from two large ulcers, one under the right eye, the other on the nose. The one on the nose had eaten its way through the cartilage, left nasal fossa, and tissues, exposing the bone. It was about an inch in length and in breadth, extended right across the bridge, leaving the tip of the nose almost detached. The ulcer on the cheek, under the right eye, which unfortunately does not show up in the photograph, was about an inch in length and about one and a half inches in breadth. Both ulcers looked unhealthy, and were discharging freely. I applied three tubes of radium, containing 250 mg., each tube being screened with $2\frac{1}{2}$ mm. of platinum, one on each side of the nose, and the other on the ulcer under the eye, having previously protected the eyes with screens of lead. I left them in position for twenty-four hours. Directly after the application the ulcers assumed a healthy appearance and the pain disappeared, and at the end of eight weeks they had healed. A small scab about the size of half a pea still remains on the nose—a common experience in radium treatment, but after some weeks the scab drops off, leaving a healthy surface underneath.

It is remarkable how quickly those ulcers healed in a man so advanced in years, but I have seen results almost as striking in cases of inoperable cancer of the rectum, uterus, and the breast. It is such experiences which have convinced me of the importance of using radium in relatively large amounts and of prolonging the application over several hours.

A CASE OF RODENT ULCER PRESENTING SOME UNUSUAL FEATURES:

By RUPERT FARRANT, F.R.C.S.ENG.,

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A CABDRIVER, aged 62, was admitted to the Westminster Hospital in February, 1911.

History.

Fifteen years ago an ulceration broke out on his face midway between his ear and eye on the right side; this ulceration extended slowly on the surface for a few months and then became stationary, and has remained in much the same condition up to time of admission. A little less than fifteen years ago an ulcer developed on the left side of his upper lip; it grew slowly for some months both in depth and breadth, alternately scabbed over and discharged, and then began to slowly heal up; no treatment was used beyond the occasional application of a little cold cream. In January, 1910, a boil started in the left groin, on the exact spot where he had had a bubo forty years before; for six weeks it slowly grew until it reached the size of a hazel nut, when it burst; rapid extension then took place along the left groin towards the middle line, across the middle line to the right groin, and around the scrotum towards the

anus. About two months after its first appearance the left leg began to swell, and a little later the foreskin and penis; the swelling had steadily increased up to the time of his admission. Beyond some slight pain in his left leg and the annoyance of the discharge he had been but little inconvenienced by it. His general health had been good. No history of cancer could be obtained on either side of his family.

Condition on Admission.

There was an ulcer over the right zygoma about the size of a farthing, quite superficial, covered with a thin black scab; the discharge was practically nil; the edges were not thickened or everted. On the left side of the upper lip there was an elliptical depression $\frac{1}{2}$ inch by $\frac{3}{4}$ inch, and $\frac{1}{4}$ inch in depth; the whole area was covered with epithelium, and represented a healed ulcer. In the inguinal region there was a large area of ulceration, with thick, rolled-over edges and adherent base; the surface was covered to a great extent by granulations exuding a foul discharge, the character, situation, and extent of which are seen in the photograph; the patient would not permit a photograph to be taken of his face. The

left lower limb, penis, foreskin, and scrotum were much oedematous. A portion of the margin was removed for microscopic examination. The following report was given:

"A cancer belonging to the rodent ulcer class. Section shows cylinders and irregularly shaped areas of cells, the outermost of which are of the spindle-celled columnar type; those placed centrally are frequently almost spheroidal and small; there are no squamous cells present."

During the time the patient was in hospital ten doses of x-rays were applied to the inguinal ulcer, each lasting ten minutes, the Fastile dose was used. After the sixth dose the depression on the face became ulcerated; this and the ulceration on the zygoma were treated by a forty seconds application of carbon dioxide snow, which completely cured them. The patient was discharged, and came up as an out-patient for x-ray treatment; the ulceration was much improved by it, but he ceased to attend before it was anywhere near being completely healed.

I think that the following points are of interest in this case: The fact that there were three ulcers, their different rates of extension, one had healed without treatment, one had remained stationary for fifteen years, there was a recrudescence in the healed one directly the inguinal one began to improve under treatment. The inguinal condition started as a boil which existed for six weeks before it ulcerated. Sir A. Bowlby¹ pointed out in 1894 that rodent ulcer started as a growth in the dermis. The ulcer on the zygoma never extended as deeply as the dermis.

The inguinal region is an unusual site for rodent ulcer, but by no means unknown. J. Hutchinson, jun.,² and T. S. Pigg³ have reported cases occurring in the groin, and there is one in the museum of the College of Surgeons. There was no cancerous history in this case. W. G. Spencer⁴ pointed out the comparative absence of cancer in the blood relations of those afflicted with rodent ulcer and the converse in epithelioma, and thought that rodent ulcer only occurred in people with a high resistance to cancer. Rodent ulcers are rarely in such a situation or of such a size as to produce marked oedema by cutting off the lymphatic supply of a part.

The pathological report corresponds to Class 2 in the classification given by Sir A. Bowlby,⁵ and this class is one of the commonest.

As to the treatment, it is to be noted what an excellent effect the carbonic acid snow had on the superficial ulcerations and the x-ray treatment on the inguinal, though it was not given a fair chance to effect a cure.

I am indebted to Mr. Stonham and to Dr. Worrall for their courtesy in allowing me to publish this case.

REFERENCES.

¹ Transactions of the Pathological Society, vol. xlv, p. 161. ² Ibid., vol. xlviii, p. 221. ³ Ibid., vol. xl, p. 300. ⁴ Ibid., vol. xlv, p. 181. ⁵ Ibid., vol. xlv, p. 160.

THE BACTERIOLOGY OF THE COCKROACH.

BY

C. CONYERS MORRELL, L.R.C.S.EDIN.

In view of the importance of a correct understanding of the part which insects play in the distribution of micro-organisms, I venture to contribute the results of a series of observations and experiments which I have recently carried out upon the common and widely-distributed cockroach *Blatta* or *Phyllodromia germanica*.

LIFE-HISTORY AND HABITS OF COCKROACHES.

The Blattidae or cockroaches belong to one of the least specialized of insect orders, the Orthoptera. There are about 800 species recognized, a few of which are domestic, the remainder rustic. Of the domestic species the three most common are, *Blatta germanica*, *Periplaneta orientalis*, and *Periplaneta americana*. These have, during the last three centuries, become very widely distributed throughout both hemispheres. *Germanica* has the greatest economic importance. The domestic species very closely resemble one another in their life-history and mode of life.

The cockroaches undergo an incomplete metamorphosis. The female lays her eggs, sixteen or more in number, in a horny capsule, each egg reposing in a minute sack. As the eggs are formed this capsule is extruded, and is trailed about by the female for several days before being deposited in some warm crevice.

The larvae when hatched are minute creatures closely resembling the adults in appearance, but of an ivory white