fever. Only 3 cases of this description were found. When he found numerous unpigmented intracorporeal forms, the infected corpuscles not being markedly enlarged, the pigmented intracorporeal forms present being small and few in number, he diagnosed "summer-autumn" fever. Forty-six cases were of this type, and in 16 of them crescents were observed. The tertian cases yielded readily to quinine.

"SUMMER-AUTUMN" FEVER.

Intracorporeal unpigmented forms were invariably found in cases examined immediately before the attack and frequently for 2 days after the temperature was normal, sometimes after being normal for 4 or 5 days. They were sometimes very numerous. Frequently in certain fields almost every corpuscle contained one. The quiescent ringed form was frequently observed, but by far the commonest appearance was that of a pale shadowy body, of constantly changing outline, looking like a stain on the surface of the corpuscle. The infected corpuscles were not swollen like those seen in the tertian cases, but on the other hand they were not shrivelled. In colour they often presented a greenish-yellow tinge, contrasting with the pale yellow of the normal ones. The intracorporeal amœbæ were very rarely pigmented. He believes that the parasite found is an unpigmented one, except as regards the forms belonging to the crescent series.

The following table shows the relative frequency with which the various pigmented forms of the "summer-autumn" parasite were found. The numbers refer to separate observations.

Crescents alone, 14.
Crescents and spheres, 17.
Crescents, spheres, and flagellated bodies, 12.
Spheres alone, 29.
Spheres and flagellated bodies, 4.
Crescents and flagellated bodies, 2
Flagellated bodies only, 1.

From this it will be seen that flagellated bodies were observed on 19 occasions and crescents on 45 occasions.

The resistance to quinine which characterises this form of parasite is illustrated by a case in which after 12 days' apyrexia, during which the patient had been taking 30 grains of quinine daily, and had gained weight and improved in colour, very numerous spheres, crescents, and flagellated bodies were found. The sporulating form of this parasite was only observed in two cases. In one case no pigment was present, in the other six clear oval bodies were seen grouped radially round the mass of central pigment.

In these cases recurrences were frequent, the cold stage often absent and nearly always slight in character, contrasting with those which Surgeon-Captain McNaught had seen at home, in which a prolonged cold stage with rigors, blue lips, goose skin, and chattering teeth had been the rule. Although so many of the cases were "summer-autumn," dangerous complications were very rare, but persistent anæmia and enlargement of the spleen were frequent sequelæ.

The most severe cases occurred in a group of men who had contracted the disease at Karachi. These cases were sharply defined by the severity of the symptoms, intense headache and lumbar pain, pain and tenderness in the hepatic region, persistent vomiting, in some cases jaundice and hæmaturia. Microscopically, parasites of the "summer-autumn" type were found in all these cases, large free pigmented forms being specially numerous. Enteric fever frequently develops in malarial cases, the two fevers being conjoined, and the diagnosis decided on clinical evidence. In one patient the malarial parasite was observed during the whole time the patient was under treatment for enteric fever. Three cases are cited to exemplify the value of examination of the blood in diagnosis. In one the case was shown to be malaria and not tuberculosis. In another the rapid onset of the fever in a patient convalescent from enteric fever was shown not to be a relapse but to be malarial. In another, in which the symptoms suggested rheumatic fever, crescents were found in the blood, and the patient, who had at first been put on salicylate of soda, was treated by quinine with rapid improvement in his symptoms.

THE introductory address at the Royal Veterinary College will be delivered by Professor Macqueen, F.R.C.V.S., on October 1st, at 1 P.M. The Earl of Crewe will take the chair.

ON NON-VENEREAL BUBO.

By CHAS. C. GODDING, M.R.C.S.,

Fleet Surgeon H.M.S. *Centurion*, Chefoo.

[Communicated by the DIRECTOR GENERAL of the Medical Department, R.N.]

NON-VENEREAL bubo, commonly spoken of as climatic or sympathetic bubo, might be called lymphoma or adenoma. The disease is characterised by fever, enlargement of inguinal glands in one groin (seldom in both), increasing *malaise* and anæmia. The inguinal glands are invariably attacked; lymphatic vessels, or glands in other situations, never—marking the difference from lymphadenoma.

ETIOLOGY.

For many years I have been in the habit of associating these cases entirely with foreign service, and of calling them "climatic bubo;" but on looking up the "Health of the Navy" for the seven years 1888 to 1894 inclusive, I was greatly surprised at the total number of these cases, and also to find how many occurred in the Home and Irregular Forces. (See *Statistics*.) This would be accounted for to a certain extent in the Home Force by cases occurring in men recently returned from abroad, and in the Irregular Force by its employment on almost constant foreign service.

I consider the disease to be primarily constitutional, as indicated by the fever, and the bubo as purely a local symptom; but how this constitutional condition is produced, or why the inguinal glands alone are invariably attacked is difficult to ascertain; and though the large number of cases occurring in the Home and Irregular Forces militate against the name "climatic," yet climatic influences appear undoubtedly to play a considerable part in the causation of this disease. For instance, the East Indian station gives nearly four times as many cases per thousand as the Mediterranean, and the China station, where lymphoid diseases are common among the natives, comes next in order in the production of these cases, with three times as many as the Mediterranean. On the other hand, the Mediterranean, Australian, and West Coast of Africa give comparatively few cases, and are therefore climates non-provocative of this disease. I have myself seen the worst cases on the East Indian Station, at Zanzibar and adjacent coasts, the patients having huge masses of glands in the groin, often suppurating, progressive anæmia and debility.

The immediate cause of the bubo appears to be sometimes a slight sprain; at others, a superficial abrasion on penis or toes; while in some no apparent cause at all can be discovered; but in all these cases the presumed cause (or what the patient judges to be the cause) is quite insufficient to account for the long train of symptoms which follow, and are trivial accidents which would have been quickly recovered from had not the patient been constitutionally ready for the excitation of this disease. Of eleven cases I have recently treated, four gave a history of slight sprain, in four no cause at all could be discovered, two had small superficial sores on penis, and one man a small abrasion on toe. In four of these cases the glands suppurated. Age has apparently no influence. Five cases occurred between the ages of 19 and 25; two between 25 and 35; and three in men over 35.

STATISTICS.

In the seven years from 1888 to 1894 inclusive the average strength of the Royal Navy, being 56,180 per annum, 733 cases of bubo was the yearly average. During the whole period twenty men have been invalided from the service and nine have died principally from exhausting suppuration from these buboes; in one fatal case the femoral was ligatured.

The number of these cases varies considerably from year to year, but these figures show that the disease is a formidable one.

The worst stations are (1) East Indies, 31 cases per 1,000 of strength; China, 25; and West Indies, 22. Stations least affected are (1) Mediterranean, 8 cases per 1,000 of strength; Australia, 9; and West Coast of Africa, 13. The Home and Channel, with an average force of 27,000 men, gives 287 cases annually, or about 10½ per 1,000.

SYMPTOMS.

In nearly all cases the patient's first and only complaint is simply the pain and swelling in the groin; he feels quite well in himself, but "the lump is getting larger." There may be a history of sprain or trivial injury, but almost as often there is no apparent cause. There is, however, a rise of temperature in nearly every case. Splenic enlargement in Case II.

EXAMPLES.

CASE I.—A. G., aged 19, ordinary seaman, H.M.S. *Centurion*, at Hong Kong, February 4th, 1896. On admission he said

A.G. CASE 1. FEBRUARY 1896.

he had sprained himself two days before, and the tender glands in the right groin had followed. He felt perfectly well, but his temperature was 99.6°.

CASE II.—W. J., aged 20, Pte. R.M., H.M.S. *Centurion*, at Hong Kong, February 14th, 1896. He had been treated for a small superficial sore in the sulcus penis. On Feb. 19th the sore was nearly healed, but he felt unwell, and the glands in the left

W.J. CASE 2. FEBRUARY 1896. MARCH.

groin had become suddenly swollen and tender. Decided

splenic dulness was noted on February 22nd, but no tenderness. The glands in the right groin were slightly enlarged and tender on February 21st, though the sore in the sulcus had healed. He was sent to duty on March 15th, the glands in the left groin being still slightly enlarged and hard. No secondary symptoms followed the sore.

CASE III.—E. P., aged 21, A.B., H.M.S. *Centurion*, at Hong Kong, January 2nd. The patient had a fairly large tender bubo in right groin. It had been coming for three days, and he could give no reason for it. He had had no injury, no venereal disease, no sores on foot or leg. He felt perfectly well, and only wanted something for the swollen glands. To his great disgust he was put to bed. He was sent to hospital on January 4th as the bubo was increasing, and there was lack of accommodation in the ship. The notes are continued from

E.P. CASE 3. JANUARY 1896.

hospital book case. The bubo was opened on January 16th. No pus was evacuated, further incision was made into the quaggy place on January 20th, no pus was obtained. The incision was extended on January 23rd, and the gland was scraped on February 1st and 4th. The wound commenced to heal on February 13th. On March 2nd he returned to the ship, but was placed on the list, as the glands and cicatrix were tender and threatened to inflame. The patient was pale and weak. Treatment with iron and arsenic was commenced. Port 4 ounces daily. On March 28th the cicatrix was firm, the glands small, and the patient feeling quite well. He had been seventy-six days under treatment. He gave forty-eight days also soon afterwards (third entry to sick list) for suppuration and breaking down of cicatrix.

COURSE AND DURATION.

The ordinary disease runs a fairly regular course of increasing fever and enlargement of glands, lasting two to four weeks, the resulting bubo being a large conglomerate swelling. Secondly, a decline of fever and resolution of glands, lasting about a similar period, and the whole covering a period of three to eight or nine weeks; severe cases, of course, lasting much longer. The eleven cases before referred to give an average of forty-four days' sickness: the shortest twenty-six, and the longest seventy-six days. I consider a cure effected in four weeks as very satisfactory. Frequently towards the end of the inflammatory stage, from fifteenth to twentieth day of sickness (see Cases I, II and III), the bubo becomes very boggy and fluctuation is simulated very completely. I have never explored them to see if pus had formed, though in Case III there was no pus when the bubo was opened; but in several instances this fluctuation has disappeared under continued treatment (see Case III). The buboes also vary from

day to day, increasing or decreasing with exacerbations and decline of temperature.

TREATMENT.

Constitutional.—Believing the disease to be constitutional, with the bubo as a local symptom, the plan of treatment is necessarily almost entirely constitutional, and I now regard arsenic as almost a specific. A frequent combination has been the liq. arsenicalis π v, with liq. ferri per. π x in a bitter infusion, three times daily and increasing the arsenic to 10 π doses in the first fortnight; but lately I have given the liq. arsenicalis alone, and rapidly increased the dose to π xv in the first week. A few ounces of red wine daily are also given. An occasional dose of 5 to 10 gr. of quinine, especially if there be any chills or sweats indicative of malarial poisoning. Late in the disease, when the temperature is normal, a grain of hyd. c. creta two or three times daily promotes absorption.

Local.—In the acute stage, rest in bed with evaporating lotions and belladonna fomentations as may be appropriate; but fresh air is very important, and I keep my patients about as long as suppuration does not threaten. Even when suppuration does take place, I delay opening the abscess to the very last, as they certainly shrink and become more localised. When the abscess has been opened and the glands protrude, looking like walnuts and about the same size, I have several times seen their complete absorption by pushing the arsenic, and applying locally a powder of one-third calomel, one-third iodoform, and one-third zinc oxide, with a pad and gentle pressure, and I wish to remark, without the glands becoming subsequently inflamed or tender.

Unless in exceptional cases, I am entirely antagonistic to removing these glands by operation, or scraping them away. First, because I believe they can be saved and that they resume their functions; and secondly, because after operation the resulting scars are mostly very formidable and a source of weakness; take a long time healing; in some cases break down, as in Case 3; and finally, I have seen much better and quicker results from the arsenical treatment, and relapse is very rare after it.

I wish to emphasise the value of treatment by arsenic. For many years past in treating these bubo cases, I have used arsenic waveringly and in small doses; principally, at first, because it is a well established plan of treatment in lymphoid diseases, and secondly as an antiperiodic on account of the fever, with, of course, only indifferent results. Recently I have had surprisingly good results from freer use of the drug, and the patients have stood it well.

A paper by Mr. W. G. Spencer, F.R.C.S., Westminster Hospital, read at the Association meeting in London, July, 1895, strongly influenced me in pushing this remedy. Mr. Spencer speaks in no uncertain manner about arsenic. "Even when the disease (lymphadenoma) has become widespread, the administration of arsenic may cause the tumours to speedily vanish. Many cases at first diagnosed as widely disseminated cancer have been cured by this drug. . . . The poison, therefore, which causes the malignant form of lymphadenoma can be neutralised by arsenic; not only do the cells cease proliferating, but they degenerate and undergo absorption. When arsenic fails, the disease may nevertheless be a lymphadenoma. The arsenic may be administered in too small a dose. . . . Arsenic may act on a small mass though insufficient to overcome a large one. . . . The lymphadenoma may be partly removed by operation, and cure finished by arsenic; and finally, . . . a large dose of arsenic may be better tolerated in one form than another."

HEREDITARY TENDENCY TO FRACTURE.

By JOHN SPURWAY, M.B., C.M. EDIN.,

Tring.

CONCERNING the liability of members of the same family to fractures, little has been written, though Greenish (quoted by Erichsen) records a very marked example. I fancy the following facts, extending, as they do, through four generations, constitute a record in this form of heredity.

I was recently asked to examine a child, aged 4, who had just fallen down and injured her left arm. There was a simple

fracture of the humerus immediately above the condyles; there was considerable swelling and deformity, but I had no difficulty in replacing the fragments and retaining them in apposition. After setting the fracture, and remembering that I had several times been called upon to do the like for various members of the same family, I made careful inquiries into the history of the family, and the results are as follows:

Beginning with the first of the four generations—I have been unable to obtain any reliable information about the family still further back—I find that J. C. (now dead) and his brother J. C. (also dead) both sustained fractures of the ribs. The former had two sons, T. C. and J. C. (half-brothers); the latter had a fracture of his forearm, and broke one femur twice.

T. C., aged 65, had no fewer than eight fractures before he was 16. He fractured his right femur when $2\frac{1}{2}$ years old; both forearms (and in each case both radius and ulna) when 5; both bones of his right leg when 7; and between that age and 16 he broke each leg twice, and every time both bones. To complete this chapter of accidents, his left eye was gouged out by a cow some years ago; and in spite of it all, he is hale and hearty, and, with the exception of a slight twisting of one arm, none the worse. He had two daughters and one son. One daughter fractured her leg when very young; she died at the age of 5. The other has had no fractures, nor have her children.

The son has had, I believe, seven fractures, but I have only ascertained the nature of six of them. He (J. C.), I find, has fractured both humeri and both forearms (and in each case both bones were involved); and also both legs (both bones again); and, besides these, he dislocated his elbow.

He has six children, of whom only two have escaped the family trouble; the remaining four have, between them, had no fewer than seventeen fractures.

(1) M. C., aged 16, had first a compound fracture of the right forearm; both bones were broken, and in two places; twice she has fractured both bones of the left forearm, and the bandages had hardly been removed, when I was called upon to set a fracture of the humerus on the same side; the bone here also was broken in two places.

(2) H. C., aged 15, has fractured both femora; she suffered also from a greenstick fracture of the humerus and a fracture of one of the phalanges of her third toe.

(3) H. C., aged 12, has only broken a clavicle.

(4) E. C., aged 14, though so young, seems to have been the most unfortunate of the family. She has sustained fractures of the right humerus, of both clavicles, and of both forearms; in each case of both bones. She has besides had three greenstick fractures, namely, of the humerus and of both femora. Finally, she is now under treatment for the fracture of the left humerus mentioned above.

Besides fractures these four unfortunates have sustained bruises and sprains without number.

It would be interesting to know whether this form of heredity is common, and also whether, as is the case in this family, the bones unite promptly, without trouble, and without deformity. In every case union has been rapid, in no case has non-union occurred, and with the slight exception referred to not a single case of deformity has resulted. In the last case (E. C.) on the fourth day the bone was quite firm. Finally, no bone has broken twice in the same place.

With the exception of this unfortunate tendency the family has been fairly healthy, and there seems to be no other constitutional ailment. The only other feature I have noticed common to many members of the family is a curious bluish tinge of the eyeball, which in some is very marked.

My experience is so small that I feel I am scarcely justified in generalising, but it has seemed to me that this tendency to fracture, whilst affecting alike male and female members of the family, is transmitted rather through the males. I do not know whether this is borne out by the experience of others.

CHURCH CONGRESS.—At the coming Church Congress Mr. H. D. Greene, Q.C., M.P., will preside at a meeting of the Burial, Funeral, and Mourning Reform Association. The meeting organised by the Church Sanitary Association will be presided over by Dr. Thursfield, Medical Officer of Health for Shrewsbury.