- Falkenheim: *Jahrb. für Kinderheilk.*, 1901, N. F., liv, H. 3.
 Frey: *Neurologisches Centralbl.*, 1901, p. 836.
 Heveroch: *Ibid.*, 1904, p. 948.
 Higier: *Ibid.*, 1901, p. 843.
 Hirsch: *Journal of Nervous and Mental Diseases*, 1898, p. 529.
 Holden: *Ibid.*, vol. xxv, p. 529; *ibid.*, p. 550.
 Kingdon and Russell: *Trans. Roy. Med. Chir. Soc.*, 1907.
 McCarthy and Spiller: *Journal of Nervous and Mental Diseases*, 1899, p. 677.
 McKee: *Amer. Journ. Med. Sci.*, 1905, p. 24.
 Mohre: *Archiv f. Augenheilk.*, 1900, Bd. xii, p. 285.
 Peterson: *Journal of Nervous and Mental Diseases*, 1898, p. 529.
 Poynton, Holmes, and Parsons: *Brain*, 1906, p. 180.
 Rollez: *Deutsche Zeitschr. f. Nervenheilk.*, Bd. xx, p. 15.
 Sachs: *Journal of Nervous and Mental Diseases*, 1887; *New York Med. Journ.*, May 30th, 1896; *Deut. med. Woch.*, 1898, Bd. xxiv, p. 32; *Journal of Nervous and Mental Diseases*, 1892, p. 608; *ibid.*, January 1st, 1903.
 Schaffer: *Wiener klin. Rundschau*, 1902, p. 324.
 Spielmeier: *Neurologisches Centralbl.*, 1906, S. 51.
 Spiller: *Amer. Journ. Med. Sci.*, 1905, p. 40.
 Shumway and Buchanan: *Ibid.*, 1905, p. 35.
 Waren Tay: *Trans. Ophth. Soc.*, 1880, vol. i, p. 56.

AN EPIDEMIC OF TINEA CRURIS.

By J. ODERY SYMES, M.D., D.P.H.,

PHYSICIAN TO THE BRISTOL GENERAL HOSPITAL.

RINGWORM of the scalp and body occurring in epidemic form in schools is familiar, but ringworm of the groin, fork, and axilla is not of such common occurrence except in tropical climates; its appearance in epidemic form during the last three years at the universities and in our public schools is my reason for publishing the following notes.

Tinea cruris has also been called tinea marginata or eczema marginatum. In the majority of cases I have seen the lesion starts in the fork or inner surface of the thigh, where it is touched by the scrotum. A red patch, looking like an area of chafing, appears, and rapidly spreads down the inner side of the thigh and backwards towards or behind the anus. The spreading edge is raised, dry, scaly, or papular, whilst the portion within the ring is moist and eczematous. Gradually extending from the margin, the lesion in the lower extremity may almost reach the knee, and in the axilla may reach the level of the nipple. There does not appear to be any tendency to a spontaneous return to the normal on the part of the skin within the growing margin. The hairs are not affected and do not fall out. Beyond slight itching, there are no subjective symptoms. On the trunk and limbs of infected persons there may often be found patches which can in no way be distinguished from ordinary ringworm of the body (tinea circinata).

On March 8th, 1907, a boy presented himself, suffering from a condition I diagnosed as eczema intertrigo affecting the scrotum and inner side of the right thigh. At the end of the term, about the first week in April, the condition showed no improvement, and he went under the care of his doctor at home, Dr. McLannahan, of Stonehouse, who very kindly wrote to me, saying that he regarded the case as one of tinea marginata, a condition he had met with amongst soldiers and amongst stokers in the P. and O. service. This boy was apparently well by April 21st, and he returned to school a few days later, and had no recurrence. On May 31st, 1907, a second boy from the same house was seen with tinea marginata of the axilla. An undress parade of the boys in the house led to the discovery of 9 other cases, 2 having the disease in the axilla, and the remaining 7 in the groin or fork. A second inspection of the house a month later led to the detection of 2 more cases; the fourteenth case appeared twenty-four days later, and the 2 last cases were found thirteen and eighteen days after this. In all, there were 16 cases, all in one house of about forty-five boys.

Clinically, there was little to note about the cases. In a few, which were of old standing, the rash extended as low as the lower third of the thigh and backward behind the anus. Not uncommonly a few spots, the size of a three-penny-bit, were found on the thighs, calves, trunk, and more rarely on the arms. These isolated spots were drier and more scaly than the patches in the groin or axilla, and readily yielded to treatment. The rings gave rise to no symptoms beyond slight irritation. The average length of time under treatment was five weeks. Three cases recurred, two after an interval of six weeks, and one after the lapse of four months.

Scrapings from the growing edge of some of these cases were examined microscopically, both by myself and by a

local bacteriologist. In all, a large-spored ringworm fungus was found.

Treatment was alike in all cases. The superficial epidermis was removed first, and then an antiseptic ointment was applied. To remove the epidermis I employed a solution of 40 grains of iodine with 20 grains of potassium iodide in an ounce of methylated spirit. Two applications were generally sufficient; then the parts were treated morning and evening with an ointment containing half a drachm of precipitated sulphur and half a drachm of ammoniated mercury in an ounce of lanolin. A few boys were treated according to a suggestion of Dr. McLannahan: the affected parts were painted every other day with a camel-hair brush soaked in ol. terebinth. rect., and the following ointment rubbed in every night: Sulph. precip. ʒss, hydrarg. amm. ʒss, acid. salicyl. gr. x, lanolin and vaseline aa ʒiv. In both cases the applications sometimes gave rise to severe smarting, but this was of short duration, and relieved by smearing with vaseline. Cases seen early and treated by this method were well in three weeks; old-standing cases took, of course, longer.

The factors common to all the boys who suffered in the epidemic were as follows: With one exception, they were all senior boys, members of the First Fifteen, using the same lavatory and bathroom. They did not all belong to the same dormitory, and there was no suspicion that they wore each other's football or running togs; indeed, one boy who suffered was not allowed either to run or play football on account of a chronic cardiac lesion.

The precautions taken to prevent the spread of the infection were as follows: All the boys in the infected house were stripped and inspected about every three weeks. All who were detected with the rash were made to sleep in the same dormitory, which was reserved for this purpose; they also had the exclusive use of a separate changing and bath room and water-closet. For baths and ordinary washing purposes Parke Davis's germicidal soap was used. All towels from the infected changing room were disinfected, and also the underclothing and running kit. The walls of the changing room and lavatory were washed down with disinfectant at the termination of the outbreak. The infected boys were not withdrawn from school work nor from the common dining-room. When the rash in the fork was profuse they were not permitted to join in the school runs.

These precautions were entirely successful; no other house was infected, and no cases have appeared during the subsequent fourteen months. During the period covered by this epidemic I saw in other schools several cases of body ringworm (tinea circinata); 2 isolated cases occurred in a boys' school, 1 in a girls' school, and 7 in a school for junior boys. None of these cases assumed the type of tinea cruris.

In my own mind there is no doubt that the outbreak was caused by the common use of the hot bath, or by the boys using each other's towels. Probably the growth of the parasite was encouraged by the moist, hot atmosphere of the bathroom, while the vigorous rubbing which boys give to the forks, groins, and axillae decided the points of inoculation. It has sometimes been thought that infection is carried in clothing, and that chairs and water-closet seats may harbour the parasite, but in the outbreak under consideration these factors could be eliminated.

Tinea cruris resembles tinea circinata in that it attacks patients after the period of puberty; but it is probable that there are two distinct parasites causing these conditions, for in tinea cruris the hairs are never attacked. The parasite of tinea cruris shows a larger spore and a freer growth of mycelium than tinea megalosporon; it is also very much easier to find in scrapings taken from the growing edge of a ring. These differences may be due only to the site in which the fungus has grown. In order to settle this point it is desirable that scrapings should be taken and growth obtained on Sabouraud's medium.

THE annual general meeting of the Society for Training Teachers of the Deaf and for the diffusion of the German (pure oral) system will be held at 33, Cavendish Square, W., on Wednesday, May 26th. Sir Melville Beachcroft, Chairman of the London County Council, will take the chair at 3 p.m.