

to his foreman until four days after the accident, and then only because the foot was painful. On examination there was infection sealed in the track of the puncture and hot fomentations cleared this up in three days. The other patients lost on the average one day each, and this because the area was painful. None of the patients were eligible for compensation for the loss of time, nor was there any resulting disability.

The procedure laid down to be carried out in all cases of this type was as follows. As soon as the workman suffered a nail puncture of his foot or hand he reported immediately to his foreman. Here the workman's responsibility ended and it became the duty of the foreman to send the man to the nearest divisional doctor immediately. No first aid was given on the job, except to cover the wound with a sterile dressing and bandage.

On reporting to the doctor, the wound was examined, the skin cleansed with iodine, 2.5 per cent and the skin area for 1 to 2 mm. around the puncture wound was cut away with a sharp scalpel, removing at the same time the flap of the skin which is always inverted into the nail track. This gives sufficiently free access to and from the nail track. The same result may be obtained by making a crucial in-

cision at the entrance wound and turning out the flaps and cutting away the edges. The wound was then examined for any foreign material, such as a piece of clothing, which may be carried in, especially by a rusty nail. The nail track was then swabbed out along its whole length with 5 per cent iodine by means of absorbent cotton on an applicator. A dry dressing or gauze soaked in alcohol was applied externally and the man reported for work. He reported to the doctor on the following day, when the superficial wound was cleansed and a dry dressing applied. Few cases required such supervision for more than three or four days.

The objects of cutting away the skin around the puncture wound, thus forming an inverted funnel of the wound, are to allow drainage, to remove the flap of skin which is always inverted, to allow for proper exploration of the wound for foreign bodies, and lastly to permit sterilization of the track.

While this treatment may seem, at first sight, to be drastic, yet if one receives these patients a short time after the accident there is a certain anæsthesia of the part which reduces the discomfort of the treatment and the results obtained in this large series justify, I think, the means adopted.

THE INCIDENCE OF GOITRE AMONGST SASKATOON SCHOOL CHILDREN — 1934

By GRIFFITH BINNING, M.B.,

Saskatoon

THE following survey in regard to goitre was undertaken in our Saskatoon public schools in April and May, 1934. Five thousand eight hundred and eight children were seen. Their ages ranged from six to twenty-four years. All were public school children. Data regarding their ages, social conditions, sex, racial origins, and degree of goitre if present, were compiled and are herein presented. A total of 718 cases of goitre were found.

1. *Severity*.—We divided the cases found into "slight", "moderate", "large" and "toxic". No toxic cases were seen. Enquiry revealed that no children were absent from school because of goitre, and none were in our hospitals

at the time of the survey under treatment for this disease only.

We considered as "slight" those goitres that were just palpable, and which we thought were probably physiological; "moderate", goitres easily palpable and usually visible, and which we believed should be put under immediate

TABLE I.
SEVERITY

	<i>Number</i>	<i>Percentage</i>
Slight	504	70.1
Moderate	212	29.5
Large	2	0.2
Toxic	0	0.0
Total	718	100.0

treatment; "large", those which were very large and which we believed should be treated surgically; and "toxic", those with toxic manifestations, such as rapid pulse, tremor, etc. Table I gives the degree of severity of the cases found.

2. *Distribution according to sex.*

TABLE II.

SEX

Sex	Total students		Slight		Moderate		Large		Total goitres		Incidence per hundred
	No.	Percentage	No.	Percentage	No.	Percentage	No.	Percentage	No.	Percentage	
Male	2,963	51.0	200	27.8	64	8.9	1	0.1	265	36.9	8.9
Female	2,845	49.0	304	42.3	148	20.6	1	0.1	453	63.1	15.9
Total	5,808	100.0	504	70.1	212	29.5	2	0.2	718	100.0	12.3

The influence of sex is seen in Table II. The sexes of the students studied, 5,808 in all, were approximately equal, 49.0 per cent being girls. Sixty-three per cent of our cases were found amongst the girls. The greatest influence of sex was seen in the group of "moderates", where nearly two and a half times as many cases were found amongst the females as amongst the males, whereas in the "slight", only 50 per cent more cases were found amongst the females. Further, 75.4 per cent of all goitres amongst boys were classified as "slight", as against 64.9 per cent amongst girls.

The incidence per hundred students in the whole group was 12.3. Amongst the boys the incidence was 8.9 and amongst the girls 15.9. Thus the incidence amongst girls was nearly

double that of boys, and the goitre tended to be larger in size.

3. *Distribution according to age.*

As will be seen in Table III, the maximum number of students in any one age-group was seen in those twelve years of age. Also, most of our students are out of public school by the

time they are fourteen years old. Many of those seen who were sixteen, seventeen and eighteen years of age were children in our special classes,—classes either for children of lower than normal intelligence, or for children showing definitely anti-social tendencies. This is not true of the nineteen, twenty and twenty-four year olds. These were students who never had had the opportunity of completing public school until the depression came along.

Our great number of cases occurred at 11 years, but the greatest number of "moderate" cases occurred at 13 years. However, if age-groups of more than fifty students are studied, namely those 16 years and under, then it is seen that the incidence of goitre amongst them rises from 3.4 per hundred students studied at 6 years, to 26.1 per hundred at 16

TABLE III.

AGE

Age	Total students		Slight No.	Moderate No.	Large No.	Total goitres		Incidence per hundred
	No.	Percentage				No.	Percentage	
6 years	315	5.4	10	1	0	11	1.5	3.4
7 "	516	8.8	29	1	0	30	4.1	5.2
8 "	641	11.0	31	6	0	37	5.1	5.7
9 "	638	10.9	44	15	0	59	8.2	9.2
10 "	657	11.3	54	22	0	76	10.5	11.5
11 "	709	12.2	88	31	0	119	16.5	16.7
12 "	733	12.6	83	35	0	118	16.4	16.0
13 "	659	11.3	74	40	0	114	15.8	17.2
14 "	546	9.4	56	32	1	89	12.4	16.3
15 "	233	4.0	22	20	1	43	6.0	18.4
16 "	71	1.2	8	7	0	15	2.0	26.1
17 "	23	0.39	2	1	0	3	0.4	13.0
18 "	4	0.06	1	1	0	2	0.2	50.0
19 "	1	0.01	1	0	0	1	0.1	100.0
20 "	1	0.01	1	0	0	1	0.1	100.0
24 "	1	0.01	0	0	0	0	0.0	0.0
Total	5,808		504	212	2	718		12.3

years. The increase is fairly sharp both at 9 years and 11 years, and then remains fairly constant to 15 years, when the incidence again rises.

Comparing the age-groups according to severity and age, we find the incidence per hundred students examined amongst the "slight" is 12.4, 11.3, 11.2, 10.2, 9.4 and 11.2 at 11, 12, 13, 14, 15 and 16 years, respectively. Amongst the "moderate" the incidence is 4.3, 4.7, 6.0, 5.8, 8.6 and 9.9 at 11, 12, 13, 14, 15 and 16 years, respectively. Thus the increase in incidence in the group as a whole after 12 years is due to the increase of moderates. We might summarize by saying that amongst our children goitre began to become prevalent at 9 years, and became more prevalent, and the goitre itself larger, as the children grew older. One further observation, that we regret we have not collected statistics on, was that goitres in the younger age-groups were nearly always amongst those of central European origin.

4. *Distribution according to racial origin.*—The tremendous influence that racial origin has on the presence of goitre in our series is shown in Table IV. A great deal of time was spent in securing the origins of our students. It must be remembered that the vast majority of our students' parents, where they were of European origin, were born in this country or the United States, and that practically all of our students were born in either western Canada or western United States. In 8.9 per cent of our students we could not determine any other origin than Canada or United States. In these cases practically all of the grandparents were born on this continent. The Table is divided into two groups; the first, of more than 20 students, and the second of less than 20 students.

Races showing twice the average British incidence are the Austrian, Ukrainian, Polish, Russian, Dutch and German. We will present later a special study of these groups in which the diet and water supply is mentioned as being in

TABLE IV.
RACIAL ORIGIN

Race	Total students		Slight No.	Moderate No.	Large No.	Total goitres		Incidence per hundred
	No.	Percentage				No.	Percentage	
Austrian	23	0.3	4	3	1	8	1.1	34.7
Ukrainian	380	6.5	64	50	1	115	16.0	30.2
Polish	42	0.7	6	5	0	11	1.5	26.1
Russian	93	1.6	14	8	0	22	3.0	23.6
Dutch	67	1.1	7	6	0	13	1.8	19.4
German	264	4.5	36	14	0	50	6.9	18.9
French	91	1.5	8	6	0	14	1.9	15.3
Swedish	60	1.0	8	0	0	8	1.1	13.3
Greek	46	0.7	4	2	0	6	0.8	13.0
Jewish	93	1.6	11	1	0	12	1.6	12.9
American	87	1.4	7	3	0	10	1.4	11.5
English	2,394	41.2	189	55	0	244	33.9	10.1
Norwegian	90	1.3	7	2	0	9	1.2	10.0
Canadian	440	7.5	29	12	0	41	5.7	9.2
Irish	491	8.4	31	14	0	45	6.2	9.1
Scotch	979	16.8	66	24	0	90	12.5	9.1
Danish	30	0.5	2	0	0	2	0.2	6.6
SMALL GROUPS:								
Ruthenian	1	0.01	1	0	0	1	0.1	100.0
Belgian	1	0.01	1	0	0	1	0.1	100.0
Chinese	4	0.07	2	0	0	2	0.2	50.0
Negro	7	0.1	1	2	0	3	0.4	42.8
Doukhorbor	4	0.07	1	0	0	1	0.1	25.0
Italian	5	0.08	0	1	0	1	0.1	20.0
Icelandic	5	0.08	1	0	0	1	0.1	20.0
Hungarian	14	0.2	0	1	0	1	0.1	7.1
Swiss	7	0.1	0	0	0	0	0.0	0.0
Syrian	2	0.03	0	0	0	0	0.0	0.0
Portuguese	2	0.03	0	0	0	0	0.0	0.0
Indian	1	0.01	0	0	0	0	0.0	0.0
Bohemian	2	0.03	0	0	0	0	0.0	0.0
Roumanian	2	0.03	0	0	0	0	0.0	0.0
Galician	2	0.03	0	0	0	0	0.0	0.0
Spanish	1	0.01	0	0	0	0	0.0	0.0
Armenian	1	0.01	0	0	0	0	0.0	0.0
Total	5,808	100.0	504	212	2	718	100.0	12.3

most instances the same as in the case of the average British family. While many families of foreign origin do prepare their meals differently from the average British family, still we cannot see how the method of preparation of these families could lessen the iodine content.

In addition to the higher incidence of goitre amongst these races we would like to call attention to the higher percentage of moderate cases amongst them than is true of the group as a whole. The percentage of moderates in the whole group was 29.5; the Austrians had 37.5 per cent, the Ukrainians 43.4, the Poles 45.5, the Russians 36.3, the Dutch 46.1, and the Germans 28.0. Further, it was our observation that goitres amongst the youngest age-groups, 6 to 9 years, nearly always occurred in these races.

5. *Distribution according to social condition.*—Our students were divided into four groups. As our nurses have been with us as long as sixteen years, and are constantly deciding upon applications for dental and medical aid, and, as Saskatoon is not too large for one not to know almost everyone, they have an extremely accurate conception of the social status of their children. Class "A" consists of the children of what we would in this city consider very well-to-do parents. Class "B" consists of the children of parents with adequate incomes—parents who should not have to hesitate in calling a doctor because of the expense. Class "C" consists of the children of parents whose incomes were less than fifty dollars per month with two children, with five dollars added for each additional child, *i.e.*, with ten children the income must be less than ninety dollars per months. Class "D" consists of children whose parents were "on relief".

As will be seen by reference to Table V, 10.2 per cent of our children were in Class "A", 26.7 per cent in Class "B", 36.0 per cent in Class "C", and 27.0 per cent in Class "D".

An explanation for the very large percentage of goitres in Class "D" was sought for. As will be seen by reference to Table V, there were ten times as many in Class "D" as in Class "A", the incidence being nearly four times as great in the former. Reference to Table VI, a, b, c,

TABLE VI.
RACE, SOCIAL CONDITION AND GOITRE

Class	Total students		Goitre	
	No.	Percentage	No.	Incidence
a — AUSTRIANS				
A	1	4.3	1	100.0
B	2	8.7	0	0.0
C	7	30.4	1	14.2
D	13	56.5	6	46.1
Total	23		8	34.7
b — UKRAINIANS				
A	5	1.3	0	0.0
B	17	4.4	4	23.5
C	139	36.5	36	25.8
D	219	57.6	75	34.4
Total	380		115	30.2
c — POLES				
A	0	0.0	0	0.0
B	1	2.3	0	0.0
C	21	50.0	6	28.5
D	20	47.6	5	25.0
Total	42		11	26.1
d — RUSSIANS				
A	3	3.2	0	0.0
B	14	15.0	3	21.4
C	44	47.3	12	27.2
D	32	34.4	7	21.9
Total	93		22	23.6
e — DUTCH				
A	2	3.0	0	0.0
B	9	13.4	2	22.2
C	19	28.3	3	15.7
D	37	55.2	8	21.6
Total	67		13	19.4
f — GERMAN				
A	9	3.4	0	0.0
B	48	18.1	5	10.4
C	88	33.3	13	14.7
D	119	45.0	32	26.8
Total	264		50	18.9

TABLE V.
SOCIAL CONDITION

Social Condition	Total students		Slight No.	Moderate No.	Large No.	Total goitres		Incidence per hundred
	No.	Percentage				No.	Percentage	
A	595	10.2	24	7	0	31	4.3	5.2
B	1,552	26.7	86	30	0	116	16.0	7.0
C	2,092	36.0	197	63	1	261	36.3	12.4
D	1,569	27.0	197	112	1	310	41.7	19.7
Total	5,808		504	212	2	718		12.3

d, e and f, will, we believe, give the most satisfactory explanation for the greater incidence the lower one goes in the social scale.

Firstly, we notice the tremendous percentage of these races that are grouped in the lower social scale. For instance, 56.5 per cent of the Austrians, 57.6 per cent of the Ukrainians, 47.6 per cent of the Poles, 34.4 per cent of the Russians, 55.2 per cent of the Dutch, and 45 per cent of the Germans were "on relief". May we remind you that most of these parents have been in this country a quarter of a century.

Secondly, the incidence of goitre in Classes "A", "B" and "C" amongst the Poles, Russians and Dutch is higher than of Class "D", the other three races having a higher incidence in Class "D". Thirdly, we would like to draw attention to the fact that the incidence of goitre in these six races in all their classes is much higher than the average.

We feel that we may safely say that the reason for the higher incidence of goitre amongst our students as a whole, the lower they descend the social scale, is the higher percentage of races prone to goitre amongst them. For instance, these six races, consisting of 869 students, 14.9 per cent of the whole, had 219 goitres, or 30.5 per cent of all goitres. Further, 440 students' parents out of 869 included in these six races, or 50.6 per cent, were in Class "D", in comparison with 27.0 per cent of the average; 318, or 36.7 per cent, were in Class "C", compared with the average of 36.0 per cent in the whole group; 91, or 10.4 per cent, were in Class "B", compared with 26.7 per cent; and 20, or 2.3 per cent, were in Class "A", compared with 10.2 per cent. Thus it is seen that there are nearly twice as many of these races on relief as in the whole group, and that a much smaller percentage are in Classes "A" and "B", whilst the per-

centage of these races in Class "C" is about the same as in the whole group.

We mentioned that the diet of at least half of those races prone to goitre was the same as the average British family. In Saskatoon the families "on relief" draw their groceries and meat from one depot, where they are supplied according to the number and ages of their family. This diet schedule was originally made up by the dietitians of the three western universities. Thus all families "on relief" are receiving the same iodine content per person. All of our city obtain their water supply from one source.

SUMMARY

1. Five thousand eight hundred and eight school children in Saskatoon were examined for goitre, and 718 cases found.
2. Sixty-three per cent of our cases were found in girls. The incidence in girls was nearly double that in boys, and the goitres tended to be larger.
3. Goitre began to be prevalent at 9 years. The incidence rose at 11 and 15 years, owing to an increase of the moderate-sized goitres.
4. Racial origin seemed to be the factor of greatest importance in the incidence of goitre. This was not due to the diet or water supply, because at least half of the races in whom goitre was most frequent were on the same diet as those of British origin.
5. The higher incidence of goitre, the lower one went in the social scale, seemed to be due to the presence of a greater number of those races prone to goitre in the lower social classes.
6. The larger percentage of Austrians, Ukrainians, Poles, Russians, Dutch, and Germans "on relief" than the average was discovered in the course of the survey.

LUNG ABSCESS AND PULMONARY CANCER.—O. Ivanisovich, R. C. Ferrarri, and another sound a note of alarm regarding the frequency with which cancer is overlooked when pulmonary abscess is diagnosed. Of 62,670 patients in the Institute of Clinical Surgery, Buenos Aires, only thirty-two had cancer of the lung, but of these thirty-two, fifteen had been sent in with abscess of the lung. In the cases first examined the error was not discovered until the necropsy, despite operation and re-operation. If mistakes are to be

avoided, the help of the microscope, of radiology, and of bronchoscopy is, it is stated, indispensable. Bronchoscopy is the most accurate diagnostic weapon, since the cancer originates chiefly at the bifurcation of the larger bronchi as a simple infiltration devoid of vegetations. Every non-tuberculous subject with cough, expectoration, and hæmoptysis should be examined bronchoscopically. Exploratory thoracotomy after artificial pneumothorax is a useful supplement.—*Semana Médica*, Nov. 15, 1934, p. 1477.