

## VI. — PATHOLOGY

**Hereditary abnormalities in pigs**

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In the first part of this review, the overall importance of abnormalities in the pig and the subsequent economic losses are estimated, taking due account of the difficulties of such estimations. The second part deals with the main abnormalities and their hereditary basis, this being often complex and not well understood. However, a monogenic basis may reasonably be assumed for 27 different abnormalities 21 of which are due to a single autosomal recessive gene, 5 to one autosomal dominant gene and 1 to a sexlinked recessive gene. A detailed list of references is given by OLLIVIER and SELIER (1979) in *Handbook of Mammalian Genetics*, R. ROBINSON (ed.) (in press). Pig breeding decisions with respect to genetic abnormalities are discussed in the third part. For those defects whose frequencies reflect a balance between selection and mutation with possible effects of genetic drift (in the case of many recessive lethals), not much can be done except when artificial insemination is widely used. On the other hand, a few abnormalities maintain themselves at relatively high frequencies as a consequence of a kind of « balanced polymorphism », with advantages in production traits compensating for the disadvantages due to the abnormality itself; this is for instance the case for the malignant hyperthermia syndrome. The threshold of an acceptable incidence may therefore be very different according to the type of abnormality considered and any breeding decision requires a preliminary economic assessment, as complete as possible. Use of this procedure in the case of genetically complex abnormalities means that the various effects of the latter are taken into account when establishing the selection indices.

**Respiratory distress syndrome in the newborn piglet.  
Observations made in a farm**

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In a pig production unit belonging to a network of permanent epidemiological surveys, we observed piglets which were abnormal at birth and which died a few hours thereafter.

The piglets were born hairless and showed a severe dyspnea. Most of them died in a respiratory distress. The necropsy revealed a generalized subcutaneous oedema, a thyroid hypo-

plasia and an anomaly of the lungs. The histological examination showed an oedematous derm and a decrease in the size and the number of hair follicles. The architecture of the thyroid vesicles was irregular and the colloid substance was missing, sometimes entirely, in these vesicles.

The epithelium of the bronchioles was flat and detached from the basal membrane. These elements show the similarity between the disorders observed and the « syndrome of respiratory distress » or « Barker syndrom » described in pig, foal and man.

In this production unit the anomaly was only observed in the progeny of one boar, suggesting a genetic relationship. The determinism of this syndrome of respiratory distress was discussed.

### **Advantages and limits of the serological diagnosis of atrophic rhinitis**

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A serological inquiry to investigate the incidence of *Bordetella bronchiseptica* infection in pigs was conducted in a large Belgian slaughter house. A total of 1103 sera were examined. Specific serum agglutinins were found in 91 p. 100 of the samples with titrations equal or superior to 1/40. In Belgium, 25 p. 100 of the animals are estimated to suffer from atrophic rhinitis.

Thus a serious difference exists between the two data.

The difference may have several explanations: variable rhinopathogenic effect of different strains, variation in infection pressure, age of the animals at the time of infection, variation of environmental conditions.

The advantage and the limits of the serological diagnosis are discussed. It is important to determine whether a serologically negative animal may be admitted without risks and, on the other hand, to reject without restriction all serologically positive subjects.

The same questions are valid not only at the individual animal level, but also at the farm level.

In conclusion, on account of the current limits of the different methods of diagnosis suggested, only the SPF breedings afford adequate guarantees against atrophic rhinitis.

### **Excretion of the virus of Aujeszky's disease through the genital tracts of boars. Persistence of the virus in boar semen**

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After experimental infection of three boars through the prepuce, excretion of the virus of Aujeszky's disease through the genital tracts was studied. Three and ten days after inoculation the virus was isolated in samples of semen and in the liquid used for prepuce cleaning. After 10