no hernia had been noticed before. There were 29 babies in this group and 18% of these died.

Group 2 consisted mainly of older babies in whom an easily reducible hernia had been observed previously, but in whom the hernia had suddenly become irreducible; obstructive symptoms were minimal. There were 16 babies in this group and no deaths.

It has been shown that, in the age group 1 week to 3 months, strangulated inguinal hernia is the commonest, almost the only, cause of intestinal obstruction.

Owing to the ease with which an inguinal hernia can be missed in a baby, it is essential that the inguinal region should be carefully examined in every infant presenting with symptoms of acute intestinal obstruction.

We wish to express our thanks to the surgeons of the United Cardiff Hospitals for permission to use the notes of cases under their care, and to Professor A. G. Watkins for his criticism and advice.

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CHANGES IN DENTAL HYPOPLASIA AND CARIES AMONG THE CHILDREN OF FINNISH LAPPS, 1939-50

BY

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In 1939 a small survey of Finnish Lapps was made in order to discover the state of dental health among children living a semi-nomadic existence far from civilization (H. Mellanby, 1940). Since that time Europe had been at war for six years and for seven more has enjoyed a precarious peace. It was thought that these disturbed living conditions might be reflected among other ways in alterations in the structure of the children's teeth and their susceptibility to decay. For this reason the present survey was undertaken during the summer of 1950.

Most of the children examined belonged, as before, to the Inari Lapps, but a few families of nomadic Fell Lapps were also inspected. Since the ceding to Russia in 1944 of the Petsamo area in the far north of Finland, the Skoltje Lapps have ceased to exist as a separate entity. Some have become Russian subjects, while others are scattered throughout the rest of Finnish Lapland. The Fell Lapps inhabit the Enontekio and Kilpisjarvi districts, sandwiched between Sweden and Norway (see Map). In this area a walk was made from Hetta northwards to the Norwegian border in the company of the local postman, three "summer villages" being visited. A few more children were seen in schools at Karasundo, on the Finno-Swedish border, the total number of Fell Lapps inspected being ten. Ninety-two Inari Lapps were seen in Vuotso and in Lapp huts scattered along the length of the Utsjoki river and the Finnish bank of the Teno river from Utsjoki to Karagasniemi.

Methods

Only the deciduous teeth of pure Lapp children between the ages of 2 and 14 years were examined, a distinction being made between pure Lapps and half-castes. Some of these half-castes were Finno-Lapps (whose numbers are steadily increasing as the Lapp population becomes less isolated), but

FINNISH LAPLAND, 1950

the majority were German-Lapps, a permanent reminder of the German occupation between 1941 and 1944.

Each mouth was inspected with an illuminated mirror and a standard probe. The structure of the teeth was estimated by the method described by M. Mellanby (1927a, 1927b, 1934), the grades of M-hypoplasia being judged by rubbing a sharp pointed probe over the labial surface of the teeth. The extent of caries in each tooth was also judged by the same method as that used by Mellanby (1934), the Dental Disease Committee (1936), and Mellanby and Mellanby (1948), being estimated as caries 0, 1, 2, or 3 according to the size of the cavity. To obtain average hypoplasia and caries figures the total hypoplasia and caries figures for each group were added up separately and divided by the number of teeth examined for structure and caries. This gave the average hypoplasia figure (A.H.F.) and average caries figure (A.C.F.). A measurement of the extent of healing caries was not attempted.

Results

The results are compared throughout with those obtained in the 1939 investigation by Dr. Helen Mellanby.

Structure of Inari Lapp Children's Teeth.—When the structure of the deciduous teeth of these Inari Lapp children is compared with that found in 1939 (Table I), there is seen to be a slight increase in the A.H.F. The considerable deterioration in structure of the complex teeth (molars) since 1939 has been incompletely counterbalanced by the improvement found in the incisors and canines. However, further analysis of the results into various age groups, as set out in Table II, shows that this general picture is erroneously simple. While the A.H.F. of the 2-5-years age group was slightly below the 1939 total average of 1.09, that of the 6-9-year-olds was higher. There were too few children

TABLE I.—Structure of Teeth of Inari Lapp Children Aged 2–14 Years

	Total No. of Teeth Examined		% M-Hy ₀		% M-Hy ₁		% M-Hy ₂		% M-Hy ₃		% Gross		A.H.F.	
	1939	1950	1939	1950	1939	1950	1939	1950	1939	1950	1939	1950	1939	1950
Incisors and canines	216	736	32.4	45.5	54.0	38.9	12.9	12.5	0.4	2.0	—	1.1	0.81	0.70
Molars	221	641	15.4	5.6	40.2	33.2	38.5	44.3	5.8	13.1	—	3.4	1.35	1.67
Total	437	1,377	23.7	27.0	47.3	36.2	25.8	27.3	3.1	7.3	—	2.2	1.09	1.13

Teeth with gross hypoplasia for 1950 are included in the percentages, but are excluded from the calculations of the A.H.F.

TABLE II.—Average Hypoplasia Figure for Teeth of Inari Lapps, 1950, Arranged in Age Groups

	2–5 Years	6–9 Years	2–14 Years
No. of children	48	23	92
Incisors and canines	0.59	0.98	0.70
Molars	1.63	1.81	1.67
All teeth	0.97	1.39	1.13

between 10 and 14 years with teeth whose hypoplasia could be assessed to obtain representative figures for this age group.

Caries in Inari Lapp Children's Teeth.—The incidence and extent of caries in the different age groups of Inari Lapps are set out in Table III. Of the 92 children studied, only 6

TABLE III.—Incidence and Extent of Caries in Deciduous Teeth of Inari Lapp Children

Age Group	No. of Teeth Examined		% Carious		A.C.F.	
	1939	1950	1939	1950	1939	1950
2–5 years	208	843	24.0	22.9	0.39	0.36
6–9 "	313	452	68.3	42.8	1.57	0.85
0–14 "	(57)	(66)	(43.9)	(57.6)	(0.92)	(1.07)
Total	578	1,361	50.0	30.9	1.15	0.55

were caries-free. Nevertheless, this is an increase on the number reported by H. Mellanby—namely, 3 out of 70. When the total number of teeth is considered comparison shows that the incidence and extent of caries have sharply decreased over the intervening years. This change has occurred almost entirely in the 6–9-years age group.

Relationship Between Structure and Caries.—Table IV shows that teeth with good structure—namely, those with no surface hypoplasia—are less liable to be attacked successfully by the carious process than those showing M-hypoplasia. This relationship has been demonstrated in all previous surveys using M-hypoplasia standards (notably M. Mellanby, 1923, 1934; Mellanby and Coumoulos, 1946; Mellanby and Mellanby, 1948, 1950, 1951; King, 1940). Furthermore, from a comparison with the 1939 figures it will be seen that the percentage of hypoplastic teeth which are carious is significantly lower in 1950 than in 1939.

Teeth of Fell Lapp Children from Enontekio.—Although only 10 children in the Enontekio area were inspected (owing to the great difficulty in reaching the nomadic families) and eight of these were between the ages of 8 and 11 years, the difference between the teeth seen in this group and those of the settled Lapps was so pronounced that the figures seem worth mentioning: 81% of the deciduous teeth were decayed, as compared with 46% in the same age group (8–11 years) of the Inari Lapps.

TABLE IV.—Percentage of Caries in Normal and Hypoplastic Deciduous Teeth of Inari Lapp Children

	Teeth with No Hypoplasia		Teeth with 1–3 Hypoplasia*	
	No.	% Carious	No.	% Carious
Simple, 1939	79	7.6	170	24.7
" 1950	335	3.3	393	11.5
Complex, 1939	40	52.5	203	70.9
" 1950	37	(43.2)	582	53.9
Total, 1939	119	22.7	373	49.9
" 1950	372	7.3	975	36.4

* Teeth with gross hypoplasia have been excluded from this and other tables dealing with structure.

Discussion

The chief finding of this survey is the decrease of caries incidence amongst the 6–9-year-old Inari Lapps, although the structure of their teeth, as judged by surface hypoplasia, is worse than just before the war. As diet is believed to be largely responsible for determining the structure of the teeth (Mellanby, 1934; Mellanby and Coumoulos, 1947), and also to influence the rate and extent of dental decay, the changes of food habits among these Lapps during and after the war have been investigated.

Dr. H. Mellanby (1940) found that the staple foods among the Inari Lapps in 1939 were reindeer meat, dried fish, potatoes, rye bread, and margarine. The universal drink was coffee liberally sweetened with sugar. Two noteworthy points are that almost all the salmon was at that time sold to the tourist hotels and that very little fresh fruit was eaten.

Although the Russo-Finnish war of 1939 did not appreciably alter the food habits of the Inari Lapps, throughout the second war (1941–4) and the German occupation, in the final stages of which 200,000 well-paid German troops were present in Finnish Lapland, much more "European food" was imported. Moreover, during this period the Lapps enjoyed an economic boom, working for the Germans and supplying them with meat and fish. So during the years 1941–4 the Lapps lived on a diet containing more cereals, sugar, and potatoes than in 1939 but much less meat and fish. In view of this it seems probable that the calcifying power of their diet at this time was low. However, in 1944, as one condition of the Finnish peace treaty with the Russians, the Germans were driven from North Finland. As the Germans retreated they employed a scorched-earth policy. In order to escape some of the consequences of this action the Inari and Utsjoki Lapps were evacuated to Kalajoki in central Finland, while many of the Enontekio Lapps moved over into Sweden. In the Kalajoki community the Lapps existed on a subsistence diet, and diseases such as typhoid were rampant, whereas in Sweden and Enontekio Lapps were well housed and fed. When they returned to their own country in mid-1945 almost all the buildings had been burnt or blown up (we saw only one house left standing since 1939) and living conditions were extremely crude for the next two or three years. During this time the Lapps lived largely on fish and meat, and food supplied by various philanthropic organizations.

Since 1948 the diet has gradually been reverting to the 1939 pattern. The main differences to-day are that less fish is sold to tourists, and that the Lapps seem more conscious of the value of eating fresh fruit. In addition, expectant mothers through Finnish Lapland are now visited by the district nurses and considerable prenatal care is exercised.

Although representative figures were not obtained, the teeth of the 10–14-year-old children might be expected to show a similar structure to those inspected in 1939, these teeth having been formed between 1936 and 1940. The period of formation of those aged 6–9 years coincided with the German occupation of Lapland, and it seems possible to account for the defective structure of the teeth of the children in this age group as being due to the particularly low calcifying power of the diet at this time. The children aged 2–5 years have recovered and slightly improved upon the pre-war structure, as would be consistent with a diet of higher calcifying power.

When considering factors which might be expected to influence decay it will be realized that the teeth of the oldest group have had a chequered existence since eruption. The effects of these factors have been so balanced that the caries figures are now the same as in 1939. Teeth in the youngest group, with slightly better structure, show slightly less decay than in that year. But the striking change is that the A.C.F. of children aged 6-9 is only just over half its 1939 counterpart in spite of the teeth having a worse structure. In broad terms, therefore, the post-eruptive influences since 1945 must have been less damaging than in the previous years. This can be explained either by an increased tooth resistance due to a higher post-eruptive dietary calcium intake or by a decrease in the factors favouring decay. However, if the calcifying power of the diet during this time is reflected in the tooth structure of the children under 5, the dietary calcium since 1945 has been substantially the same as before the war. Therefore it seems that the teeth of the 6-9-year-olds are less carious, not because they are more resistant, but because there are fewer external influences favouring decay. Although more meat and fish was eaten during those years the one factor in the diet which is known to have decreased is sugar. A tentative conclusion on this evidence must be that a low-sugar diet decreases the chance of caries.

With regard to the caries figures of the Enontekio and Inari Lapps it is significant that in 1945 the former moved over to Sweden, where they fed well by European standards (with plenty of sugar and vitamin-fortified margarine), while in their homes after their return they were able to trade with smugglers travelling between Norway, Finland, and Sweden who largely carry spirits, sugar, and margarine. So in addition to their vitamins A and D intake (contributed mainly by the margarine and fresh fish) being as high as, or possibly higher than, that of the Inari Lapps, their sugar consumption also was much higher. Now since the state of their teeth is so much worse than that of the Inari Lapps, they must have been subjected to factors favouring decay to a much greater extent than the Inari Lapps' teeth. In this case a high-sugar diet might be incriminated.

Summary and Conclusion

The changes found in both Fell and settled Lapps fall in line with other wartime studies and the conclusion of Toverud (1951) that "the knowledge gained through the greatest dietary experiment forced upon us strengthens the value of more natural foods and less of easily fermentable carbohydrates in the prophylaxis against dental caries."

The teeth of 92 settled and 11 nomadic Lapp children were inspected for caries and surface hypoplasia.

The state of the teeth is compared with that existing in 1939.

An attempt is made to correlate the changes found in the teeth with the alterations in diet during the intervening period.

We would like to thank Lady Mellanby for her guidance and instructions before undertaking this survey; and to express our gratitude to Dr. H. Mellanby for her help, advice, and encouragement.

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CHILDREN'S NURSING UNIT

BY

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Following on a high infant death rate in Rotherham during the winter of 1948 and early 1949, considered to be largely due to cross-infection in hospital, the health committee in March, 1949, approved a scheme for the establishment of a children's nursing unit as part of the home nursing service. It was to be at the disposal of the family doctor as a first line of defence so that a child could be nursed at home in its own environment, except when conditions were such as to make this impossible, or when special treatment necessitated removal to hospital. It was also appreciated that the value of the education of the mother in practical preventive methods and treatment during illness, with the necessary equipment, even in what might appear at first sight to be hopeless domestic conditions, would ultimately be of benefit to the community and that such action would help to reduce the pressure on hospital accommodation.

Preparations for the Scheme

Authority was given to obtain special nursing equipment, including infants' clothing, treasure cots, the necessary gowns, masks, storage cupboard, and nursing bags. Some of this equipment was given to the service, the treasure cots being presented by the Rotherham District Nursing Benevolent Association; and the children's nightgowns, coats, vests, etc., were either knitted locally or received in gift parcels from New Zealand, the remainder being purchased.

One of the Queen's Nursing Sisters on the home nursing staff undertook a postgraduate course covering children's diseases, and she was made responsible (under the direction of the home nursing superintendent) for this special service. Later on in the year, a second nurse received similar training. During 1952 both nurses undertook further hospital duty as refresher courses.

The doctors practising in the town were informed of the facilities available and the unit began to function in June, 1949. Cases are notified direct to the superintendent, usually by telephone by the general practitioners, and the special home nurse visits the home to assess whether the case is suitable and what equipment is needed. The equipment is kept in the nurses' home and special containers are packed and sterilized ready for use in infectious cases.

During the winter months cases are so numerous that the two special nurses are unable to deal with them all, and each home nurse attends the overflow cases on her district, giving a specially detailed report on all cases after each visit. Additional assistance is also given to the unit by the Queen's candidates as part of their training. The frequency of visiting depends on the child's condition; often it is necessary to pay three or four visits daily. The home nurse is in frequent consultation with the general practitioner, who is informed immediately if the child does not appear to be responding to treatment. The parents are encouraged to contact the nurses' home if they are unduly worried about their child's condition, and a nurse (usually the superintendent) pays a visit immediately. Night calls have been very few, and it is felt that the assurance of a visit from the nurse at any time removes a good deal of the parents' anxiety.

Equipment

Details of the equipment now used by the unit are as follows: 4 treasure cots; 1 dozen sheets; 2 pillows; 3 enamel pails; 6 wash basins; 6 enamel trays, 6 by 4 in.