

## Paired Oviducts in the Intergeneric Hybrid between *Phasianus colchicus* ♂ × *Gallus domesticus* ♀

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(Text-fig. 1-2; Plates I-II)

Female chickens in the early embryonic stages show bilateral development of the genital organs, however, the right ovary and its oviduct normally degenerate as the embryo develops so that, by hatching time, only vestiges of these organs remains. Nevertheless there are several recorded cases of paired ovaries and oviducts in adult chickens. According to KATO(1935)<sup>1)</sup> it has been reported that the oviducts in Mule ducks\* remains forever in a day old chick condition for the reason of lacking the factors which stimulate its development. Previously, the present author (1964)<sup>2)</sup> have reported about the ecological characteristics of the intergeneric hybrids between *Phasianus colchicus* (♂) and *Gallus domesticus* (♀), but the present post-mortem examinations have showed that the female hybrids which were killed in an accident at 525 days and 741 days old had two paralleled oviducts respectively. Normally the left ovary and the left oviduct persist and become functional in mature hen. In the above two cases forming the basis of present report both right and left oviducts had persisted but each of them does not functional. One of the two had one follicular dark yellowish-brown thin flat ovary but another female hybrid had two dark yellowish-brown thin flat ovaries.

The results of macroscopic anatomy of the genital organs of the intergeneric hybrid females are given in details as under.

### MATERIALS AND OBSERVATION

The intergeneric hybrid females between *Phasianus colchicus* (♂) × *Gallus domesticus* (♀) which were killed in an accident at 525 days and 741 days old were used in present experiment (Pl. I, fig. 1 and Pl. II, fig. 4). These two birds hatched on June 1 and June 2, 1963 as previously reported. Each bird was dissected immediately after its death. The former has bilateral oviducts and one ovary in her genital organs and the latter also has bilateral oviducts and two ovaries in her genital organs. In the spring of 2nd year after hatching both the hybrid birds have revealed the broodiness and one of

\* According to KURODA (1958)<sup>3)</sup> the mule duck is known in binominal terms as *Anas hybrida*, *Anas maxima* and *Anas sterilis*.

the two had built a nest which was about 30 cm in diameter (Text-fig. 1). When the present author put the hens' eggs under her abdomen, she sat on the eggs and hatched a brood of chickens and reared them and showed the maternity (Text-fig. 2). But in the course of her brooding the hybrid bird does not call the brood such as the hen does. Thus, it was often observed the brood which were at the pains of searching their mother hen.



Text-fig. 1. The nest which was built by the hybrid No. 5; upper view.



Text-fig. 2. The hybrid No. 5 which is rearing the brood of chickens hatched under her abdomen.

## RESULTS AND DISCUSSION

As it was shown in Plate I, Fig. 3 and Plate II, fig. 5, the post-mortem examinations showed that the hybrid No. 5 was found to have bilateral oviducts and one ovary and the hybrid No. 4 was found to have bilateral oviducts and two ovaries. The weight of ovary in the former was 0.15g and that of the ovaries in left and right sides in the latter were 0.12g respectively. These weight is about the same as that of the White Leghorn which was 45 days old. The left and right ovaries in the former have adhered together and formed a mass of tissues (Pl. I, fig. 3), but in the latter hybrid the left and right ovaries were clearly found as shown in Pl. II, fig 5. However, it seems that the ovaries of the two hybrid birds do not fulfil its function effectively as compared with that of the White Leghorn of the same age. The length of left and right oviducts in the former were 8.25cm and 7.18cm and that of left and right oviducts in the latter were 15.20cm and 9.21cm respectively. Both in the former and the latter, the left oviducts were longer than the right ones. These length appeared to be equal to that of the White Leghorn which was about 4 months old reported by HAFEZ and KAMAR (1955)<sup>4</sup>. The oviducts in the former is more thick than that in the latter. The most peculiar characteristics in the former oviducts is to have the blind nonconvoluted tubes in the anterior parts of the oviducts. Comparing with this, the characteristics in the latter oviducts is to be opening both in the anterior parts of the bilateral oviducts. The anterior parts of the left oviduct forms the normal infundibulum and is fairly functional but that of the right oviduct is slightly no more than open.

Normally the right ovary and oviduct degenerates during embryonic development and by the time the female chick hatches only a vestige remains. Nevertheless, there are several recorded instances of paired ovaries and oviducts in adult chickens. CREW (1931)<sup>5</sup> found a Brown Leghorn hen with a normal left ovary associated with completely differentiated left and right oviducts. He also stated that rudiments of a right oviducts are fairly common that these rudiments range in size from a minute sac, attached to the cloaca, to a blind, convoluted tube about 5cm long when extended and 2cm wide, supported by a peritoneal fold and distended with a clear watery fluid. McKENNEY (1931)<sup>6</sup> reported that normally the left ovary and the left oviduct persist and become functional in the mature hen, but in the two cases of his report both right and left oviducts had persisted and in one of the two the right duct was apparently functional. ASMUNDSON and BURMESTER (1936)<sup>7</sup> mentioned that in examining over 200 hens, 2 were found with rudimentary right oviducts and 1 with a complete right oviduct which was apparently capable of functioning. QUINN et al. (1939)<sup>8</sup> reported a Rhode Island Red pullet with two fully developed, separate oviducts, the right one being about 25.0cm in length, the left one about 37.5cm. BRYANT (1943)<sup>9</sup> reported a Single Comb White Leghorn pullet with a right oviduct slightly shorter than the left and normal in every respect for a hen not in production. WEBSTER (1948)<sup>10</sup> reported two Single Comb White Leghorn chickens with the complete development of the right and left oviducts respectively. One has the right oviduct which was 66.0cm in length and the left 70.7cm. The other one has the right oviduct which was 57.2cm in length and the

left 64.8cm.

As it is clear for the samples above reported, doubling of structure is seldom observed in fowls beyond the embryonic stages. Much more, it is not too much to say that there are nothing about the intergeneric hybrids with both right and left ovaries and with the bilateral oviducts. Thus, it appears to be that the bilateral ovaries and oviducts in the present experiment are very seldom observed in adult intergeneric hybrids. The researches from the view point of histology are now going on.

### SUMMARY

Two cases of persisting right oviduct in the intergeneric hybrid bird are reported. In one case, the left oviduct is 8.26cm and that of the right oviduct is 7.18cm in length respectively at the experimental time but the anterior parts of the bilateral oviducts are shaped the blind non-convoluted tubes. In another case, the left oviduct is 15.20cm and that of the right oviduct is 9.21cm in length at the experimental time respectively and both the anterior parts of the two oviducts are opening. The anterior parts of the left oviducts forms the normal infundibulum and is fairly functional but that of the right oviduct slightly no more than open. In the former, one ovary which was follicular dark yellowish-brown thin flat was present. On the other hand, in the latter two ovaries which were dark yellowish-brown thin flat were present in the normal position. But both of them does not functional.

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コウライキジ♂とニワトリ♀の属間雑種における  
一対の卵管及び卵巣について

渡 辺 守 之

鶏では一般に左右の卵管は embryo の発育段階において初めは平行して発達するが10~13日を境にして右側卵管は発育を中止し左側卵管のみ発育を継続する。その結果ふ化時においては左側がますます伸長するのに対して右側は僅かにその痕跡を留めるに過ぎないのが普通である。従って成鶏においては稀に二つの卵巣と左右一対の卵管を有する例も報告されているが斯様な例は極めて例外的なものである。

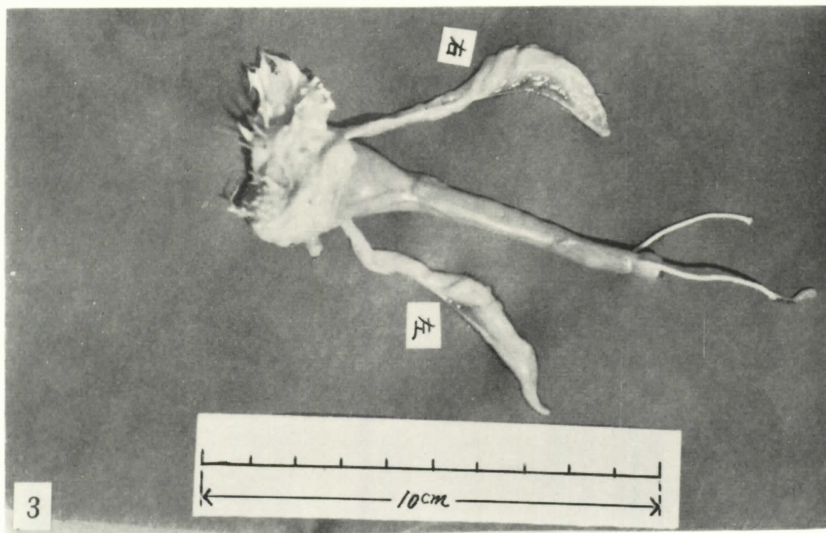
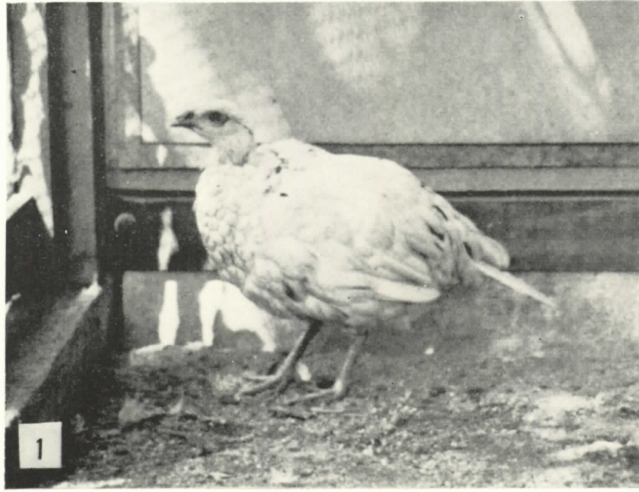
著者は1963年6月1日、2日にふ化したコウライキジ♂×ニワトリ♀の一腹の属間雑種中の雌2羽において、左右一対の卵管と一つの卵巣を有するもの及び左右一対の卵管と二つの卵巣を有する極めて特異な例に遭遇した。これらの観察結果について要約すれば次の如くである。

一例では不完全ながら濃黄褐色の小形瀟胞様の扁平菲薄な一ケの卵巣と先端が盲管となって回旋していない一対の卵管を有していた。その卵管長は左右夫々8.26cm, 7.18cmで卵巣重量は0.15gであった。他の一例では左右2ケの濃黄褐色の卵巣と、左右一対の卵管を有した。この場合前者にくらべ卵巣は極めて機能的でなく、その重量は各々0.12gであり、卵管は左右共に稍細いが回旋しておりその先端は何れも開口しており、特に左側卵管ではその上端は明瞭な infundibulum を形作っていた。卵管長は左右夫々15.20cm, 9.12cmであった。

## EXPLANATION OF PLATES

### Plate I

- Fig. 1. The intergeneric hybrid female No. 5.
- Fig. 2. The hybrid No. 5 has possessed one ovary; it weighed only 0.15g at the dissection time. An arrow indicates the position of egg yolk.
- Fig. 3. The bilateral oviducts of the hybrid No. 5. The length of left oviduct is 8.26cm and that of the right one is 7.18cm respectively.



## Plate II

Fig. 4. The intergeneric hybrid female No. 4.

Fig. 5. The bilateral ovaries and oviducts of the hybrid No, 4. These paired oviducts are opening in the anterior parts of it.

Fig. 6. Photograph shows the ovary and oviduct of the Japanese Green Pheasant female. The female bird was dissected in January 24, 1965, therefore, it is the reproductive phase in non-laying condition. The weight of the ovary was 0.2g and the length of the left oviduct was 11.7cm.



