

Original Articles.

SCURVY.—A SHORT NOTE.

BY T. CRAWFORD BOYD, F.R.C.S.I., D.P.H.,  
CAPTAIN, I.M.S.

Dharmasala.

My only excuse for bringing to notice the following five cases of scurvy is the fact that they occurred amongst recruits undergoing their training, so that evidently the disease was contracted at the depôt. Also the fact that I have had several recruits with what might be called preliminary symptoms of the disease, namely, spongy gums, slight anæmia, and lethargy.

*Case 1.*—Recruit R. C. T., age 27, service 1 year, was admitted to hospital on the 29th September, 1916, complaining of pain and swelling of the right calf. On examination it was found that he was slightly anæmic, had spongy gums, large, flabby, and coated tongue, no history of syphilis, dysentery, or malaria, urine normal, heart, lungs, and abdomen normal. Large extravasation into right calf which was swollen and tense and very tender, also complained of pains in ankles and shoulder-joints, was dull and lethargic, and had slightly exaggerated knee-jerks.

*Case 2.*—Recruit M. G., age 25, service 8 months and 12 days, was admitted on the 23rd September, 1916, complaining of swelling and pain in both calves. On examination it was found that he had slight anæmia, very swollen and spongy gums, malarial history, urine normal, heart, lungs, and abdomen normal, large extravasations into right and left calf, which were tender and painful, no rash or history of flying pains, no epistaxis, tongue slightly enlarged and coated, dull, stupid, and exaggerated knee-jerks.

*Case 3.*—Recruit M. S., age 19, service 9 months and 12 days, was admitted on the 5th August, 1916, complaining of pain and swelling in left calf and in both ankles. He had a malarial history, slight anæmia, spongy gums, large and flabby tongue, left pupil dilated and slight nystagmus, spleen slightly enlarged, urine, heart, and lungs normal, left calf swollen and painful, leg and thigh muscles very flabby, dull, and lethargic, knee-jerks slightly exaggerated, no history of epistaxis or flying pains.

*Case 4.*—Recruit R. B. A., age 28, service 7 months and 12 days, was admitted on the 25th August, 1916, for pain and swelling of the right ankle. Malarial history, is slightly pallid, practically no anæmia, gums very slightly swollen, tongue flabby, nothing in urine, lungs or abdomen abnormal, faint systolic murmur over mitral area, right ankle swollen and puffy, history of pain in joints, mentally dull, knee-jerks exaggerated. Shortly after admission he developed a large extravasation into right calf.

*Case 5.*—Recruit S. T., age 18, service 8 months and 12 days, was admitted on the 29th August, 1916, with swelling of both calves, he is pallid and anæmic, gums pale but not spongy, tongue flabby and coated, nothing in lungs, abdomen or urine abnormal, both calves swollen and painful, no history of syphilis, malaria, or dysentery, no previous flying pains. After being in hospital for 47 days without showing any improvement he suddenly developed severe pain in the upper abdomen with a weak

and rapid pulse, without any previous history of gastric or other abdominal trouble; an enema was ordered and strychnine given after which the pain became less severe, but the pulse did not improve but got gradually worse until death took place eight hours afterwards. A hurried P. M. was held, and it was found that the pericardium was full of fluid and the heart layer coated with fibrin, white clot in left ventricle and the whole organ fatty and flabby, no other lesion was found except a small hæmorrhage on the ant surface of the stomach near the lesser curvature.

Scurvy is supposed to be dietetic in origin, so naturally the first thing to be enquired into was the constitution of the men's diets, and, as a guide to what this ought to be the ordinary daily ration as laid down in the Field Service Pocket Book was first worked out, and is given in the following table:—

TABLE I.

1 Meat	...	...	113'4 Grams.
2 Potatoes	...	...	56'7 "
3 Flour	...	...	68'4 "
4 Dhal	...	...	124'4 "
5 Ghee	...	...	62'2 "
6 Gur	...	...	31'1 "
7 Salt	...	...	15'5 "
8 Tea	...	...	10'3 "
9 Chillies, garlic.			
10 Turmeric and ginger.			

Fresh vegetables are allowed in the case of active operations on the scale of half pound fresh, or two oz. dried, and 1/10 gill lime juice on the days that vegetables are not issued.

TABLE II.

*Equivalent value of Table I in foodstuffs, available.*

	Grams.	Calories.
1 Protein	... 129'194 equals	528'695
2 Carbohydrates	... 629'76 "	2,582'016
3 Fats	... 62'195 "	578'4135

The diet of the sepoy in the station is as follows:—

	Chittaks.	Chittaks.
Rice	... 14	Mutton ... 4
Dhal	... 2	Flour ... 6
Ghee	... 2	Salt ... ?

Masala, curds, milk, chutney, and vegetables one chittak every second day.

TABLE III.

*Equivalent value of above diet.*

	Grams.	Calories.
1 Protein	... 149'415 equals	612'601
2 Carbohydrates	... 927'251 "	3,760'729
3 Fats	... 119'07 "	1,096'851
Total calories (large)		5,470'1820

Voit after extensive investigations proposes the following quantities for the daily diet of adults :—

Protein	...	...	118 Grams.
Fat	...	...	56 "
Carbohydrates	...	...	500 "
Which gives a total calorie value of 2,810.			

Hildesheim gives for soldiers in the field.

Protein	...	...	146 Grams.
Fat	...	...	46 "
Carbohydrates	...	...	504 "
Giving a total calorie value of 2,852.			

A comparison of the above tables shows that there is no deficiency of diet as regards the quantity of the classes of foodstuffs; in fact on the diet allowed we have an excess in every class.

Unfortunately, however, we cannot only take into account the above tables, when dealing with diets as it has now been definitely shown that we have other most important points to take into consideration.

Recent work on these points may be summarised under the following headings :—

(i) *Protein Constituents*.—Different proteins when split up in the digestive tract by enzymes and bacterial action give rise to various amino acids, so when considering protein as a diet it is well to bear in mind the relative quantities of amino acids formed. (Plimmer.)

Early experiments on diets seemed to indicate that a mixture of proteins is necessary, but later work does not bear this out (Rohmann); on the contrary it shows that a single protein is sufficient provided other constituents are present.

It is interesting to note that many of the amines derived from amino acids possess physiological properties, especially those containing a ring (Barger) for example tyrosin, phenylalanin, etc. This action can be divided into two kinds :—

(a) That caused by the monamines which is similar to that produced by stimulation of the sympathetic nervous system.

(b) That caused by the diamines. (Noted by Dale and Laidlaw on their study of B. iminazolylethylamine.) A direct stimulant to plain muscle fibre, and is a poison which simulates closely the condition found in anaphylactic shock. (Oehme-Loewit.)

(ii) *Other Constituents*.—Most important amongst these is a substance found in the outer coating of rice and removed by polishing; its absence gives rise to a polyneuritis in fowls. (Eyckman.) Funk was the first to point out its nature, and isolated a similar body from yeast which he called vitamine. This is a tetrabasic acid which can be extracted by water and precipitated by phosphotungstic acid, tannin, etc., and is extremely active in doses of a few milligrams. A polished rice diet gives rise to a loss of body weight. (Suzuki.)

(2). An unknown compound contained in the fatty constituents of food and nitrogen free which is necessary for the growth of animals. (Osborne and Mendel.)

The preparation of a stable form of vitamine from yeast is given by Seidell in the U. S. Public Report, 1916.

*Treatment*.—(1) On admission all the cases were given two ounces of lime juice daily with their ordinary diets as tabulated. Fresh vegetables at the time were very difficult to obtain.

(2) Their teeth were all scraped and tincture iodine applied to the gums. Internally calcium chloride and pot. citrate was given. They showed no improvement on the above line of treatment after two months.

(3) Yeast was experimented with tentatively, but owing to the difficulty of obtaining anything like a pure culture, and also the difficulty in getting a satisfactory autolysis, the idea was given up.

(4) The cases are now divided. Two are on ordinary diet with lime juice, fresh milk, and plenty of fresh vegetables. The other two are on mutton with fresh milk, eggs, and vegetable juices. (The latter is extracted and added to the milk.)

The only idea of dividing the treatment was the possibility of some factor being present in the rice, dhal, or flour which might possibly be acting as a causative agent.

*Remarks*.—One of the most notable features of the cases is the relatively slow progress towards recovery, even when given a liberal diet of fresh food and vegetables, and also the fact that lime juice seemed to have very little beneficial effect *per se*.

## THE TREATMENT OF DIABETES BY ALIMENTARY REST.

BY E. E. WATERS, M.D., M.R.C.P. (Lond.),

LIEUT.-COL., I.M.S.

THIS paper purports to be a preliminary account of some half a dozen cases of diabetes (or glycosuria) that have been under my care and that have done particularly well. One or two of them have been shown to the Editor of the *Indian Medical Gazette*, and it is at his request that this report is sent in.

One point of interest is the varying nationalities and religions of the patients, and the consequent modifications required in treatment. Of the six cases reported, one was an Irishman, two were *bhadralog* Bengalis, two were Hindustanis, and one a Marwari.

Briefly stated, it appears in most cases of diabetes, sugar will disappear from the urine after two or three days' fasting, and, with a properly regulated diet, will remain absent.