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CONTENTS

ORIGINAL ARTICLES

African Vital Statistics	<i>J. R. H. Shaul</i>	145
Poliomyelitis in Mashonaland	<i>D. M. Kotze</i>	151
Surgery of the Sympathetic Nervous System	<i>H. J. B. Atkins</i>	159
Male Genital Bilharziasis	<i>W. Alves, R. W. Woods and M. Gelfand</i>	166
Africa, But Not So Dark	<i>W. Robertson</i>	168
Brucellosis	<i>L. E. W. Bevan</i>	173
The Need for a Federal Medical School	<i>R. M. Morris</i>	177
The Nganga	<i>M. Gelfand</i>	179
Fevers of Africa: Salisbury Fever	<i>J. Ritchken</i>	182

EDITORIALS

Síndrome Policarencial Infantil	187
William le Feuvre	188
Medicine and the Church	190

British Medical Association
(Mashonaland Branch)

Memorandum 193

Notices 194

Correspondence 195

Book Reviews 199

Latest Pharmaceutical Preparations 203

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III. Vital Statistics of Africans living in Southern Rhodesia, 1948

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The *de jure** estimates of the total African population of Southern Rhodesia by sex provided by the 1948 sample census are compared with the total estimate of the Division of Native Affairs in the following table:—

The preliminary results of the second sample survey of the African population, held in 1953, relating to some 14 Native districts afford reason for believing that in these districts the 1948 survey missed a number of adult Africans and suggest that the estimates of the Division of Native Affairs may well be within the sample limits of the true figure.

Sex distribution is always one of the important factors influencing the birth rate of a population. Examination of the sex distribution given by the 1948 sample survey reveals nothing unusual in the sex distribution of the Africans. In most populations the sexes are equally dis-

TABLE I

De Jure Estimate of the Total African Population of Southern Rhodesia by Province in 1948.

Administrative Province.	Sample Estimate of Population at 31st August, 1948.			Sample Error of Total Sample.	Estimate of Division of Native Affairs 31st December, 1947.
	Males.	Females.	Total.		
Salisbury	204,500	204,100	408,600	9,400	435,800
Gwelo	182,500	183,800	366,300	8,600	333,900
Victoria	139,000	144,600	283,600	7,800	298,000
Bulawayo	157,300	155,600	312,900	10,750	337,900
Umtali	122,100	125,500	247,600	12,800	228,300
Southern Rhodesia	805,400	813,600	1,619,000	22,400	1,633,900

If twice the sample error in either direction be taken as the limits beyond which the chances are 19:1 against finding the true estimate of the population, and if the figures in the final column be adjusted for the growth of population in 1948, the estimates of the Division of Native Affairs for the several provinces fall beyond these limits. The sample estimates of the provinces of Gwelo and Umtali are of a lower quality than those of the other provinces because no sample was taken in the Belingwe Native district of Gwelo and in the Umtali province a number of villages was missed owing to a misinterpretation of the instructions.

* Estimates of population living in the districts in which they are registered for taxation.

tributed unless wars, pestilence or natural disasters have materially upset the equality of distribution. For the provinces concerned the male population represented between 49.0 and 50.3 per cent., and for the whole country 49.7 per cent. of the whole population. For the provinces of Salisbury and Gwelo the sample results do not differ significantly from a 50:50 distribution of the two sexes.

AGE DISTRIBUTION OF THE AFRICAN POPULATION

Vital statistics are functions not only of the sex, but also of the age distribution of the population. In the 1948 survey the three groups (a) under one year of age; (b) one year to puberty; and (c) over puberty were sought. It was realised that for females an important divid-

ing line was set by the occurrence of menopause, but it was not considered possible to ascertain this characteristic. These three age groups were obtained for the *de facto* population (i.e., persons living in the non-European areas), but in view

of the unsatisfactory information relating to the absentees amounting to 357,200 persons, the division between under one year and one year to puberty could not be made for the *de jure* population. The age grouping is given below:—

TABLE II
Estimates of the De Jure and De Facto African Population of Southern Rhodesia by Sex and Age Groups, 1948.

Sex and Age Group.	De Jure Estimate.		De Facto Estimate.	
	Number.	Per 1,000 Africans.	Number.	Per 1,000 Africans.
Males—				
Under one year	—	—	23,800	19
One year to puberty	—	—	331,300	262
Total	417,800	258	355,100	281
Over puberty	387,600	239	191,900	152
Total	805,400	497	547,000	433
Females—				
Under one year	—	—	25,600	20
One year to puberty	—	—	332,400	264
Total	402,400	249	358,000	284
Over puberty	411,200	254	356,800	283
Total	813,600	503	714,800	567
Total all ages	1,619,000	1,000	1,261,800	1,000

The differences in the proportions of the sexes and in the age distribution of the two estimates are obviously due to the large number of adult Africans absent in urban areas or working on mines or farms. In comparing the results of the census with similar distributions in other countries, it is therefore necessary to consider only the *de jure* population estimates.

From the 1953 preliminary survey it appears that the average age of puberty obtained by the

census was about 15 for females and 16 for males. For comparison with other populations these years will therefore be taken as applicable to the results of the 1948 survey. The age distribution of countries with birth and death rates of approximately the same order of magnitude as the African population and of two European countries with a high natural increase has been chosen for comparison with that of the Southern Rhodesian African population of 1948, and is as follows:—

TABLE III
Comparative Age Distribution of Certain Countries of High Birth and Death Rates.

Country or Race.	Year.	Birth Rate per 1,000.	Death Rate per 1,000.	Per cent. of	
				all Males below 16 years of age.	all Females below 15 years of age.
Southern Rhodesia African population	1948	46	18	52	50
Mexico	1950	46	16	47	43
Venezuela	1950	43	11	46	43
Maori	1953	45	11	51	49
Portugal	1952	25	12	35	29
Yugoslavia	1953	28	12	37	31

Source: United Nations Demographic Year Book, 1954.

Note: Ages beyond 14 have been estimated, except for Southern Rhodesia.

As might be expected, the proportion of young persons in the non-European countries with a high rate of natural increase is higher than that of Portugal and Yugoslavia. The proportion of young Africans is particularly high in the case of the Southern Rhodesia Africans, who have a slightly lower natural increase than that of the other non-European countries. The influenza epidemic of 1918 made great inroads into the African population of Southern Rhodesia, and is as well remembered by them as is the Black Death in Britain. Such a heavy mortality must have distorted the age distribution of the population, but even after allowing for this effect, the second sample survey of the population covering the years 1953-55 affords reason for believing that a number of adult Africans escaped record in the 1948 survey.

AFRICAN BIRTH RATE

Particulars of births were obtained for an area containing 93 per cent. of the estimated *de jure* African population. The estimated birth rates and sample errors per 1,000 Africans are given by provinces in the following table:—

TABLE IV

Rates in Southern Rhodesia by Provinces, 1948

Province.	Birth rate per 1,000 Africans.	Sample error.
Salisbury	53.3	1.5
Gwelo	39.9	1.5
Victoria	43.2	1.45
Bulawayo	45.2	2.3
Umtali	45.9	1.55
Southern Rhodesia	46.2	0.75

The sample error shows that the chances are 19:1 against the true African birth rate of the total area covered occurring outside the limits $46.2 \pm .75 \times 2$, i.e., 47.7 and 44.7 per 1,000. The sample errors of the provinces can be interpreted in a similar way, but the errors mentioned are due only to probability errors of the sample design and not to biased errors arising from concealment of information, etc. This subject was discussed in the second article of this series, which pointed out that there is no reason to believe that the quality of the birth statistics obtained by this sample survey is less accurate than corresponding statistics obtained from a reasonably good system of compulsory registration of births. The preliminary results of the

second sample survey of the African population taken in 1953 supports the rates obtained in the 1948 survey, in that the more recent estimates do not differ from the earlier rates by more than might be expected from the sample errors of the two surveys.

Salisbury province shows the highest and Gwelo the lowest birth rates, those of the remaining provinces being roughly of the same order of magnitude. It is interesting to compare the birth rates of Africans in Southern Rhodesia with those of other countries of roughly the same order of magnitude (i.e., 40 to 53 births per 1,000 persons). The ratings given in Table V relate to the quality of the statistics as assessed by the United Nations. Ratings "C" refer to complete and ratings "U" to incomplete registration systems.

Incomplete registrations sometimes relate only to certain areas and sometimes exclude births of infants dying before registration. There are few cases above the range shown in the table, so that the birth rate of the African population of Southern Rhodesia is among the highest birth rates in the world. The highest birth rates of European countries, those of Malta and Yugoslavia, are about 28 per 1,000.

AFRICAN INFANT MORTALITY RATE

The sample errors of the infant mortality rates were higher than those of the birth rates owing to the smaller numbers of deaths per village and the greater variability between villages. The results were as follows:—

TABLE VI

Infant Mortality Rates of the African Population of Southern Rhodesia.

Province.	Infant mortality rate per 1,000 births.	Sample error.
Salisbury	141	11
Gwelo	89	14
Victoria	134	14
Bulawayo	153	25
Umtali	118	17
Southern Rhodesia	131	8

The rate for Southern Rhodesia was similar to that of many European countries in the early years of the present century. For example, in the average of the years 1920-24 the infant mortality rate of Germany was 127, and that of Italy 129 deaths per 1,000 live births. If the

TABLE V
(E = Europeans)

Birth Rate of a Number of Countries in the Range 40—53 Births per 1,000 Persons.

Birth rate.	Rating C.	Countries or Races. Rating U.	Other ratings.
40	British Honduras.		Ruanda Urundi E.
41	Belgian Congo E. Fiji.	Yukon and North-West Territories.	—
42	—	Algeria (Moslems). Dominican Republic. Nicaragua.	Niue. —
43	Honduras. Virgin Islands (U.K.). St. Vincent.	— — —	Ruanda Urundi (Africans). Greenland. Cook Islands.
44	British Guiana. Federation of Malaya.	— —	—
45	Mexico.	Maori.	Egypt. Taiwan.
46	Mauritius. Venezuela.	Cape Verde Islands.	S. Rhodesia (Africans).
47	—	Ecuador.	—
48	Singapore.	El Salvador.	—
49	—	Burma.	—
51	—	—	Guatemala.

Source: United Nations Demographic Year Book, 1954.

infant deaths in the first year of life be subtracted from the birth rates, out of 53.3 births per 1,000 in the Salisbury province, 45.8 infants per 1,000 Africans are still alive at the end of the year, the corresponding figures being 39.9 and 36.3 for Gwelo province, 43.2 and 37.4 for Victoria province, 45.2 and 38.3 for Bulawayo province, 45.9 and 40.5 for Umtali province, and for the whole of Southern Rhodesia 46.2 and 40.2 per 1,000. The high infant mortality rate of Bulawayo province in 1948 was partly caused by a smallpox epidemic in that year. The low rate in Gwelo province has not been explained, and should it be due to a failure to obtain the real number of deaths the general average for the whole country would necessarily be raised.

AFRICAN DEATH RATE

If the infant mortality rates per 1,000 live births be applied to the birth rates, it is possible to partition the death rates into deaths under and deaths over one year of age. The results for each province and the sample errors of the total death rates are given in Table VII.

Although Salisbury province had the second highest infant mortality rate, the total death rate of that province was below the average for the whole country because of the low death rate for all other ages. The death rate of Bulawayo province was the highest in Southern Rhodesia, possibly because of the smallpox epidemic in the Nyamandhlovu district; it would also appear that persons of other ages experienced more severe mortality conditions because, although the

TABLE VII
African Death Rates in Southern Rhodesia by Provinces, 1948.

Province.	Africans under one year.	Africans one year and over.	Africans of all ages.	Sample error of the rate for all ages.
Salisbury	7.5	8.4	15.9	.4
Gwelo	3.6	10.8	14.4	.6
Victoria	5.8	11.0	16.8	.6
Bulawayo	6.9	15.4	22.3	.9
Umtali	5.4	16.7	22.1	.8
Southern Rhodesia	6.0	12.1	18.1	.3

infant mortality rate of the province was the highest in the country, the distribution of infant deaths relatively to those of other ages (31: 69) was more favourable than that of the whole country (33: 67). The relatively low death rate in Gwelo province was affected more by low infant mortality than by mortality in other ages, although in this group mortality is also low. Apart from Salisbury province, deaths of infants in the African population accounted for between 24 and 35 per cent. of the total deaths in the remaining provinces and, including Salisbury,

for 33 per cent. of all African deaths in Southern Rhodesia.

The death rate at ages of one year and over, although high, is not widely out of touch with that of a number of other countries. Taking countries which the United Nations rate as having complete registration systems representing the continents of Europe, Asia and America, the following table classifies the death rates of persons of one year and over into those falling within and without the range of rates for deaths in this group shown in Table VII (i.e., rates of 8.4 to 16.7 per 1,000).

TABLE VIII

Death Rates of Persons Aged One Year and Over in Certain Countries.

Range of death rates.

Countries and rates per 1,000 persons.

Southern Rhodesian African population, 8.4 to 16.7.

Spain 8.5, Federation of Malaya 8.8, United States 8.9, Portugal 9.1, Yugoslavia 9.1, St. Lucia 9.7, British Guiana 9.8, Grenada 10.4, United Kingdom 11.0, Irish Republic 11.0, Mexico 11.4

Rates below 8.4.

South-West Africa 5.1, Israel (Jews) 5.2, Cyprus 5.7, Venezuela 6.8, Netherlands 7.2, Canada 7.6, Japan 7.8, Union of South Africa 8.0, Trinidad and Tobago 8.1, Jamaica 8.2.

Source: United Nations Demographic Year Book, 1954.

The death rate of 12.1 for this age group for the whole of Southern Rhodesia was little higher than those of the United Kingdom, of the Irish Republic and of Mexico. The rate for the United Kingdom and some other countries is heavily weighted by the large proportion of old persons, whereas the African population has been shown to contain a large proportion of young persons. The incidence of mortality among Africans in this group is therefore higher

than in the countries concerned, but does not differ so disproportionately as the infant mortality rates. The total death rates of the countries shown in the first group of the table varied between 9.6 and 15.6 per 1,000, and deaths of infants between .4 and 4.2 per 1,000 live persons, the tendency being for countries with a low death rate to have a low infant mortality rate, and those with a high death rate a high infant mortality rate, thereby bringing the rates for one year and over closer together.

The subject of infant deaths is further examined in the following table:—

TABLE IX

Infant Deaths as a Per Cent. of Total Deaths in Certain Countries.

Per cent. of total deaths.

Countries and per cent.

24—35 Trinidad and Tobago 24.3, British Guiana 26.3, Yugoslavia 26.6, Mexico 26.9, Federation of Malaya 29.1, St. Lucia 29.7, Venezuela 31.3.

Under 24 per cent. United Kingdom 3.5, Netherlands 6.5, Republic of Ireland 6.8, United States 7.3, Union of South Africa, 10.1, Canada 11.6, Spain and Japan 12.4, South-West Africa 13.6, Israel (Jews) 17.4, Cyprus 18.6, Portugal 19.6, Grenada 20.6, Jamaica 21.2.

Source: United Nations Demographic Year Book, 1954.

The first group is the range of proportions found among Africans, exclusive of Salisbury province, the average for the whole country being 33 per cent. of total deaths. Many of the countries in the lower percentage groups were classified in the African range of death rates in Table VIII. For instance, the United Kingdom, which showed a death rate of persons of one year and over of 11.0 per 1,000 compared with 12.1 for Africans, has an infant death proportion of only $3\frac{1}{2}$ per cent. compared with one of 33 per cent. of total deaths for the Southern Rhodesian African population.

The greatest field for the reduction of African mortality is therefore in the deaths of the infant population. The analysis also suggests that the results of the sample inquiry as regards deaths of the non-infant population were not unreasonably low in view of the experience of other countries with heavily weighted adult populations. This conclusion is also shown when examining statistics of countries with death rates approaching those of the African population, such as Mexico (15.6), where the difference between the death rates of the African and of the Mexican populations (18.1—15.6 or 2.5 per 1,000) is due largely to the respective differences in the infant mortality per 1,000 persons (6.0—4.2 or 1.8 per 1,000), the respective death rates for all other ages differing by only .7 per 1,000 persons.

NATURAL INCREASE OF THE AFRICAN

The natural increase of the African population in 1948 was 28.1 per 1,000, representing a doubling of the population every twenty-five years. The annual estimates prepared by the Southern Rhodesia Division of Native Affairs show that in the past the population has doubled

every thirty years. The results of the sample survey are thus in accordance with experience after allowing for the improvements in African health effected in the past generation.

There are few countries in Europe with a natural increase exceeding 10 per 1,000. The natural increase of the population of the West Indies varies between 20 and 30 per 1,000, that for Europeans in South West Africa is 26, and of the Jews in Israel 24 per 1,000. Countries with a natural increase as high as or greater than that of the Africans are Ceylon (28), British Honduras and Mexico (29), British Guiana (30), Malaya and Fiji (31), Virgin Islands, Honduras and Samoa (32), Venezuela (36) and Singapore (38).

The multiplication of African clinics, the extensive training of African health demonstrators and the revolution in the Africans' attitude to European medical services will all be reflected in reduced infant and other mortality rates. In view of the heavy mortality among infants, these developments will present great scope for reduction of African death rates in the coming generation. Birth rates usually display greater inertia, and it is therefore probable that the natural increase will rise over the next two decades. Finally, to enable the effects of the progress of public health services on the health of the African population to be properly measured by the determination of the trends of African vital statistics over time, it is extremely important that demographic sample surveys should be made at regular rather than spasmodic intervals.

REFERENCE

Report on the Demographic Sample Survey of the African Population of Southern Rhodesia; Central African Statistical Office, P.O. Box 8063, Causeway.



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