

## **A Case of Swine Erysipelas in the Union of South Africa.**

By D. A. HAIG and T. F. ADELAAR, Section of Protozoology  
and Virus Diseases, Onderstepoort.

IN a "summary of outbreaks of scheduled animal diseases within the Bechuanaland Protectorate" ending January, 1943; the Chief Veterinary Officer refers to two outbreaks of swine erysipelas in the Southern Protectorate. Correspondence with the Chief Veterinary Officer elicited the information that the diagnosis had been made purely on clinical and pathological grounds. As this disease has not been identified in the Union previously the purpose of this note is to record a case where a diagnosis of swine erysipelas was made tentatively on post-mortem examination at Onderstepoort; the diagnosis subsequently being confirmed by bacteriological and biological examination.

### HISTORY.

A Large White gilt was brought to Onderstepoort from the Vereeniging District for post-mortem examination. The history supplied was that the pig had been introduced 6 months previously from a farm in the Orange Free State. Four days previously the pig was noticed to be sick. The only symptoms observed were inappetence and shivering. The animal had died approximately 5 hours before being delivered for examination. No other deaths had occurred on the farm which was a new, pure-bred pig-breeding venture stocked from a number of well-known breeding establishments.

### *Pathological Anatomical Diagnosis.*

Marked cutaneous erythema particularly over the snout, the ventral surface of the abdomen and the medial aspect of the legs, patchy haemorrhagic dermatitis up to 0.5 cm. in diameter with occasional crusts and partly resorbed blebs; slight anaemia, ascites, hydro-thorax and hydropericardium; marked oedema of the lungs; slight tumour splenis with a few sub-capsular haemorrhages; extensive verrucose endocarditis of the mitral valves causing constriction of the left atrio-ventricular orifice; discrete subcapsular haemorrhages of the kidneys and liver; oedema, hypoplasia and punctate cortical haemorrhages of the periportal lymph glands.

### *Aetiological Diagnosis.*

Swine erysipelas?

*Bacteriological Examination.*

From the lesions of the endocardium an organism with the following characteristics was isolated in pure culture.

*Agar Slants.*—Scant growth of pin-point moist colonies after 24 hours incubation at 37° C. Further incubation hardly increased the size of the colonies. No better growth was obtained on serum agar. The colonies were difficult to emulsify in saline.

*Broth.*—Cultures after 24 hours showed slight turbidity with a distinct sediment.

*Indol Production.*—Positive.

*Hydrogen Sulphide.*—Produced.

*Carbohydrates.*—Acid but no gas from glucose and lactose. No acid or gas from dulcitol, saccharose, mannite, maltose, arabinose, rhamnose, inositol, sorbitol after 7 days' incubation at 37° C.

*Morphology.*

Slender gram positive non-sporing rods  $0.2 \times 0.5 - 1.5 \mu$  lying singly, in short chains or long filaments. The rods were generally straight but a few were curved. Staining with the usual aniline dyes was uniform but a few bacilli had a granular appearance. The organisms in 24-hour broth cultures were nonmotile.

*Biological Examination.*

1. *White Mice.*—Ten white mice injected intraperitoneally with 0.05 c.c. of a 24-hour broth culture died within 48 hours. Four showed conjunctivitis. All had greatly enlarged spleens from which the organism was isolated in pure culture; in these cultures the bacilli occurred singly, filaments being very rare. Spleen smears showed numerous bacilli occurring singly or in small bundles either free or in phagocytes.

2. *Guinea-pigs.*—Two guinea-pigs given 0.5 c.c. broth culture intraperitoneally were still alive after 14 days.

3. *Rabbits.*—Two rabbits which received 0.5 c.c. of a 24-hour broth culture intravenously died 4 days later. Two other rabbits given 0.5 c.c. intraperitoneally remained healthy for 14 days.

4. *Pigeons.*—Two pigeons inoculated intramuscularly with 0.1 c.c. of a broth culture died after 5 days. The birds had lost weight, there was a localised myositis at the site of injection and the bacilli were frequent in the muscle lesion, the spleen and the heart blood, where they were found either free or in phagocytes. From cultures of the spleen the organism was obtained in pure culture.

DISCUSSION.

The post-mortem lesions observed in the pig justified at least a tentative diagnosis of swine erysipelas even though this disease had not previously been diagnosed in South Africa. An organism was isolated in pure culture from the valvular lesions of the heart. This organism according to criteria laid

down in Bergey's "Manual of Determinative Bacteriology" is indistinguishable from *Erysipelothrix rhusiopathiae*. The biological properties in mice, guinea-pigs, rabbits and pigeons conform with the requirements of Topley and Wilson.

No opinion can be expressed as to the source of infection of this case of erysipelas which occurred in a new piggery where the conditions of feeding and the hygiene were excellent.

#### SUMMARY.

1. A case of swine erysipelas was encountered for the first time in South Africa.
2. A description of the post-mortem lesions is given.
3. The bacteriological and biological properties of the bacillus isolated in pure-culture from the valvular lesions of the heart are given.

#### REFERENCES.

- BERGEY'S. (1939). Manual of Determinative Bacteriology. Fifth Edition. The Williams and Wilkins Company, Baltimore.
- TOPLEY AND WILSON. (1936). The Principles of Bacteriology and Immunity. Second Edition, Edward Arnold & Co., London.