1. Most of the anaemias are macrocytic and hypochromic, and the incidence of nutritional anaemias, diagnosed by the presence of Ehrlich or intermediate megaloblasts and/or abnormal white cells, is higher than has generally been supposed.

2. Many cases are complicated by disease of the liver and by the presence of parasites in the blood or intestines. These add to the severity of the anaemia, and they may be important as causes of hypersplenism and the resulting haemolytic type of anaemia.

3. All patients should be treated with iron, and many will respond to vitamin B₁₂ in doses of 100–200 µg. Folic acid may be necessary in addition for complete remission of the anaemia.

4. It is suggested that there is a multiple deficiency in these patients. Although in all pregnancy megaloblastic anaemias the primary defect may be the non-availability of folic acid, the local Africans have in addition a deficiency of extrinsic factor and will not respond to folic acid until this has been corrected.

I wish to thank Dr. G. T. Barnes and Dr. R. M. Winston for allowing me to use the facilities of the Lagos Pathology Laboratory; Dr. M. A. Majekodunmi and Dr. J. Mabayoje, who gave me access to their patients and who co-operated in the investigation and treatment of these patients; and Mr. J. S. Ajayi, who carried out all the biochemical investigations. The vitamin B₁₂ (cytamen) was provided by Glaxo Laboratories Limited.

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DIVERGING SEX-MORBIDITY TRENDS IN CANCER OF THE MOUTH

A HOSPITAL MORBIDITY STUDY

BY

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A salient feature of the total incidence of cancer is its apparent uniformity after cognizance has been taken of such influences as improved diagnostic facilities and the ageing population. Despite this overall consistency, gradual changes do occur in morbidity and mortality patterns for specific anatomical sites. An obvious and widely publicized example is the continuing increase in cancer of the lung.

Another progressive trend which has engendered comment is the apparent decrease in cancer of the mouth suggested by a falling standardized mortality rate for both sexes beginning in the later part of the decade 1930–9 (Registrar-General, 1947). That the observed decrease was not entirely attributable to a higher success rate in treatment was confirmed by hospital statistics (Paterson, Tod, and Russell, 1946, 1950). The inference from mortality statistics is that the decrease applies to both sexes (Registrar-General, 1953; Minister of Health, 1954).

The object of this survey is to show that in the North-west of England, over an interval of a decade, there is evidence of a marked decrease in the incidence of cancer of the mouth in men only, a trend which is not apparently common to the adjacent anterior and posterior sites of lip and pharynx. In women, on the contrary, there is evidence of an increase in the morbidity rate, and it seems feasible that the falling mortality rate may be accounted for by their better response to treatment (Russell, 1954).

Basis of the Survey

The data used are culled from the individual statistical abstracts of cases of previously untreated or "new" cancer of the mouth registered at the Christie Hospital and Holt Radium Institute and its peripheral clinics in the North-west of England during the periods 1935–9 and 1945–9. After the inception of the National Health Service in July, 1948, and the establishment of regional hospital board areas, three clinics were ceded to the Liverpool Region. For the purpose of ensuring comparability, therefore, all registrations of patients from the affected territory have been excluded from both series.

The map printed overleaf shows the Manchester R.H.B. area and the location of the peripheral clinics held regularly by consultants from the Christie Hospital and Holt Radium

TABLE I.—Populations in Surveyed Parts of Manchester R.H.B. Area

Local Authority	Mid-Year Estimates	
	1937	1947
County boroughs	1,816,220	1,747,970
Municipal boroughs and urban districts ..	1,523,088	1,592,319
Rural districts	257,856	271,878
Total	3,597,164	3,612,167

Institute. Some of these clinics were established over twenty years ago and had steadily expanded as their advantages became obvious. Detailed investigation of registrations in each separate clinic area indicates that it is valid to use for comparison in the two five-year periods registrations from all the remaining area with the exception of the shaded part of East Lancashire, which was not served by the Christie Hospital and Holt Radium Institute in 1935–9, although it was subsequently. The analyses in both periods relate, therefore, to patients residing in the area left unshaded on the map.

The whole R.H.B. territory is nearly 3,000 square miles in extent, and the population is approximately 4½ million (47% men, 53% women). South Lancashire is the most heavily industrialized community in the world; consequently the average density of the population in the R.H.B. area is 2.6 persons per acre, compared with 1.2 for England and Wales. Although the area is only one-twentieth the size of England and Wales, it contains one-tenth of the population. Immigration of other races has been of too recent development to have any influence on the investigation.

Table I gives the population in 1937 and 1947—the mid-year of the periods 1935–9 and 1945–9—for the unshaded part of the map according to the type of local authority. These figures have been compiled from the mid-year estimates of the Registrar-General (1938 and 1949) for individual county and municipal boroughs, urban and rural districts.

Criteria of Classification

In the analyses individual cases have been classified according to the site in which the primary lesion was believed to originate. They are shown in three main groups: (a) tongue; (b) main oral cavity—that is, the anterior part, comprising the upper and lower alveoli, cheek, hard palate, and floor; and (c) faucial region (or posterior oral cavity),

The surveyed part of the Manchester Regional Hospital Board area (unshaded).

which includes the soft palate, anterior pillar of fauces, and tonsil. This classification does not exactly conform to the International List definitions of the mouth, Nos. 140-4, but is regarded as preferable for some purposes, since the fusing of hard and soft palate into one group conceals certain characteristics (Russell, 1954).

Tumours of the salivary glands are not included in the survey. Many cases of "mixed salivary tumours" are dealt with by surgeons in other hospitals in the area, and the records of the Christie Hospital and Holt Radium Institute are therefore not as reliable an index to morbidity as is the case with carcinoma of the mouth, for which the treatment policy in the North-west is almost exclusively radiotherapy.

Trends in Hospital Registrations

Table II shows the number of new patients with cancer of the mouth for 1935-9 and 1945-9. The difference in total registrations for men represents a decrease of 28% over the decade; corresponding figures for women amount to 76% increase.

TABLE II.—Cancer of the Mouth.* Number of New Patients from Surveyed Area Registered at the Christie Hospital and Holt Radium Institute

Classification	Males		Females	
	1935-9	1945-9	1935-9	1945-9
Tongue	382	302	46	99
Main oral cavity	370	266	61	93
Faucial region	325	209	12	17
Total	1,077	777	119	209

* Excludes salivary gland tumours, totalling 72 in 1935-9 and 89 in 1945-9.

In comparison, for the adjoining anterior and posterior sites of lip and pharynx, upward trends amounting to 39% and 40% respectively for males have occurred. The incidence of cancer of the lip is virtually negligible in females; for cancer of the pharynx there was an increase of 103%. Some of the increase in lip and pharynx registrations is doubtless accounted for by a higher proportion of patients having been directed to hospital than had hitherto been the case. Nevertheless, it seems feasible that this rather high increase also indicates a genuine rise in incidence in both sexes, and that in males the downward trend is confined to the tongue and mouth.

Trends in Morbidity Rates at all Ages

Hospital registrations cannot, of course, be interpreted as a reliable index to morbidity unless they are believed to be an adequate representation of total morbidity and can be related to a defined population. As an essential prerequisite of the survey, measures were adopted to try to ensure that both criteria are complied with. Table III therefore shows the conversion into morbidity rates, expressed as per million living persons at all ages in the area at risk to develop cancer of the mouth. In view of the altered age-constitution of the population within a decade, crude rates are fallacious for purposes of comparison. Accordingly the 1945-9 rates for each sex have been standardized to the same age-distribution as 1935-9.

The extent of the changes in morbidity rates is expressed in percentage form in Table IV. Rounding off of decimal places to the nearest whole digit in Table III is responsible for any disparity observed between these figures and the actual percentage changes shown in Table IV.

TABLE III.—Trends in Morbidity Rates (5-Year Average Annual Registrations Expressed as Per Million Population at All Ages)

Classification	Males		Females	
	1935-9 (Crude)	1945-9 (Standardized to 1935-9)	1935-9 (Crude)	1945-9 (Standardized to 1935-9)
Tongue	45	28	5	8
Main oral cavity	44	25	6	8
Faucial region	38	19	1	2
Total	127	72	12	18

TABLE IV.—Changes in Morbidity Rates for Each Sex Over a Decade

Classification	Percentage Difference	
	Males	Females
Tongue	-38%	+60%
Main oral cavity	-43%	+33%
Faucial region	-50%	+100%
Total	-43%	+42%

Brackets denote that the enclosed percentage is based on a low incidence.

It is interesting to note that for all sites in the mouth the decrease for males is 43%, whereas the increase for females amounts to the almost identical figure of 42%. In the separate main sites the greatest morbidity decrease of 50% for males has occurred in the faucial region. The female morbidity rate in the same site is too low for the 100% increase to have any significance. The most striking change for females is the 60% increase in cancer of the tongue.

Change in Sex Ratio

The divergence in morbidity trends alters the sex ratio to a considerable extent. In Table V the ratios in the two periods, expressed as males to 100 females, are shown on a standardized basis. It will be seen that the ratio male to female has more than halved over the decade, and that the difference is greatest in the tongue group.

Although the sex ratio for the tongue differs appreciably from the male to female figure of 1.6:1 given by Mackay

TABLE V.—Changes in Sex Ratio Over a Decade

Classification	Standardized Ratio— Males to 1 Female	
	1935-9	1945-9
Tongue	10.0	4.1
Main oral cavity	7.5	3.7
Faucial region	34.8	16.3
Total	11.1	4.9

(1951), the series from which the latter ratio derives is restricted to in-patients, and as a higher proportion of men suffer local recurrence or dissemination of the disease (Russell, 1954), often necessitating readmission to hospital, such a disparity is not unexpected.

Age-Specific Morbidity Trends

Cancer of the mouth remains of comparatively low incidence in the community until the sixth decade of life—a fact which is not, of course, reflected in the formal mode of expression of the morbidity rate at all ages. For the purpose of studying the changing morbidity pattern in greater detail, therefore, it is necessary to investigate the age factor.

The ages used for analysis are those recorded at the time of hospital registration. In some sites, where clinical symptoms may be of long duration, it would obviously be preferable to use the age at the stated onset. In cancer of the mouth, however, such an adjustment to the registration age groups would be very slight, since only about 10% of patients may be expected to report symptoms exceeding one year in duration.

In Table VI the age-specific trends for each decennial group are shown. Inclusion of ages 45-54 reveals that the reduction in the morbidity rates for males is not limited to

TABLE VI.—Annual Age-specific Morbidity Rates Per Million for Each Sex

Classification	Age Group	Males		Females	
		1935-9	1945-9	1935-9	1945-9
Tongue	45-54	39	24	8	11
	55-64	154	73	14	24
	65-74	374	264	19	43
	75+	311	270	10	71
Main oral cavity	45-54	37	18	10	11
	55-64	145	64	27	27
	65-74	369	206	25	41
	75+	345	297	30	34
Faucial region	45-54	21	16	2	1
	55-64	126	44	2	3
	65-74	342	176	7	6
	75+	320	230	10	19

the older ages, but is demonstrable in varying degrees in each group. Within each anatomical site the greatest proportionate decrease for males is to be observed at ages 55-64. It is noticeable, too, that the age-specific rates in the second series assume an upward trend, whereas in the earlier period the peak occurred at ages 65-74.

Despite the comparatively low rates for females resulting from the breakdown of each anatomical group into ages, the fact emerges clearly that the increase in the incidence of cancer of the tongue is apparent at younger ages, although it is most striking at ages 75 and over, where it exceeds one-quarter of the rate experienced by males.

The increased rate for the faucial region is also seen to be concentrated in the highest age group. Actually, at the lower ages the trend is slightly in the opposite direction, but, as already mentioned, where the incidence is so low some fluctuation is to be expected and is comparatively unimportant. A moderate and slightly erratic change in rates is observed for the main oral cavity, the greatest difference being in the 65-74 age group.

The trends shown in Table VII make it clear that in general for both sexes the "risk rate" for the incidence of cancer of the mouth has undergone a striking change. The calculated risks for separate age groups from 45 years up-

TABLE VII.—Changes in Cancer "Risk Rate" (Expressed as Ratio of 1 Case Arising in Number of Persons Specified in Each Age Group)

Classification	Age Group	Males		Females	
		1935-9	1945-9	1935-9	1945-9
Tongue	45-54	25,400	42,400	128,200	88,500
	55-64	6,500	13,600	72,500	42,000
	65-74	2,700	3,800	51,800	23,500
	75+	3,200	3,700	100,000	14,100
Main oral cavity	45-54	26,700	54,600	99,000	95,200
	55-64	6,900	15,600	37,600	36,500
	65-74	2,700	4,900	40,700	24,200
	75+	2,900	3,400	33,200	29,400
Faucial region	45-54	47,400	63,700	625,000	1,250,000
	55-64	7,900	23,000	500,000	370,400
	65-74	2,900	5,700	142,900	158,700
	75+	3,100	4,400	100,000	54,100

wards are given. Although, of course, precision cannot be attained in any calculations based solely on hospital registrations, these figures can probably be accepted as reliable trends.

Differential Rates in Urban and Rural Areas

The final factor investigated is differential morbidity rates for the types of local authority areas in which patients resided. Analysis in these terms yields the annual rates given in Table VIII. Although sub-analyses relate to smaller

TABLE VIII.—Standardized Annual Morbidity Rates Per Million at All Ages for Local Authority Areas

Type of Local Authority	Males		Females	
	1935-9	1945-9	1935-9	1945-9
County boroughs	178	98	13	19
Municipal boroughs and urban districts	104	69	11	15
Rural districts	71	43	17	10
Total	138	79	12	17

population groups, the rates throughout have been shown on a "per million" basis to maintain consistency with earlier tables. They have been standardized for comparability, the age distribution of the population in the surveyed area in the mid-year of 1935-9 period having been used as the standard. In this process an arbitrary assumption has been made that the age constitution of the aggregate of each type of local authority area is the same as for England and Wales, excluding Greater London.

Table IX shows the changes in morbidity rates expressed as percentages. These figures indicate that for males the decrease has occurred in each kind of community, but is

TABLE IX.—Changes in Standardized Morbidity Rates for Local Authority Areas Over a Decade

Type of Local Authority	Percentage Difference	
	Males	Females
County boroughs	-50%	+46%
Municipal boroughs and urban districts	-34%	+36%
Rural districts	-39%	-41%
Total	-43%	+42%

particularly striking in the county boroughs, where it amounts to 50%. Conversely, for females an increase of 46% has occurred in the county boroughs. In the municipal boroughs and urban districts the increase of 36% for females is likewise of the same order as the corresponding decrease of 34% for males. Only in the rural districts does the female rate show a decrease, the figure being 41%, whilst the corresponding one for males is 39%. This decrease for females is attributable to the fact that in the earlier period the rate was, rather surprisingly, higher in the rural districts than in the other communities. It must be remembered, however, that the rural population in the surveyed area is comparatively small and rates are consequently more liable to chance fluctuation.

The long time-lag between the inception of cancer and its clinical manifestation necessitates caution in the precise deductions to be drawn from differential rates unless there is full knowledge of the exact period of time over which individual patients have been resident in a particular region. In the surveyed area the population aggregate in the county boroughs fell by nearly 4% during the decade: other urban populations rose by nearly 14% and rural districts by just over 5%.

Despite such impediments, it seems logical to deduce from the analyses that: (a) residence in the most urbanized communities results in intensification of certain aetiological hazards for both sexes; (b) an aetiological factor not solely related to the degree of urbanization has become less potent for men; and (c) an aetiological factor not apparently operating in the rural districts has become more pronounced in the case of women.

Discussion

Inherent in the diverging morbidity trends for males and females in the area surveyed is an apparent paradox when the findings are considered in relation to the contrary trends for the sexes following treatment of cancer of the mouth (Russell, 1954). In men the incidence of the disease has decreased, although they have previously been shown to exhibit a worse response to treatment and to be more prone than women to develop metastases; in women there is greater vulnerability so far as incidence is concerned, but a higher rate of recovery and of resistance to dissemination of the disease.

The age-specific trends for males, which yield a lowered incidence of varying degrees throughout the entire range from 45 years upward, suggest the removal or diminution of aetiological factors the influence of which is operating from early adult life. Two factors could conceivably be partly if not necessarily wholly responsible—namely, improvements in the control of syphilis and in the incidence of oral leucoplakia. Whether smoking habits have any relevance is perhaps more speculative, although it is of interest that in a mortality survey based on English and Welsh County Boroughs Buckatzsch and Doll (1952) reported an inverse relationship in 1921–30 between cancer of the tongue and lung.

It is conventional to regard the incubation period for cancer as 20 years. Reference has previously been made (Paterson, Tod, and Russell, 1950) to the hypothesis that, in men, local aggravation is a relevant factor in susceptibility to the disease, but that in women a systemic factor, such as microcytic anaemia, is responsible. If these criteria be accepted in postulating possible reasons for the higher incidence rate in women, it may well be profitable to investigate their proclivity for microcytic anaemia in, say, South-east Lancashire.

South-east Lancashire was predominantly a textile area until about the middle of the 1930–9 decade, when, as a result of severe and prolonged trade recession, other industries were gradually developed. Social conditions from about the middle of the 1920s cannot be ignored and may have some significance in this context.

It is tempting to attach some credence to this theory by studying unemployment rates, which, although showing some variation in degree and period in different sub-areas, in general compared very unfavourably with the average for the country. Whilst investigating morbidity trends in the individual sub-areas, it was noticed, for example, that—unlike most other towns—in the County Borough of Oldham the main changes in incidence did not emerge in the 1945–9 period but have done so in the 1950s.* In this district the highest unemployment rate of about 50% occurred in 1931 (Lancashire Industrial Development Association, 1950)—an interval which corresponds closely with the twenty-year incubation period.

*A separate survey of the National Health Service period is being prepared, it having been considered preferable, for purposes of comparison, to confine the present investigation to a period prior to the N.H.S. having become fully effective.

Unfortunately, morbidity trends for microcytic anaemia have not been obtainable on a statistically reliable basis and mortality trends are not helpful, as deaths would be certified to the sequelae and not to the predisposing condition. Despite the lack of statistical support, physicians of long experience in the textile area express the view that anaemia was more prevalent in women over twenty years ago than in many other communities.

The age-specific rates for women suggest that some influence has begun to affect them to a greater extent at the period of life which broadly coincides with the menopausal ages.

It is worth while to take cognizance also of the fact that in these textile communities about 90% of the water supply is predominantly "soft." Women are much more susceptible to the incidence of diseases of the thyroid gland than are men: recent investigations on endemic goitre and cancer (Murray, Ryle, Simpson, and Wilson, 1948; Stocks, 1947) have indicated a greater susceptibility to both conditions in areas with soft or, conversely, very hard water, with less susceptibility where the drinking-water is moderately hard.

It is interesting to observe that the extent of the divergence in sex-morbidity trends for cancer of the mouth, irrespective of variation within anatomical subgroups, is almost identical—that is, –43% for males and +42% for females. It seems clear that the degree of urbanization is a pertinent factor, and it becomes increasingly apparent that in cancer of the mouth, as in cancers of other sites (Registrar-General, 1954a), residents of both sexes in rural districts compare advantageously with those in other urban communities.

Analysis by occupation and social class has not, unfortunately, been practicable in retrospect owing to the lack of sufficiently precise and adequate information in the earlier years. Consequently, no attempt has been made to investigate other factors of interest, such as the possible relevance of certain practices performed in the textile industry, which have tended to become less frequent.

Morbidity surveys for cancer of the mouth, planned on comparable lines for various kinds of communities, would obviously be preferable to mortality statistics as a basis for the study of aetiological factors, valuable though the latter are for many purposes. There is some evidence that the lower incidence for males is not confined to this country, as, for example, in a French study of cancer of various sites (Denoix *et al.*, 1954), where reference is made to an apparent decrease in cancer of the tongue for males.

It seems reasonable to deduce that amelioration of the cancer problem is to be sought in the field of preventive medicine. On this assumption it seems logical to advocate that any genuine decrease in incidence merits equally assiduous attention as an observed increase.

Summary

Morbidity rates for cancer of the mouth in each sex, based on registrations of patients at the Christie Hospital and Holt Radium Institute, Manchester, and its peripheral clinics in the Manchester Regional Hospital Board area during the periods 1935–9 and 1945–9, are calculated.

The standardized trends over a decade show a marked decrease in the incidence of cancer of the mouth in men, and an increase in the disease in women. The extent of these diverging trends is almost identical.

Differential analyses of morbidity rates are conducted on an age-specific and local authority area basis.

Possible aetiological factors are discussed, and the desirability of intensifying research along preventive lines is advocated.

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TABLE I

Ages:	0-14	15-19	20-34	35-54	55+	Totals
Total population	774	188	760	1,016	963	3,701
Active ulcers ..	0	0	19	42	18	79
% with ..	0	0	2.5	4.1	1.9	2.0
Presumptive ulcers	0	0	6	9	4	19
Total ..	0	0	25	51	22	98
% with ..	0	0	3.3	5.0	2.3	2.6
Male ..	395	80	354	446	354	1,629
Active ulcers ..	0	0	13	31	12	56
% with ..	0	0	3.7	6.9	3.4	3.4
Female ..	379	108	406	570	609	2,072
Active ulcers ..	0	0	6	11	6	23
% with ..	0	0	1.5	1.9	1.0	1.1

agreement with Ivy *et al.* (1950), who quote a figure of 1-3% for the latter age group. Table I further illustrates that the condition is more common between the ages of 35 and 54, and after 55 the incidence is reduced by one-half in both men and women.

The sex ratio of active ulcers is 3 male to 1 female, and of five new cases presented during the year four were women. An unusual feature is the low incidence of gastric ulcers, only two cases occurring in the whole series.

The average duration of symptoms in the active ulcer group, dating from the first attack of indigestion, was 12 years: 25 patients (18 M., 7 F.) with a history of less than 5 years, 38 patients (27 M., 11 F.) with a history of less than 10 years, and 41 patients (29 M., 12 F.) with a history of over 20 years.

Previous treatment comprised advice regarding diet and frequent feeds, with the addition of magnesium trisilicate powder and small doses of phenobarbitone. The main cause of unsatisfactory results was failure on the part of the patient to adhere to the dietary restrictions.

Method and Dosage

The tablets used were specially prepared by F.A.I.R. Laboratories, varying in shape from the original tablets and bearing no trade name. The patients were instructed to take two tablets three times a day after food for three weeks; thereafter one tablet three times a day for a period of two months. Fifteen cases with a long history of frequent relapses were instructed to continue on a maintenance dose of two tablets daily for the full period of one year. This is below the dosage recommended by the makers, who suggest two tablets three times a day for the first three months, followed by one tablet three times a day for the next three months, and thereafter one tablet daily for a further three months.

All but five of the 98 cases were ambulant throughout their treatment and no instructions were given as to rest. They were advised to take an average diet but to avoid fried foods.

Results

The immediate clinical results were assessed after the first month's treatment in four main groups: (A) pronounced relief (symptom-free); (B) definite relief (minor symptoms with no pain); (C) doubtful relief (symptoms persisting but improved); (D) no relief.

Table II shows that 81% of cases became symptom-free—70% of them during the first week and 30% during the second week; a further 9% were relieved of the majority of their symptoms. Thus there was a satisfactory response in 90% of cases.

Four of the nine cases in groups C and D have elected to go to surgery, and one of the remaining cases has a hiatus hernia as well as a duodenal ulcer. Experience of treating these "failures" over the past six years leads one to believe that no form of medical treatment will be effective and that surgery is the only hope of relieving their symptoms. In 75% of the cases the patients were of the opinion that the

TREATMENT OF PEPTIC ULCERS WITH "ROTTER" TABLETS

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"Rotter" tablets were introduced into this country from Holland in 1948 for the treatment of peptic ulceration, and are still widely prescribed in spite of being classified in Group 6 by the Cohen Committee. Tablets with similar formulae are being manufactured in this country under the names tabs. bismuth subnitrate co. (B.D.H.; Kirby), tabs. stomachic co. (Duncan, Flockhart), and tabs. frangula co. (Evans; Woolley; Cuxson, Gerrard). No report on their use has appeared in the British medical press, but in view of the fact that the tablets contain bismuth subnitrate, which has the reputation of causing serious toxic effects, the need for an inquiry into their use is indicated.

Composition.—The tablets contain magnesium carbonate pond. (400 mg.); sodium bicarbonate (200 mg.); calamus (25 mg.), an aromatic bitter said to act as a carminative (*B.P.C.* 1923); frangula, which has a mild purgative action similar to cascara (*B.P.C.* 1954); and bismuth subnitrate (350 mg.), which is widely prescribed on the Continent for dyspepsia, although its action is unknown. In recent years bismuth subnitrate has fallen into disrepute in this country and America following the publication of reports of a number of fatal cases of nitrate poisoning. Marcus and Joffe (1949) stated that the use of bismuth subnitrate as a therapeutic agent is unnecessary, unwarranted, and hazardous.

Material

The clinical material for these notes was derived from my general practice in Hawick, Scotland (population 17,000), famous for its hosiery industry, which employs a large number of both married and single women. The number of patients at risk in this series is 3,700, and the period of observation is one year. The cases treated include 79 which presented with active symptoms of peptic ulcer, proved radiologically, and 19 of "presumptive peptic ulcer" (Doll and Avery Jones, 1951), with a history suggestive of peptic ulcer, in which the barium-meal examination was negative.

Incidence of Peptic Ulcer

The overall incidence of active ulcer (Table I) in this series is 2%, or 2.9% over the age of 20, which is in general