

CANCER AND RACE IN BRITISH GUIANA¹.BY J. F. C. HASLAM, *M.C.*, M.D.*(From the Government Public Health Department, British Guiana.)**(With 4 Graphs.)*

IN a Memorandum circulated through the Colonial Office, the Cancer Committee of the Ministry of Health expressed a desire for any available information as to the incidence of cancer upon persons of different races living under similar conditions. While there are a good many parts of the world in which considerable numbers of people of different races live side by side, in few of such places are records available for the purpose of a statistical enquiry.

The population of British Guiana may be said to consist of (in round figures) 120,000 Blacks of African origin and 120,000 East Indians together with a comparatively insignificant number of Chinese, Portuguese, other Europeans, persons of mixed blood and the unnumbered and little-known Aborigines.

The Blacks and East Indians have lived side by side for many years under identical climatic conditions and the other circumstances of their existence present no wide divergences as between the two races. As to occupation, the East Indians are more exclusively agriculturalists than the Blacks, while the latter do most of such heavy labour as is done at all. As to diet, some of the East Indians do not eat meat, and a large number are restricted, as to the kind of meat eaten, by religious considerations; the Black eats anything which his purse can compass. The strictly vegetarian high caste Brahmin hardly exists in British Guiana and the tendency is for racial and religious prejudices as to diet to disappear. Rice figures prominently in the dietary of both races under consideration.

The Blacks are descended from imported slaves, the last shipment having arrived about a hundred years ago. The East Indians came as indentured labourers and were mainly recruited (I believe) in the neighbourhood of Calcutta. Indian immigration went on for several generations but ceased in 1917 and there are now many East Indians who speak no language but English.

Although British Guiana compares favourably with most tropical colonies as to statistical records, vital statistics comparable in accuracy to those of European countries are of course impossible in such a country. The population is estimated every year from the last census and the records of births, deaths,

¹ This report was submitted to Subcommittee No. 1 of the Ministry of Health Committee on Cancer and is published by their permission.

immigration and emigration in the intervening years. Every census, however, shows a wide divergence between the counted and the calculated populations. Some deaths, though registered, are not certified by a medical man and probably not a few go completely unrecorded. Apart altogether from the unreachable Aborigines, some thousands of people live and work in forest areas, far from agencies of registration and record.

No records of cancer incidence are available, but registration of deaths and their causes began in 1869. No figures, however, of service in this enquiry are available for years prior to 1891 and even later the records are incomplete, for while the numbers of each race living is stated for each year, for East Indians alone were the causes of death separately recorded before 1920. Prior to 1910 the site of occurrence of cancer was not stated and prior to 1920 it was only for East Indians that deaths were placed in age groups. Before 1920 deaths were not allotted to the two sexes for any race, and none of the mortality records gives information as to civil state.

It may be said in passing that the explanation of the more detailed recording of East Indian statistics in the earlier years lies in the fact that the immigrants were cared for by a special organisation set up to satisfy the conditions imposed by the Government of India.

There is a further difficulty in comparing the cancer death rate for the two races in that the age and sex distribution of the living in each race for each year cannot be arrived at. It is certain, however, that in some years the two populations differed markedly in these respects. For instance, during the years of active East Indian immigration the population of males among that race must have been higher than among the Blacks and it is likely that the proportion of adults was higher.

Within the limits which the foregoing deficiencies necessarily impose as to any conclusions which may be drawn from statistics, certain information may be gathered from a survey of the last 33 years. Table I supplies the bulk of the information available from 1891 to 1924. We find that in that period 1754 persons died of cancer¹ of whom 397 were East Indians and 1357 were "Others."²

1891	{	Cancer death rate per 10,000 of the population	...	1.36.
to		East Indian cancer death rate per 10,000 East Indians		0.9.
1924		"Others" cancer death rate per 10,000 "Others"	...	1.7.

These figures and the varying annual cancer death rates for East Indians and for "Others" are graphically represented in Graph I. It is at once apparent that throughout this period the rate for East Indians has been markedly and consistently lower than for "Others." Only in 1894 when the East Indian rate

¹ Throughout this paper the word cancer is used as synonymous with "cancer and other malignant tumours" which is the expression used in the reports of the Registrar-General of British Guiana.

² Throughout this paper the term "Others" indicates the whole population less East Indians.

was a trifle the higher do the two rates even approximate. From year to year the rise and fall of the two rates have corresponded remarkably.

Is it possible so to apply this information that one may judge of the cancer mortality among Blacks? The Blacks form the largest and a very constant constituent of the "Others" population, varying from 660 to 680 per 1000 "Others." Any racial features of the Blacks as to cancer mortality would therefore strongly and constantly influence the mortality rate for "Others,"

Table I.

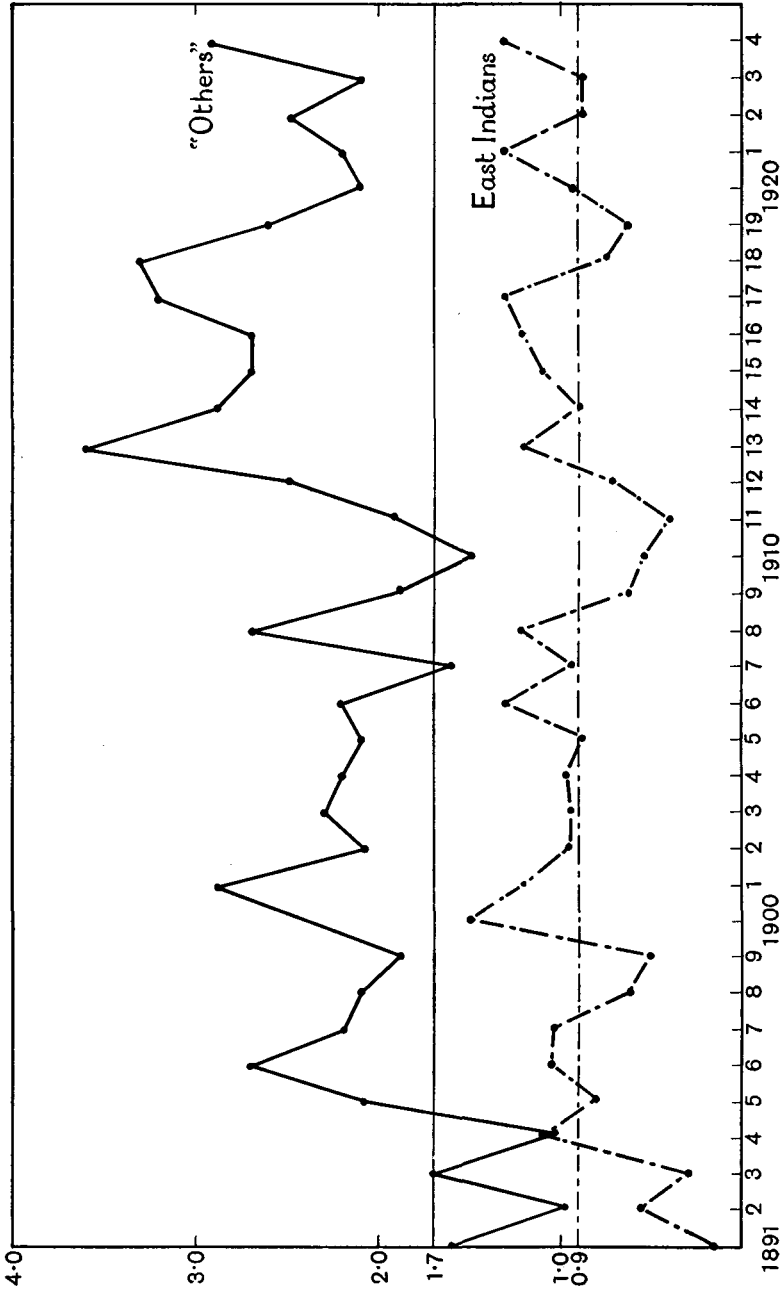
Year	East Indian cancer deaths total	"Others" cancer deaths total	Number of East Indians living	Number of "Others" living (including Blacks)	Number of Blacks living	Cancer death rate per 10,000 East Indians living	Cancer death rate per 10,000 "Others" living	Blacks per 1000 "Others"
1891	2	28	105,396	172,997	115,931	.18	1.6	670
1892	6	17	106,911	171,384	114,867	.56	.99	669
1893	3	30	107,173	171,114	114,687	.27	1.7	670
1894	12	18	109,146	170,428	114,184	1.09	1.05	669
1895	10	37	111,953	170,120	113,847	.8	2.1	669
1896	12	47	113,543	170,754	114,136	1.05	2.7	678
1897	12	38	114,477	172,007	114,858	1.04	2.2	676
1898	7	37	114,485	171,737	114,517	.61	2.1	672
1899	6	34	115,670	171,618	114,337	.51	1.9	667
1900	19	42	122,282	172,661	114,961	1.5	2.4	665
1901	16	51	126,194	174,554	116,812	1.2	2.9	660
1902	12	37	126,748	175,424	116,894	.94	2.1	666
1903	12	41	126,743	175,885	117,125	.94	2.3	665
1904	12	40	125,896	176,027	117,162	.95	2.2	665
1905	11	37	126,407	176,983	117,731	.87	2.1	665
1906	17	40	127,193	177,766	118,244	1.3	2.2	665
1907	12	29	127,326	177,223	117,798	.94	1.6	664
1908	16	48	126,944	177,145	117,516	1.2	2.7	663
1909	8	34	127,606	177,484	117,601	.62	1.9	662
1910	7	27	126,148	177,049	117,066	.55	1.5	661
1911	5	33	126,166	169,618	115,370	.39	1.9	680
1912	9	44	129,181	169,863	115,356	.69	2.5	679
1913	16	62	132,295	171,854	116,630	1.2	3.6	678
1914	12	33	134,463	175,475	119,297	.88	2.9	679
1915	15	49	136,486	175,905	119,337	1.1	2.7	678
1916	17	48	137,850	176,009	119,105	1.2	2.7	676
1917	18	57	137,959	176,040	118,612	1.3	3.2	673
1918	10	59	134,670	176,302	118,398	.74	3.3	671
1919	8	45	130,638	175,353	118,036	.61	2.6	673
1920	12	39	129,331	177,957	119,956	.92	2.1	674
1921	17	39	124,900	173,288	117,530	1.3	2.2	677
1922	11	44	124,388	173,429	117,507	.88	2.5	677
1923	11	38	124,453	174,746	118,389	.88	2.1	677
1924	17	52	124,967	176,237	119,470	1.3	2.9	677

and it would seem probable that East Indians have a lower rate of cancer mortality than have the Blacks.

Supposing that the rate for Blacks were the same as for East Indians, then, for the 34 years under review, the remainder (Europeans, Chinese, Portuguese and mixed) would require to have had a cancer mortality of 2.5 per 10,000 or nearly double the rate for the whole population.

Even if the whole population's rate is applied to the Blacks, then the rate for the Europeans, etc., must still have been as high as 2.05 per 10,000 for the 34 years. In the five years, however, for which the rate for Europeans, etc. is known, it was 1.7 per 10,000.

Five years' records are available from which a comparison may be made



Graph I. Cancer death rate per 10,000 living, 1891-1924. Fine lines = Mean rates for the 34 years.

between the actual rates for the two races. Table II contains detailed information which is graphically represented in Graph II. For each of the five years the East Indian rate is about half that for Blacks and for the five years together exactly half. These figures support the opinion, previously arrived at inferentially, that the East Indian rate is lower than the Black.

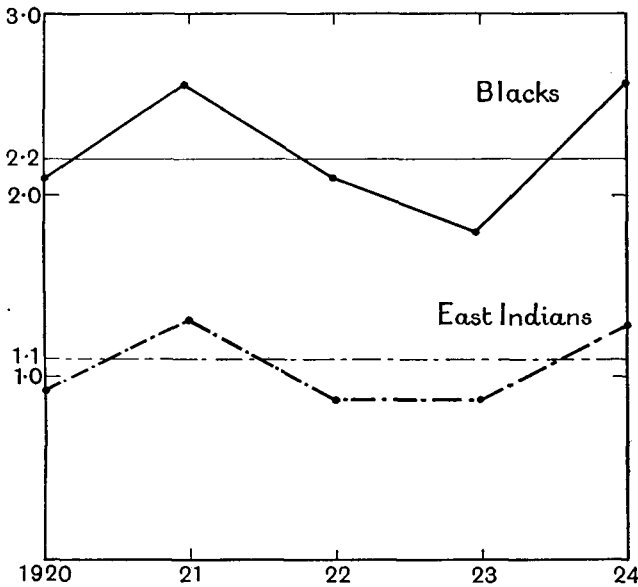
Table II.

Cancer death rate per 10,000 living.

Year	Whole population	Blacks	East Indians
1920	1.6	2.08	.92
1921	1.8	2.6	1.3
1922	1.8	2.1	.88
1923	1.6	1.8	.88
1924	2.3	2.6	1.3

Cancer death rate per 10,000 living for the five years 1920-4.

Whole population	1.9
Blacks	2.2
East Indians	1.1



Graph II. Cancer death rate per 10,000 living, 1920-4. Fine lines = Mean rates for the five years.

It is true, as has been said, that such calculations take no account of age and sex distribution. An excess of males among East Indians in some years may, by exclusion of a fair proportion of the cancers peculiar to women, have kept the general rate down. On the other hand, practically all the immigrants being adults, there may have been, in some years among the same people, an excess of those in the later and cancerous age periods.

In Table III appear figures from the 1921 census which shed some light upon the possible influence of sex distribution upon the rates calculated. In

Table III.

Race division of whole population	Proportion per cent. of		Number of females to every 100 males of the population		Number of males and females in				Percentage increases and decreases during 1911-1921 in each race division			
	Males	Females	1921	1911	1921		1911		Increases		Decreases	
					M.	F.	M.	F.	M.	F.	M.	F.
Europeans	55.0	45.0	82	83	1,813	1,478	2,140	1,797	...	...	.21	.21
Portuguese	47.0	53.0	112	110	4,311	4,864	4,780	5,304	...	...	.30	.30
East Indians	55.3	44.7	80	73	69,130	55,808	73,027	53,490	...	1.62	2.53	...
Chinese	53.7	46.3	86	77	1,462	1,260	1,481	1,141	...	...	.08	.01
Blacks and Africans	47.6	52.4	110	109	55,746	61,423	55,139	60,347	.40	.75	...	...
Mixed races	45.5	54.5	120	125	13,905	16,682	13,417	16,834	.31	...	...	.10
Aborigines	50.1	49.9	99	91	4,585	4,565	3,613	3,288	.63	.89	...	...
Race not stated	46.9	53.1	113	102	309	350	120	123	.12	.15	...	...
									1.46	3.49	3.05	.61
										.61	1.46	
Total	50.8	49.2	96	92	151,261	146,430	153,717	142,324	...	2.88	1.59	...

Table IV.

1921 Census. Numbers of East Indians and Blacks 35 years of age and over by sexes and age groups.

Age Groups	East Indians		Blacks	
	Males	Females	Males	Females
35- 40	6342	4151	3964	4699
40- 45	6031	3281	3844	4078
45- 50	4357	2418	3261	3172
50- 55	3367	1884	2481	2712
55- 60	1614	964	1588	1694
60- 65	1609	1073	1352	1591
65- 70	623	490	883	1039
70- 75	365	348	571	803
75- 80	154	111	345	450
80- 85	130	125	175	308
85- 90	44	30	51	123
90- 95	18	24	26	60
95-100	8	12	23	41
100 and over	8	6	3	24
Totals	24,670	14,917	18,567	20,794
		39,587		39,361

Table V.

Death rate from all causes per 1000 living.

Year	East Indians	Blacks	Year	East Indians	Blacks
1905	25.6	29.7	1915	28.8	28.4
1906	28.3	29.3	1916	27.1	28.4
1907	41.3	35.8	1917	33.1	29.9
1908	32.6	31.9	1918	49.4	35.7
1909	33.7	30.2	1919	49.3	33.2
1910	37.6	34.2	1920	26.3	26.3
1911	32.1	31.9	1921	33.3	30.2
1912	35.3	32.6	1922	32.7	28.5
1913	22.7	25.9	1923	31.5	27.2
1914	23.5	26.0	1924	27.7	24.7

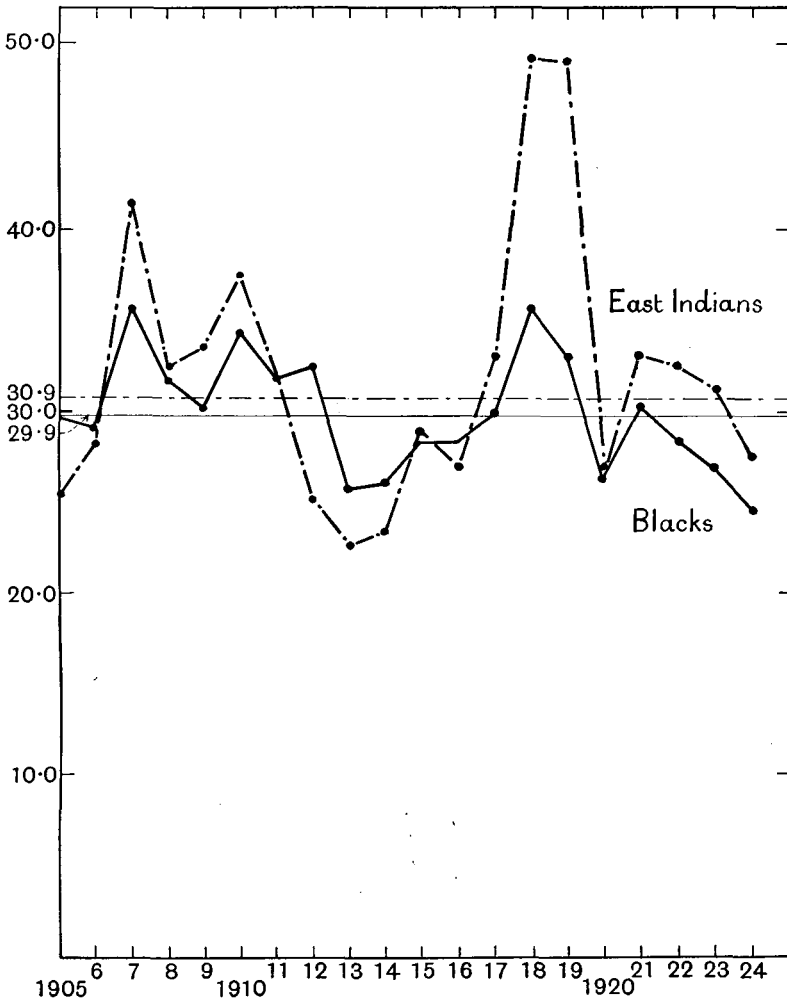
Death rate from all causes per 1000 living for the twenty years 1905-24.

East Indians	30.9
Blacks	29.9

Same rate but with the influenza years 1918 and 1919 omitted.

East Indians	30.1
Blacks	29.4

1921 East Indians had 80 females to every 100 males, while the Blacks had 110 females to every 100 males; in 1911 the ratios were 73 to 100 for East Indians and 109 to 100 for Blacks. In both races since 1891 the proportion of females to males has been increasing, but the more rapidly among East Indians. The sex proportions of the two races have been approximating, while it is at least possible to say that there is no evidence of approximation as to cancer mortality.



Graph III. All causes death rate per 1000 living, 1905-24. Fine lines=Mean rates for the 20 years.

In Table IV are shown by age periods and sexes the numbers of each race living at the cancerous time of life. From these it appears that in 1921 there were living 39,587 East Indians of 35 years of age and over and 39,361 Blacks at the same time of life. It need not, therefore, be supposed that any appreci-

able adjustment of the rates given for 1920 to 1924 must be made on account of age distribution. The cancer deaths among East Indians are much fewer than those for Blacks for the years in which we know the two races were about equally represented by persons in the cancerous age periods and there is at least fair evidence that the disparity has existed for a far longer period.

The significance of the contrast would be diminished if the mortality of the two races from all causes showed a like disparity. This, however, is not the case. Table V and Graph III show the "all causes" rates from 1905 to 1924. The mean rates for the 20 years are East Indians 30.9 and Blacks 29.9 per 1000, a reversal of the cancer position. It is true that the mean rate is greatly influenced by the excessive fatality among East Indians of the influenza pandemic, but if the influenza years are omitted for both races the East Indian rate is still the higher and the annual rate was the higher in 13 of the 20 years.

Table VI.

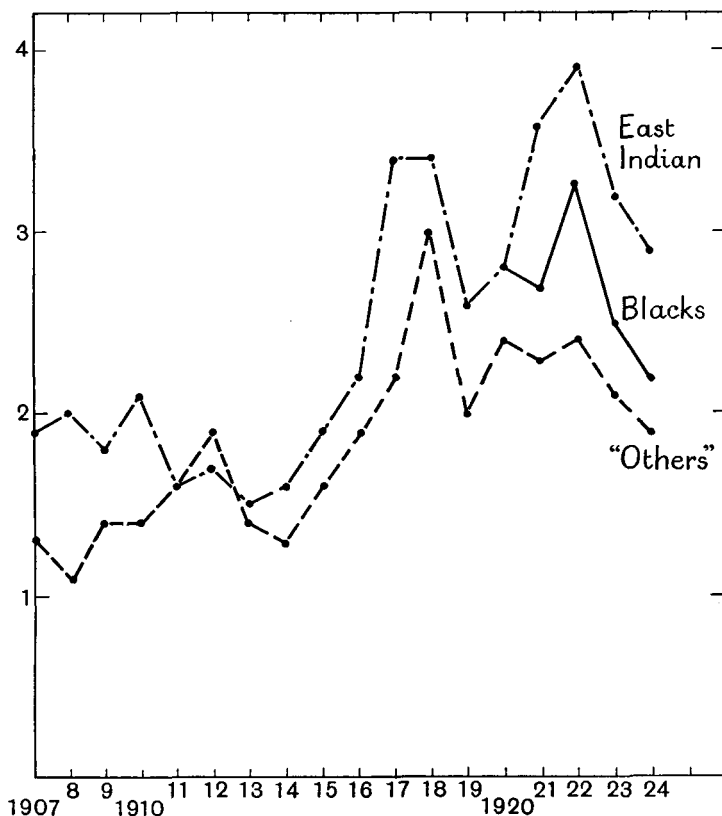
Nephritis death rate per 1000 living.

Year	East Indians	"Others"	Blacks
1907	1.9	1.3	
1908	2.0	1.1	
1909	1.8	1.4	
1910	2.1	1.4	
1911	1.6	1.6	
1912	1.7	1.9	
1913	1.5	1.4	
1914	1.6	1.3	
1915	1.9	1.6	
1916	2.2	1.9	
1917	3.4	2.2	
1918	3.4	3.0	
1919	2.6	2.0	
1920	2.8	2.4	2.8
1921	3.6	2.3	2.7
1922	3.9	2.4	3.3
1923	3.2	2.1	2.5
1924	2.9	1.9	2.2

Chronic nephritis is a frequent cause of death in British Guiana though its causes are imperfectly understood. The death rates from this cause are shown in Table VI and Graph IV, for East Indians and "Others" from 1907 to 1924 and for Blacks from 1920 to 1924; these display a consistently higher rate for East Indians. The study of mortality from all causes and from nephritis therefore supports the view that the racial difference as to cancer is neither an index of inferior recording of East Indian deaths, nor a mere expression of racial difference in resistance to disease in general, but a real contrast in respect of cancer.

Such particulars as are available as to site of occurrence of cancer and age at death are given in Table VII and cover the five years 1920 to 1924. In the absence of particulars as to age and sex distribution during these years it is necessary to refrain from any calculation of rates and percentages¹. It is

¹ A comparison of Tables IV and VII will show that the scheme of age grouping used by the Registrar-General for deaths is different from that used by the Census Commissioner for the living.



Graph IV. Nephritis death rate per 1000 living, 1907-24.

Table VII.

Cancer deaths for the five years 1920-4 by races, ages, and sites of occurrence.

		0 to 20		20 to 30		30 to 40		40 to 50		50 to 60		60 to 70		70 to 80		Over 80		Totals by Race and Site
		E. I.	Black	E. I.	Black	E. I.	Black	E. I.	Black	E. I.	Black	E. I.	Black	E. I.	Black	E. I.	Black	
Buccal cavity	Black					1					2							6
	E. I.	1								1								2
Stomach and liver	Black			1	6		9	18	11		5	4						54
	E. I.			2		4		6	3									15
Peritoneum, intestines, rectum	Black								1									1
	E. I.			1			2											3
Female genital organs	Black			2	4		4	13	10		4	1	4	1				38
	E. I.				5	11		11	4		1							32
Breast	Black					3	3	7	5		2	4	2	4				24
	E. I.								2									2
Skin	Black						1	1										2
	E. I.			1														1
Other organs and organs not specified	Black		2	1	6		10	5	5		6	2						37
	E. I.	1		2		6		2	5									16
Totals by races and ages	Black		2	4	20		27	46	32		19	12						
	E. I.	2		1	10		23	20	14		1							

permissible, however, to remark that in the five years there were 38 deaths of Blacks from cancer of the female genital organs and 32 deaths of East Indians from the same cause, while for the same period there were 24 deaths of Blacks from cancer of the breast and only 2 deaths of East Indians from that cause. The apparent rarity among both races of cancer of the tongue, mouth, skin, intestines and rectum is also worthy of remark. The scarcity of cancer about the mouth is the more notable as betel chewing, while far less common than in some parts of India, is by no means unknown.

In view of the imperfections in statistical records it is impossible to consider the results of this enquiry as conclusive, but there appears to be a *prima facie* case for the opinion that there is a racial difference as to cancer mortality between the East Indians and Blacks in British Guiana. It may be possible to check the results obtained against the statistics of other places and the enquiry is being pursued.

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