropics.

Average Number of Children to Mothers.—One hundred and thirty-nine tropically-born women average 4.2 each, the average age of the mother being 35 years and 6 months. One hundred and four immigrants average 4.1 each, the average age of mother being 41 years and 6 months.

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The age at marriage for 77 tropically-born women was 21 years and 9 months; the age at menopause 45 years.

It will be seen from the figures given that in the hot and humid regions of tropical Queensland, as represented by the two typical towns, Cairns and Townsville, that, far from being a merely migratory population, approximately 70 per cent. in one case, and over 80 per cent. of the women examined in the other, had been resident in the tropics for more than twenty years, while, of the total interviewed, slightly more than half of the Townsville women were actually born within the tropics, while nearly 70 per cent. of the Cairns women were tropically born.

Since, obviously, the parents of these people must have been resident in the tropics, and since, moreover, a very great proportion of the women investigated had children of their own, the idea that the population of our tropics is purely migratory is shown to be absurd.

Indeed, if these random series be taken as a criterion, only 20 per cent. in the one case and a mere 10 per cent. in the other had been living in the tropics less than ten years.

With regard to the statement that the fertility of the mothers is lessened, the figures definitely demonstrate that this is also entirely incorrect, while the age at menopause does not seem to have been affected. Observations drawn from the actual children of these people and others will be discussed below. Meanwhile, one proceeds to the examination of the other two typical climatic areas—the dry inland area and the coastal plateaux.

[To be continued next issue.] -P/L/L 5/7/91

The Problem of Cardiac Disease.

By D. G. ROBERTSON, M.D., D.P.H., Director, Division of Industrial Hygiene, Commercial Department of Health.

UP to the present no concerted effort has yet been made in this country towards the prevention of diseases of the cardio-vascular system, despite the fact that an appalling wastage of lives occurs annually from this cause.

During the eleven years 1914-1924 the number of deaths from all causes in Australia totalled 595,799. Of these deaths, 75,168, or 12.6 per cent., were due to diseases of the circulatory system, 25,651, or 4.3 per cent., to cerebral hæmorrhage, 25,409, or 4.3 per cent., to acute and chronic nephritis, and 39,483, or 6.6 per cent., to tuberculosis in all its forms. Thus in this eleven-years' period 12.6 per cent. of all deaths were due undoubtedly to diseases of the cardio-vascular system, while a certain proportion of another 8.5 per cent.—those deaths recorded under the headings of cerebral hæmorrhage and acute and chronic nephritis—may also be claimed as due to these causes. It

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may be stated, therefore, that twice as many deaths occurred from diseases of the cardio-vascular system than from tuberculosis in all its forms.

In the 3rd and 6th Australian Military Districts, during the years 1914-1917, out of 191,392 recruits examined for entrance into the Australian Imperial Forces, 60,351 were rejected as unfit for service, and of these 2,515, or 1.3 per cent. of all recruits, were found to be suffering from cardiac disease.

In 1917, in the First Military District, 18,120 recruits were examined under proclamation. Of these, 7,110 were rejected, 776 rejections, or 3.9 per cent. of all recruits, being due to cardiac disease.

Out of a total number of 114,066 members of the Australian Imperial Forces invalidated back to Australia during the war, 6,568, or 5.7 per cent. suffered from cardiac disease. Of these, 5,389 saw actual war service, while 1,179 were returned to Australia soon after they had reached the different centres abroad.

Any disease which involves so many of our population may well be considered a public health problem of great magnitude, and one which requires and justifies the most careful and accurate study if the methods by which it may be prevented are to be discovered and outlined intelligently.

It is only in recent years that any serious attempts have been made in other countries to try and combat this evil. Dr. Lewis A. Conner, of New York,* "noting the futility and waste of time associated with recurrent cardiac breakdowns in patients whose symptoms improved satisfactorily under rest and digitalis, only to return promptly when the patient resumed his frequently unsuitable occupation," was one of the first to systematically organize some form of correction and relief. This, at first, took the form of occupational therapy and publicity regarding the known facts concerning the cause and course of heart diseases, and this was followed at a later date by convalescent care at country homes, appropriately supervised. Dr. Conner's efforts finally led to the organization of the Association for the Prevention and Relief of Heart Disease, and since then numerous similar efforts and similar societies have been organized in Philadelphia, Boston, Chicago, and other cities in the United States.

These societies are endeavouring to spread a knowledge of heart disease before the public.* "They are urging and have in many places successfully carried out, with the co-operation of the local health authorities, the routine examination of school children, the correction of naso-pharyngeal infections, dental care, and special schools at which heart-handicapped children are being taught trades suitable to the degree of their ailments. They have emphasized the importance of prolonged rest during convalescence from tonsillitis and rheumatic fever, as well as the early and thorough treatment of syphilis. They have endeavoured to interest local charities and municipal as well as State Governments in the establishment of convalescent homes. Co-operating with social service agencies, they have succeeded in finding occupations and positions for many cardiac invalids."

* *The Evening Post*, December, 1924.