closure. On examination of a heart in the post-mortem room the ordinary method of opening the coronary arteries with scissors sometimes fails to demonstrate the block. If there is a small thrombus covering an ulcerated plaque it is easily removed or pushed on and squashed by the point of the scissors, and is so missed. A more satisfactory method consists in making transverse incisions with a knife, starting near the origin of the coronary arteries and working along their course.

When cardiac infarction is caused by syphilis it is due to the involvement of the orifices of the coronary arteries by syphilitic aortitis, and, apart from gummata of the myocardium, I have not seen syphilitic arteritis of the coronary arteries, except at their origins, and then only in syphilitic aortitis.

As a rule, cardiac infarction occurs at an earlier age when caused by syphilis than when caused by atheroma. Since 1924 I have had thirty-five cases due to atheroma, with an average age of 61; during the same period four were due to syphilis; their ages were 50, 51, 28, and 47. Here it may be remarked that syphilitic aortitis may be present with cardiac infarction in cases in which the infarct is due to atheroma of a coronary artery and not to syphilitic aortitis.

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AN EPIDEMIC OF CHOREA IN A FAMILY

BY

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The following three cases of chorea, occurring almost simultaneously in sisters of one family, seemed to us to be of sufficient rarity and interest to warrant their being put on record.

Case 1.—E. J., aged 8. There was no previous history of pains or other manifestations of rheumatism. The patient had had tonsillectomy performed at St. Thomas's Hospital at the age of 4. On August 25th, 1930, she came to the out-patient department at Westminster Hospital with well-marked chorea, and was admitted for six weeks. A throat swab showed streptococci. Some septic teeth were extracted while she was in hospital. A second attack of chorea was preceded by a "croupy cough," commencing June 1st, 1931, and she was again admitted. Immediately after discharge she went to a convalescent home, without returning to her own home, and she is still there. No heart lesion was noted.

Case 2.—G. J., aged 10, had suffered on and off previously with pains in the legs. She was first seen in the out-patient department of Westminster Hospital on May 18th, 1929, with a typical attack of chorea. She was admitted as an in-patient for six weeks. Tonsillectomy was performed on June 24th.

A throat swab, taken in July, showed a pure culture of *Micrococcus catarrhalis*. On December 4th she came to the out-patient department again with a second attack, milder in this instance. She was put on aspirin, with rest at home, followed by a period in a convalescent home. She gradually improved. On June 15th, 1931, she developed a third moderately severe attack of chorea, preceded some weeks before by a "croupy cough," and was admitted. She is still in hospital, and is improving. She has shown no signs of heart involvement.

Case 3.—G. J., aged 3 years 4 months, was treated at Westminster Hospital in the out-patient department about two years ago for general malnutrition and tonsillitis. There was no complaint of pains or rheumatism. She came again on August 6th, 1931, with a history of slight movements four days previously. They were observed to be typically choreic. The last known attack of sore throat was about two and a half months previously. She was admitted to the wards, and is still an in-patient. Her movements have lessened. There is a soft mitral systolic murmur.

The interesting point of the inquiry is the onset of chorea in the three children of the one family at short intervals, so that they were all suffering from that condition simultaneously. An inspection was made of the home conditions, and revealed that all three patients were accustomed to sleeping in the same room (about 9 by 9 feet in size). The room had one door and one large window, which the mother stated was left partly open at night in favourable weather. The general condition of the house was dirty, but not extremely so. An examination of the other members of the family showed that the father was suffering from what he stated to be "rheumatic arthritis." On examination he looked well, and little joint swelling was seen. His tonsils had been removed in childhood, and his throat was healthy. The mother was healthy in appearance, and had small, clean, atrophic tonsils.

L. J., the eldest child, had no rheumatic history, but had had her tonsils removed (for nephritis). T. J., the fourth child, had no previous rheumatic history, but the mother stated that he had had sore throats and swollen glands in the neck from infancy, and was still suffering from them. On examination, the tonsils were seen to be very large, with pus in the crypts, and his cervical glands were also enlarged. His tonsils are to be removed. D. J., the sixth child, has had no ill-health. The tonsils were noted to be very large, but not obviously septic. The youngest child was a healthy infant.

The following scheme shows the sex and ages of the children.

1	2	3	♂ = ♀	5	6	7
♀ 11 yrs.	♀ 10 yrs.	♂ 8 yrs.	♂ 6 yrs.	♀ 3½ yrs.	♂ 2 yrs.	♀ 8 mths.
	(Case 2)	(Case 1)		(Case 3)		

COMMENTARY

It was pointed out by Longstaff¹ and Atwater², in 1905 and 1927 respectively, that the streptococcal diseases, such as erysipelas, septicaemia, scarlet fever, puerperal fever, and rheumatic fever, were inclined to show a synchronicity in incidence and mortality. This argued a certain epidemicity. In the rheumatic wards at the Cheyne Hospital for Children, Chelsea, it was noticed by Sheldon³ that there were small epidemics of sore throat, followed some two or three weeks later by epidemics of acute rheumatism, and that in those cases which did not actually develop a sore throat a rise of temperature had been noted two to three weeks previously. Sheldon found that the cases in these epidemics were, with one exception, in neighbouring beds.

Alison Glover,⁴ in the Milroy Lecture, quoted several instances to show that tonsillitis and subsequent rheumatism assumed epidemic proportions under crowded conditions, and practically disappeared when these conditions

were ameliorated. He took the case of the *Impregnable* Training Establishment in 1912-13 (reported by Dudley). The boys, aged 15½, were housed in three old wooden battleships, the air space was continuous, and the hammocks were 16 inches apart. The incidence of tonsillitis was 397 and of rheumatic fever 43.7 per 1,000 respectively—a very high figure. This dropped to normal proportions on transference of the boys to barracks ashore.

In the report of the health of the Royal Air Force for 1928 a similar epidemic of tonsillitis and acute rheumatism is recorded, although the crowding here was not so marked. The incidence of tonsillitis was 175 and of rheumatism 16.5 per 1,000 respectively.

In the instance under discussion it is suggested, in view of the synchronicity of the attacks and the crowded living conditions, that these three children have either infected one another or have been infected by a possible carrier in the person of the fourth child, the boy with chronically infected tonsils. The latter seems the more likely, since the patient in Case 3 had not seen her sisters for a period of six weeks previous to admission to hospital herself, as the sisters had been in hospital and at a convalescent home for that time. This would imply a very long latent period for chorea.

CONCLUSIONS

1. Chorea may assume epidemic proportions in a family where the living conditions show overcrowding.

2. The cases reported support the contention that rheumatism may be contagious in overcrowded conditions.

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A CASE OF BRILL'S DISEASE

BY

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The following case seems worth reporting in view of the absence of diagnostic symptoms, and the interesting points arising from it.

HISTORY OF THE CASE

A male, aged 49, a vegetable cook working in the galley of a passenger liner with a crew of 400, reported to the ship's surgeon on February 25th, 1931, complaining that he had been feeling dizzy, had pains in the legs, and had been coughing for two days. His temperature was normal and physical examination was negative. He had never lived abroad, but had served in France during the war. At that time there was an epidemic of mild influenza among the crew; his case was diagnosed as influenza and he was given salicylates and alkalis.

On the morning of February 27th his temperature was 103.4° F., and he was moved into the ship's hospital among other influenza patients. He vomited twice that day. On the 28th he complained of nothing but the headache, which had become more intense, and a troublesome cough. That night he was slightly delirious. The temperature began to settle down on March 3rd, and the patient felt much better; but on the 6th it rose again and remained up until the 13th, at which time he felt perfectly well, but weak after being confined to bed. There was no enlargement of the spleen at any time during the illness and no physical signs of disease except a few occasional rales at the bases of the lungs. The bowels, which had been rather free during the first two or three days, were subsequently constipated, and had to be regulated by aperients. A few small pink papules were observed on the back and chest, perhaps a dozen in all; but as these occurred when the ship was in the Indian Ocean, they

were put down to the heat and sweating. No spots occurred on the limbs.

In view of the duration of the pyrexia, slight cough, and irregularity of the bowels, the case was diagnosed as probably one of paratyphoid fever, and on March 18th, on arrival at

Fremantle, 10 c.cm. of blood were sent ashore to the quarantine authorities with a request for a Widal test. The result of the test was a negative Widal but a positive Weil-Felix.

COMMENTARY

The following points arise in connexion with this case.

1. It was found impossible to trace the source of infection. This man had not been ashore at any port since sailing from England; and, if we accept a twelve days' incubation period, this would put the date of exposure to infection a day or two prior to the sailing of the ship from London. No lice were ever found in his bunk, in the hospital bed, or on his body; he denies the possibility of any lice while at his home, and of having slept away from home where lice might be present. No rats have ever been seen in the ship since she was launched, and he says that there have never been any in his home. The medical officer of health for Gravesend was communicated with, and he stated that no similar cases had been reported in the borough "for very many years," and he kindly inquired of the port sanitary medical officer, who stated that no cases of typhus or contacts had come into the port.

2. The difficulty of diagnosis was due to the mildness of the symptoms—namely, the total absence of any distinctive rash, no suffusion of the face or conjunctiva, etc.—and to the fact that there had been no cases of Brill's disease or typhus on board. This would have caused the diagnosis of this case to be missed had not a routine Weil-Felix test been carried out. The infection was apparently contracted in England, where the disease in such a mild case, occurring, as this did, during an influenza epidemic, would probably not be diagnosed, and suggests the routine use of the Weil-Felix reaction in prolonged cases of pyrexia with influenzal symptoms in which other causes are not found.

3. All authorities seem agreed that this disease is not communicated direct from case to case. Nicolle,¹ Anderson and Goldberger,² and more recently the report of the Typhus Research Commission of the League of the Red Cross Societies to Poland,³ all agree in indicating the body louse as the means of spread of infection in typhus. In Brill's disease the louse seems to play either no part or a very minor one, and cases do not occur spreading directly through families and communities. This was noted by Brill⁴ in America, by Fletcher and Lesslar⁵ in the Malay States, and by Hone⁶ in South Australia; the latter put forward evidence to show that the spread is in some way connected with the presence of abnormal numbers, or of abnormal activity, of rats or mice. This leads to a point of some importance to shipping companies and port health authorities. At present there is no official recognition by port health and quarantine departments of any difference between typhus and Brill's disease. Typhus is one of the five quarantinable diseases, and if a case occurs on board it leads to