INFLUENZA AMONGST THE LAPPS.

BY

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DURING the winter of 1918-19 reindeer transport was extensively used by the Syren Force in North Russia. The drivers were all Lapps. As they are nomadic and live widely scattered over a huge area, the officer in charge of reindeer transport spent a great deal of time and had considerable difficulty in maintaining a sufficient supply of drivers. In December, 1918, he reported that "a terrible sickness carrying death wherever it went" had broken out amongst them, making it difficult for him to maintain a sufficient supply for army requirements. He asked that a medical officer should be sent to investigate the cause, and if possible limit its spread.

The A.D.M.S. Syren, anxious that no form of infectious disease should reach British or Allied troops from this source, ordered me to proceed into Lapland, make full investigation, and report as soon as possible.

A start was made at once. I was successful in securing the assistance of Captain Hussey and Lieutenant Stenhouse, R.N., both of them experienced explorers, and the services of an interpreter. We proceeded by train to Kola, where we obtained a Lapp driver and sufficient reindeer and sledges.

Our equipment consisted of a "medical companion" of the usual army pattern, a sleeping bag each, and rations for ten days. The Lapp driver occupied the leading sledge, to which were harnessed three reindeer, each by a single trace, but of unequal length, and with their horns cut so as to fit into the narrowest space possible. Their sledge was flat and built on high runners. The other sledges, which we occupied, were shaped like little boats, with rounded bottoms, drawn by one reindeer each, each reindeer secured by a thong to the sledge in front, and the whole proceeding as a linked-up convoy in single file.

We proceeded into Lapland in this way for a distance of sixty miles, sleeping at night in the open in front of huge fires built by the Lapp driver, or in small huts scattered about the country, the locality of which seemed to be known to our guide. The route followed was first in a south-westerly direction up the frozen surface of the Tuloma River, and then passed over a divide to another frozen river, a process repeated many times, using always the comparatively easy going of the river surfaces. Our track led us through thick, heavily timbered forest, with occasional open glades, the trees heavily covered with rime and very beautiful.

We passed from settlement to settlement, widely scattered, often two to three days' journey apart. Medical notes were made en route. The disease which had broken out proved to be influenza of a very acute type.

The usual course of uncomplicated cases was as follows: Acute onset with rapid rise of temperature, varying from 100° to 103.5°, with heavily-furred tongue, offensive breath, complete loss of appetite, intense headache and great restlessness. The fever lasted from two to four days, ending with sudden resolution of temperature and apparent almost complete recovery. Two good instances of this were a man and a woman, who were seen on the outward stage of our journey on the second day of their illness, and three days later on the return journey, were going about their ordinary duties, apparently little the worse for their illness, complaining of no weakness, and with enormous appetites fully restored.

I had no chance of observing the course of the disease in its continuity, but it appeared that cases which did not recover within four to five days did not recover at all. The chief complication appeared to be bronchopneumonia, from which I gathered there were practically no recoveries. From information, I estimated that about 50 per cent. of all cases died; at any rate the percentage was high.

The Laplanders had a very thorough if unsympathetic way of dealing with their cases. The settlements were composed of wooden huts, small but generally well made and warm. A common type consisted of but one room,

used by the family for all purposes. Better class Lapps had better huts, with two or three rooms. In each settlement one of the single-room huts had been set apart, and into this each case of sickness as it arose was uncereemoniously pushed; and none were permitted to return to their own huts until completely recovered. Whilst there they received practically no attention, and no healthy person ever entered to attend to their wants. Occasionally a bowl of water or reindeer milk was hastily passed in at the door, or a huge chunk of reindeer meat thrown in, uncooked and uncarved.

We visited every settlement within our reach and entered these huts. The stench on opening the door met one like a poison blast, and the rooms were nearly always ill lighted and dark. The patients lay littered about the floor in a crowded mass, fully dressed in clothes and boots (most of them had no socks), and with no other cover but an occasional greasy rug. Although the outside air was cold and the ground snow-covered, the temperature inside, maintained by the combined mass of bodies, was generally sufficiently high. The patients in these huts included both sexes and all ages; some when we entered sat up, and with flushed faces and dull, uncomprehending eyes, watched us listlessly. Others lay restlessly twisting about, quite incapable of taking any interest or of answering any questions. In these circumstances a thorough examination was difficult, and the difficulty was increased when none of the inmates could speak Russian, for our interpreter did not understand their language, and though many of the Lapps spoke Russian a double interpretation was often required.

Constipation was a constant factor, and many cases had not had their bowels opened since the onset of their illness—in some cases seven to ten days. Others had voided urine and faeces just as they lay. In some huts those of the patients who had passed the worst stages of their illness assisted and looked after those more acutely ill.

There was little I could do with my very limited equipment to improve their lot, and the methods adopted by the Lapps, at first sight so callous and neglectful, appeared to be essential for the preservation of their race. My companions, neither of them medical men but smitten with commiseration for these poor wretches, insisted always on entering the huts, and unused though they were to such conditions, and driven frequently to seek the open air, did their best to straighten things out and make the lot of the inmates a little less hard. I instructed the Lapps to increase the supply of water and milk—both were eagerly drunk—and to substitute reindeer soup for the huge chunks of meat which were always untouched; this they promised to do. We were able to leave them some oxo, and a little tea and sugar, carefully doled out.

On the way back I pondered over the question of what could be done, and what ought to be done to cut short this disease, and improve the conditions of those affected. The parts visited formed but a fringe of the vast area of Lapland, the nomadic tendencies of the inhabitants, whilst making them difficult to find would probably prove beneficial in leaving behind sources of infection. Any organization, to deal adequately with the situation, would, of necessity, be costly, take considerable time to materialize, and be on a vast scale. The Lapps, owing to their poorness in the world's goods, were quite unable to deal efficiently with their sick, and they had no doctors.

Finally, I felt convinced that for them the only possible thing was to do everything possible to stamp out the disease. Methods in civilized countries had had little effect in this way. I decided that their own methods, drastic and unsympathetic though they were, were best, and that the chief care should be directed to preventing spread to our own lines.

Arrangements were made, however, for a supply of quinine (which owing to its bitter taste had a great suggestive value) and of medical comforts, tea, sugar, milk, and oxo, to be sent to those areas supplying drivers and reindeer for the allied armies.

The wave of infection passed rapidly over, and on inquiry four weeks later no cases were reported. I could obtain no statistics of the number of cases in relation to the population, or of the mortality, but consider that the latter must have been high.

Two points particularly interested me:

1. The number of bugs in these pest houses. Their number and size were amazing. I saw no other type of body parasite in Lapland.

2. For less acute diseases the Lapps did not adopt the same drastic attitude. I saw many cases of tuberculosis, including one bed-ridden case of advanced pulmonary tuberculosis. They lived with the rest of the family, and appeared to be well looked after and kindly treated.

CLINICAL ANALYSIS OF 100 CASES OF EARLY BERI-BERI.

BY

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THE incidence of scurvy and beri-beri among British troops in the East having been recently reported on by Colonel W. H. Willcox, C.B., C.M.G., A.M.S., the following observations may be of general interest:

During 1913 and 1914 I had occasion to investigate a series of cases of early beri-beri at the Police Hospital in Bangkok, Siam, under the direction of Dr. Highet, the P.M.O. While Drs. Morden, Carthiaw, and A. C. Rankin were concerned with the problem of etiology, I undertook to analyse the early manifestations of beri-beri, with a view to establishing the correct chronological order of the early signs and symptoms. The completion of my work was interrupted by the war, hence the delay in publication.

The data to follow are compiled from over 300 examinations of 100 cases. All patients were adult Siamese males, and each case was thoroughly examined at least twice.

The first symptom or sign to be noted by the patient was invariably one of the three following: (a) Oedema of feet and legs (50 per cent.); (b) numbness or anaesthesia of feet (43 per cent.); and (c) epigastric fullness and distress (7 per cent.)

TABLE I.—Early Signs and Symptoms.

Sign or Symptom.	First Complaint.	Later Complaints.	Not Observed by Patient.
	Cases.	Cases.	Cases.
Oedema of feet... ..	50	39	11
Anaesthesia of feet	43	57	0
Epigastric distress	7	70	23

In every case the oedema appeared first in the feet, then the legs, and then in the hands. Appreciable swelling of the hands was seldom seen in these early cases. Practically all patients complained of more or less general weakness. Several patients stated that swelling of the feet had come and gone before the onset of anaesthesia. Nine patients complained of early pains in the legs. One developed effusion into both knee-joints, but had a previous rheumatic history. In eighty-two cases the action of the bowels was considered normal. Seventeen were constipated, and one complained of diarrhoea at the date of first examination.

Cardiac enlargement was found at the first examination in only 15 per cent. of cases. Subsequent enlargement

TABLE II.—Pulse Rate.

In Erect Posture after Walking Ten Yards.		After Sitting for Five Minutes.	
	Cases.		Cases.
80 to 90 per minute ...	14	70 to 80 per minute ...	23
90 to 100 ..	19	80 to 90 ..	27
100 to 110 ..	30	90 to 100 ..	18
110 to 120 ..	20	100 to 110 ..	23
120 to 130 ..	10	110 to 120 ..	5
130 to 140 ..	5	120 to 130 ..	2
140 to 150 ..	2	130 to 140 ..	2

occurred in four additional cases, in spite of treatment. The treatment adopted was physical rest, with a diet rich in anti-beri-beri vitamins, polished rice being rigidly excluded. Further treatment was largely symptomatic. A soft mitral systolic murmur was heard at the first examination in twenty cases. Cardiac arrhythmia was noted in five of these early cases. The pulse rate per minute is shown in Table II.

The arterial tension as recorded by the "Tycoo," sphygmomanometer at the first examination is shown in Table No. III, the normal in healthy adult natives falling between 90 and 100:

TABLE III.—Arterial Tension ("Tycoo").

80 to 90	24 cases	100 to 110	22 cases
90 to 100	17 ..	110 to 120	15 ..
100 exactly	21 ..	120 to 130	1 case

Of 41 cases with a tension below 100, after a few days of treatment 23 were raised to between 95 and 100, whereas of the 38 cases with a tension of over 100, 21 were reduced in a few days to 100.

The knee-jerk is involved early. An increased reaction was observed in a few cases to be followed by diminution or abolition of the reflex. Table No. IV shows the conditions found:

TABLE IV.—State of the Knee-jerk.

	Increased.	Normal.	Diminished.	Abolished.
First examination ...	6	23	22	49
Later examination:				
Increased	0	1	0	0
Normal	4	10	7	2
Diminished	1	12	12	9
Abolished	1	0	3	38

The plantar reflex was found to vary in inverse proportion to the anaesthesia. Steppage gait in walking increased with the anaesthesia, and in severe cases amounted to ataxia, with a positive Romberg sign. A positive knee-jerk and abdominal reflex was sometimes obtainable in a patient who was anaesthetic to pain of a pin-prick up to the costal margin.

Sensation to pain of a pin-prick always disappeared before the sensations of superficial touch, deep pressure, and posture.

The degree and extent of anaesthesia, and the condition of the reflexes may fluctuate widely from day to day, recovery frequently being effected with amazing rapidity. For example, deep anaesthesia to pain up to the knees has disappeared in five days. Another case (No. 68) is worthy of special mention. On admission to hospital this patient was anaesthetic to pin-prick up to the umbilicus, with hyperaesthesia shading gradually up to the level of the clavicle. After five days the anaesthesia did not extend beyond the knees. Table V shows the extent of anaesthesia to pin-prick at the first examination. I might add that it is not unusual for a patient to be walking about with anaesthesia to pain of pin-prick up to the level of the umbilicus, or even the clavicle.

TABLE V.—Extent of Anaesthesia to Pain of Pin-prick.

	Cases.
Feet only	5
Feet and legs	35
Feet, legs and thighs	9
Feet, legs and hands	4
Feet, legs, thighs and hands	3
Up to level of umbilicus	1
Up to level of second rib	1
Up to level of second rib with hands	5
Up to level of clavicle	1
Up to level of clavicle with hands and wrists	3
Up to level of clavicle with all limbs	3
General, including face	2