to the fact that in certain, possibly in numerous, instances its administration is beneficial.

While the results obtained in the treatment of acute cases of infantile paralysis by the intraspinal injection of immune serum have been somewhat less satisfactory than might have been hoped, it is of some importance that this community has had its own experience with what has seemed to be the most promising method of treating the disease. There is evidence in favor of the use of serum in the preparalytic stage, but its administration in paralyzed cases, except where the disease is progressing, should probably be avoided, for it is quite possible that further harm might be done to the spinal cord by increasing the pressure in the spinal canal. It is also probable that in any further work with the treatment of the disease the intravenous injection of serum in very early cases should be taken up.

The work on the diagnosis of poliomyelitis with the aid of the examination of the spinal fluid has been of considerable importance. In all early cases the examination of the spinal fluid has shown evidence of a meningitis and the cell count has ranged from 34 to 1,980 per ccm. in the preparalytic stage. In general the more severely affected patients have shown the higher cell counts but this is not at all a constant finding. In the earliest stages of the disease about 40 to 90% of the cells in the spinal fluid are of the polymorphonuclear type, but with the progress of the disease the mononuclear cells tend to predominate. In general, the cell count, which is done rapidly and easily, has proved to be the most satisfactory method of making a diagnosis in preparalytic cases of infantile paralysis. Although the clinical picture of the acute stage of the disease is fairly typical, so that a physician who has seen a number of cases is often able to make the diagnosis, nevertheless any confirmatory evidence is of great assistance. Such evidence the examination of the spinal fluid seems to provide.

Of great importance, as indicating the value of the examination of the spinal fluid as a diagnostic measure in acute poliomyelitis, are the results obtained from the lumbar puncture of cases which proved subsequently not to be infantile paralysis. The spinal fluid was examined in 31 such cases. In 2 instances a cell count of 12 and 15 respectively were obtained and in all other instances the cell count was below 10. This evidence is of great importance as showing that in the febrile, gastro-intestinal and other conditions most likely to be confused with infantile paralysis the spinal fluid is almost always normal. All our cases were followed in such a way that there is no reason for us to believe that the diagnosis of infantile paralysis was made in cases in which it was not justified. There is, however, a certain source of error in that some of the so-called abortive cases may never develop to the stage of involvement of the nervous

system. Draper's³ results make this quite probable.

Our results in the diagnosis of poliomyelitis have shown that with the assistance of the family physician an early diagnosis can be made in a large percentage of cases. The making of an early diagnosis is of importance both for the proper isolation of the case and for the treatment of the case. The procedure adopted by the Commission for the early diagnosis and treatment of patients has proved to be, in general, satisfactory when applied over a limited area, and there is no reason why similar methods should not be used in a much larger district. In order that the work should be carried on in an efficient manner, however, it would be necessary to have the district subdivided into a number of small units each of which should be provided with an adequate number of diagnosticians. If such an arrangement seems advisable the Commission must receive financial support from the public, for it has no funds to draw upon beyond what it obtains from voluntary contributions.

REFERENCES.

- ¹ Amoss and Chesney: *Jour. Exp. Med.*, 1917, Vol. xxv, p. 580.
- ² Zingher: *Jour. A. M. A.*, 1917, Vol. lxviii, p. 817.
- ³ Draper: *Jour. A. M. A.*, 1917, Vol. lxviii, p. 1168.

AN ESKIMO "DEFICIENCY DISEASE."

By JOHN M. LITTLE, JR., M.D., ST. ANTHONY,
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It is only recently that the importance of diet deficiency as the cause of certain diseases has been recognized. Experimental work has supplemented clinical deductions until now well defined hypotheses are available to explain certain diseases. As a result of experiments upon animals, clinical observation among humans and chemical research, it has been found that previously unsuspected constituents are necessary in a diet. The nature of these substances is not yet known but some of their characteristics are coming to light.

One substance, or group of substances, water soluble, seems to be found only in natural foods and is necessary to prevent polyneuritis or beriberi. Another substance or group seems associated with certain fats. It would be interesting to have clinical confirmation of the production of disease among humans by the absence of the fat soluble group.

It is not generally known how the Eskimos get the needed elements of diet outside of meat. What do they eat besides seals, caribou, birds and fish? Berries are very abundant in their proper season and keep well frozen. Otherwise, and when civilized food is not available, they depend for carbohydrates upon those already transformed and in the blood, or on the already partly digested stomach contents of animals killed. The great feast of the Eskimo after killing caribou is a thick soup made of its

stomach contents and blood. They go first for what the body craves. In winter the Eskimo follows the caribou herds probably partly for the predigested vegetable matter found in the stomachs. The mosses, grasses and young shoots and leaves have been transformed by the animals' harder digestion into forms assimilable by human beings, and supply the needed vitamins.

As disease comes from diet deficiency or faults in diet, one would certainly expect to find it among the Eskimos, and it is so found. Their susceptibility to scurvy is well known. Their tendency to hemorrhagic conditions and suppuration has been frequently mentioned. But one might expect to find other phenomena among a people whose diet must be so extraordinary and at times limited.

Ten years ago, and before the deficiency diseases were so much in the limelight as now, I described a disease that seemed peculiar to the Eskimo. At that time the cause of beriberi was not recognized nor had the term "vitamin" been coined. I want to quote from my paper, published in the *BOSTON MEDICAL AND SURGICAL JOURNAL*, February 20, 1908. I described the disease under the name "kallak," by which it is known to the Eskimos of Labrador and Baffin Land. In a few words, the disease may be described as an endemic disease commencing with an eruption of pustule-like lesions in successive crops on the hands, elbows, buttocks, etc., no organisms being found until secondary infection takes place; intense itching, protracted course and ultimate recovery. I will refer anybody to the previous article for further description, only quoting verbatim as follows:

"The only facts that seem to have a bearing etiologically are that, while it may occur at any time of the year, if they have plenty of seal flesh to eat, they don't have kallak. Most of the cases, as well as the worst cases, and the epidemics, occur in the autumn after they have been living almost exclusively on a fish diet, and especially after a failure of the berry crops."

"I believe it to be a symptomatic reaction to some toxin elaborated on account of the Eskimo diet."

"... found the best treatment to be the addition of seal meat and berries to the diet."

It would seem that we have here a disease in the human, due possibly to the absence of the fat soluble substance or group of vitamins previously mentioned. That the Eskimos have scurvy or beri-beri, on diets productive of those diseases, is well known. That there is a third deficiency disease to which they succumb, when they don't get the proper fats from seals or caribou, seems probable.

In my previous paper on kallak I said that this disease is "... not acquired by children or adults of the white races who are brought into contact with it." Since writing the above, I have talked with an intelligent young Scots-

man who, wrecked on a whaler in Baffin Land, lived a year with the Eskimos and lived the Eskimo life. He gave me a good description of kallak, said he had it and almost died. This suggests that the disease is not peculiar to the Eskimos, but to their conditions of living.

Book Reviews.

Military Surgery. By DUNLAP PEARCE PENHALLOW, S.B., M.D. (Harv.), Chief Surgeon, American Women's War Hospital, Paignton, England; Captain Medical Corps, Massachusetts National Guard; First Lieutenant, Medical Reserve Corps, U. S. Army (Inactive List); Director of Unit, American Red Cross European Relief Expedition. With introduction by SIR ALFRED KEOGH, K.C.B., Director-General, Army Medical Service. Original drawings by the author. London: Henry Frowde, and Hodder & Stoughton. 1916.

An interesting volume by a young Boston surgeon who has been stationed in England for a considerable portion of this war. The energy and industry necessary to produce a volume of this character is much to be praised when one considers that the routine duties of a surgeon in charge of a war hospital usually consume every atom of his time and attention. The book contains a short and complimentary introduction by Sir Alfred Keogh, K.C.B., Director-General, Army Medical Service. It is well illustrated by half tones of actual cases, and x-rays. It is an excellent consideration of military surgery as seen from a base hospital. We should have welcomed a more extensive description and discussion of the Carrel method of disinfecting septic wounds. As a brief, concise manual of war surgery, based upon personal observations made near the front, the book deserves careful reading by all interested in the subject.

Diseases of the Digestive Tract and Their Treatment. By A. EVERETT AUSTIN, M.D. St. Louis: C. M. Mosby Company. 1916.

Dr. Austin has written a considerable volume of over 500 pages. His style is personal, pleasant and fluent. He gives his own views, which in some cases, however, may not be generally accepted. He warns us in the preface that it is not his intent to make an encyclopedia of this book. He is not willing to lay the stress upon x-ray examinations that many clinicians do at present. In general, he relies upon and describes only a few of the simpler tests for diagnosis in gastro-intestinal conditions. Even if one does not get an exhaustive discussion of gastro-intestinal diseases, one finds in this book a simple, straightforward presentation of the views of a man with wide experience.