BULL-DOG CALVES.

By A. LESLIE SHEATHER, M.R.C.V.S., B.Sc., Royal Veterinary College, London.

THE term "bull-dog" calf is commonly applied in this country to a particular type of monstrosity which occurs almost exclusively among Dexter or Kerry cattle. Very occasionally the same type of abnormality is seen in the calves of half-bred Dexters, but the condition appears to be very rare in other breeds.

The following are the principal anatomical anomalies seen in such freaks: The body is short and stout; the skin is thick and covered with a plentiful crop of hair; the abdominal wall is in many cases incomplete; the limbs are very much reduced in size; the forehead bulges forward above the nose, which is very much depressed; the lower jaw is usually normal; the palate is cleft, the epiglottis frequently bifid, and the trachea irregular in lumen; the connective tissues are moist and œdematous; the chest cavity is much reduced in size, the greater part of the body being occupied by abdominal viscera; the bones of the skull are, as a rule, thicker and harder than normal and the sutures completely obliterated. In occasional cases, however, the opposite conditions are observed, these bones being thin and not meeting at the anterior fontanelle.

The incidence of the condition is apparently very variable, but sometimes a high percentage (30 per cent. or more) of the calves born in a Dexter herd are thus malformed.

There is not as yet sufficient evidence to show whether the disease runs in families or not, but cows which have thrown such monsters may subsequently give birth to normal calves.

Little or nothing appears to be known with certainty regarding the cause or causes of this condition.

In the *Transactions of the Pathological Society of London* for 1904 there appeared a valuable paper by Seligmann, entitled "Congenital Cretinism in Calves," in which he endeavoured to show that one, if not the principal, determining factor in the production of these freaks is an abnormal condition of the thyroid gland of the fœtus. The title of the paper plainly indicates that, in his opinion, the condition is a cretinous one. No definite statement is made regarding the actual number of such calves examined, but it is evident that there were several. In his enquiries into the history of the monstrosities Seligmann gleaned the following interesting points with regard to the period of pregnancy. Such calves are always born prematurely, birth usually taking place from the sixth to the eighth month. During the period of gestation there is great distension of the cow's abdomen, followed by the discharge of large quantities of a watery or turbid liquid. This distension, followed by discharge, may be repeated two, or even three, times before the calf is born. Cleansing is usually delayed, and the membranes come away in fragments. Seligmann had the opportunity to examine the placental membranes of two such calves, and found that they were œdematous, and the majority of the cotyledons atrophied. In addition to the general œdema, there were sessile cyst-like collections of fluid, varying in size

from a tangerine orange downwards, on the foetal surface of the placenta. In one of these two cases there were numerous pieces of calcified material, about the size of a hemp seed, in the cleansing.

The most important abnormality found by Seligmann in the bull-dog calves involved the thyroid gland. These glands were very richly supplied with blood, soft, and infiltrated with serum, but not sensibly enlarged. The lobes were more or less rounded, and the isthmus either absent or very slightly developed.

When examined microscopically these glands were found to be quite abnormal. There was no arrangement of cells in the form of vesicles, or very little,—the cells forming irregular masses. Practically no colloid material was present. The vascularity of the glands was

Micro-photograph from thyroid gland of bull-dog calf ($\times 60$).

greatly increased. The absence of colloid material was controlled by experimental inoculation; no fall of blood pressure followed the intravenous injection of a glycerine extract of the glands.

The conclusions arrived at by Seligmann may be summarised as follows:—

The condition is a cretinous one affecting, for some unknown reason, only the Dexter-Kerry breed. The calves show the appearances and lesions typical of cretinism. The condition is always associated with placental disease of a constant nature. This may be considered as a secondary factor in that it may prevent the access of maternal thyroid secretion to the calf in which the thyroid lesion is present.

In March last a bull-dog calf was sent to the Royal Veterinary College by Mr G. D. Norman, M.R.C.V.S., as a specimen of considerable interest. The only history given was that the calf was premature and dropped by a Dexter cow.

This calf presented all the usual features of such freaks, but an examination of its thyroid gland revealed a condition of affairs absolutely opposed to that described by Seligmann as being constant.

Macroscopic Appearances.—The gland did not appear to be enlarged, each of the lobes measuring 2·4 by 1·9 by 1·3 cm. In shape the lobes were quite regularly oval. The isthmus was quite normally developed. In colour the gland was of a buff tint, there being no evidence of any excess of blood; in fact, the gland was somewhat paler than normal. There was no evidence of œdema.

Microscopic Characters.—Paraffin sections of both lobes and of the isthmus were prepared. On examination (*see fig.*) it was found that the structure of all three portions was to all intents and purposes normal, the only variation from the normal being the presence of a very slight excess of interstitial tissue between the acini in some parts of the gland. This may possibly have been accounted for by the fact that birth was premature. The acini were perfectly formed and lined by a single layer of cubical epithelium. Every acinus was completely filled with colloid material. This secretion does not show distinctly in the accompanying photograph owing to its being lightly stained and uncontracted.

In view of these facts it would appear that an abnormal condition of the thyroid is in no way essential to the production of bull-dog calves, and that the condition is not in reality cretinous. In all probability the lesions which Seligmann found in all his cases were coincidental.

From an examination of these freaks it would appear that the condition far more closely resembles that described as chondrodystrophia in the human subject. According to the description given in Aschoff's *Pathologische Anatomie*,¹ chondrodystrophia is a diseased condition which arises during intrauterine existence, and involves particularly the cartilages. The nature of the condition is an arrest of growth in the direction of length. The fœtuses have short bodies, large heads, and extraordinarily short limbs. The limbs are clumsy and swollen around the joints, producing a superficial resemblance to rickets. The nose is depressed. There is apparently no lesion of the thyroid in this condition.

TERATOMA IN A COCK.

By the Same.

THE specimen described in the following note was brought to my notice by Mr H. D. Sparrow, M.R.C.V.S., to whom I am indebted for the history of the bird and the details of the *post-mortem* examination.

History.—A pedigree black Wyandotte, aged about twenty-one months, and which, according to the owner, was a "good stock-getter." No disturbance of health was observed until two days before death, when it became dull and moped in corners.

¹ Aschoff: "Pathologische Anatomie," Vol. II., pp. 150-152.