the rule, but is also opposed to individual action in the matter.

One opposes the rule because "it [opposition to the rule] is the position occupied by practically all of the zoologists of the German Empire."

One votes in the negative because systematists in whom he has confidence complain of the working of the rule.

One, although opposed to the rule, is in favor of "some sound, workable set of rules."

There were two voters who declined to vote because they were not systematists and believed that they should have no voice in the matter.

In summing up it seems evident that an overwhelming majority of the zoologists of the Central Branch are opposed to the strict application of the priority rule; that a clear majority of systematists in a broad sense are opposed to it; and that at least half of the systematists in a strict sense are opposed to it.

The undersigned give it as their personal opinion that the wishes of the non-systematists, users of zoological names, should have *some* weight in the formulation of rules of nomenclature, as they will certainly have *much* weight in the acceptance of names and their incorporation into the general literature of the science of zoology.

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S. W. WILLISTON
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SPECIAL ARTICLES

FAT DEPOSITION IN THE TESTIS OF THE DOMESTIC FOWL[1]

VARIOUS investigators have concluded that the presence of fat in the interstitial tissues of the primary sexual organs (ovary and testis) was evidence of a functional (secretory) activity of the interstitial cells. This view regarding an internal secretion of the testis was advocated by Ganfini.[2] Whitehead,[3] while not committing himself definitely on the point, nevertheless shows that his earlier criticism of Ganfini's theory, on the ground that the fatty substance in the testis had not been shown to be anything other than ordinary neutral fat, was not altogether well taken. Schaeffer[4] makes the presence of fat, as revealed by staining, the chief test of functional interstitial glands in the ovary. One of the present writers in a recent paper from this laboratory[5] has shown that a histological study of the chicken testis gives "no evidence that the fat in the active testis is formed by the interstitial cells." It is further suggested in the same paper that "this fat is being brought to the testis by the general metabolic processes, possibly in connection with sexual activity, just as fat is deposited in the yolk of eggs in the hen."

It seemed desirable to test further, and by direct physiological experiment, this conclusion and suggestion. Particularly information was needed on the following points: (*a*) Is circulating fat deposited in the testis, as it is known to be in the yolk of developing oocytes? (*b*) If so, does such deposition depend in any way upon the functional sexual activity of the organ? (*c*) Is circulating fat deposited in the ovary prior to the time of rapid growth of the oocytes by yolk formation?

To obtain answers to these questions a series of experiments was planned by the writers and carried out last spring. The results are reported in this paper. It is known from the work of Riddle[6] and others that the

[1] Papers from the Biological Laboratory of the Maine Agricultural Experiment Station.

[2] Ganfini, C., "La struttura e lo sviluppo delle cellule interstiziale del testicolo," *Arch. ital. Anat. ed Embriol.*, Vol. I., 1902.

[3] Whitehead, R. H., "A Microchemical Study of the Fatty Bodies in the Interstitial Cells of the Testis," *Anat. Rec.*, Vol. 6, pp. 65–73, 1912.

[4] Schaeffer, Anna, "Vergleichend histologische Untersuchungen über die interstitielle Eierstocksdruse," *Arch. f. Gynäk.*, Bd. 94, pp. (of reprint) 1–51, Taf. XVII.

[5] Boring, A. M., "The Interstitial Cells and the Supposed Internal Secretion of the Chicken Testis," *Biol. Bul.*, Vol. XXIII., pp. 141–153, 1912.

[6] Riddle, O., "On the Formation, Significance and Chemistry of the White and Yellow Yolk of Ova," *Jour. Morph.*, Vol. 22, pp. 455–491, 1911.

fat stain Sudan III., if introduced into an animal *per os,* stains the fatty acids of the food, and that this stain is not lost during the circulation and deposition of these bodies. Furthermore, any fat *already* deposited in the tissues is not stained by Sudan III. fed in this way. This furnishes a method of observing the movement and deposition of fatty acids within the body. The original plan of the present experiments was to feed Sudan III. to chicks of both sexes at regular intervals from the time of hatching on, and then by examination of the testes and ovaries to determine at what stage of development the deposition of fat in the interstitial cells of these organs began, if it occurred at all. It was thought probable *a priori* that the beginning of active deposition would coincide with the beginning of the rapid growth of the sexual organs, which marks the onset of their functional activity.

This was found not to be the case. Experiments were begun with Barred Plymouth Rock chicks of both sexes, taken from the incubator as soon as they had dried off after hatching. To an equal number of individuals of each sex Sudan III. was given in each experiment. The dose was .02 gm. This was enclosed in a very small gelatine capsule, made by cutting down a regular No. 5. The chick's mouth was held open and the capsule carried down into the crop by means of fine forceps. A preliminary lubrication of the capsule in pure glycerine rather aided the administration. One male and one female in each experiment were not fed Sudan III., and these served as controls. In each experiment the total amount of Sudan III. fed was either .02 gm., .04 gm. or .06 gm., the ingestion of the larger amounts being spread over two or three days respectively. The maximum dose given in each twenty-four hours was .02 gm. Twenty-four hours after the ingestion of the last dose the birds were killed and the ovary, or testes, and samples of the body fat were removed and compared with the same organs and tissues taken from the controls. The result was that in all cases there was a distinct pink stain visible in the ovary or the testis of the birds fed the Sudan III. With the very small dose of .02 gm. the stain was faint, but with the large doses much more pronounced. This result shows that even with just-hatched chicks, in which the primary sex organs are certainly in a sexually non-functional condition, fat is being deposited in *both* testis and ovary.

The same result was obtained with chicks one week old. Sudan stained fatty acids were deposited in the primary sex organs. In view of these results there clearly was no point in continuing the experiments at regular intervals up to adult life. Consequently this was not done.

In order to test more fully the novel observation that metabolized fat is deposited in the *testis* an experiment in Sudan III. feeding was carried through with two adult males, one an adult male of the Golden Pencilled Hamburg breed, and the other a cross-bred male. These birds were in full sexual vigor, with large testes. The Sudan III. was fed as follows: The G.P.H. ♂, No. 2,494, was fed one capsule containing Sudan III. on each of four successive days. Each capsule contained .15 gm. of Sudan III. The other bird (No. 2,196) was fed three capsules (one per diem) successively. The amount of stain in each capsule was the same as before. The result of these experiments was exactly as before. There was an abundant deposition of pink stained fat in the interstitial tissue of the testes.

Putting all the facts together the following conclusions would appear to be justified:

1. A part of the metabolized fat from the food is carried directly to the primary sex organs (ovary and testis) and deposited in the interstitial tissues of those organs.

2. The amount of such deposited (and, in the subsequent chemical changes, probably elaborated) fat appears to be sufficient to account for the greater portion if not all of the fat which has been observed by histological methods in the interstitial tissues of the sex organs.

3. The deposition of fat in testis and ovary

as above set forth bears no apparent relation to the functional sexual activity of those organs, since it occurs from the time of hatching on. So far as the available histological or physiological evidence indicates, sexual activation of ovary and testis in the fowl begins at the earliest not until some weeks after hatching.

RAYMOND PEARL
ALICE M. BORING

A NOTE ON THE STAR-NOSED MOLE

TO THE EDITOR OF SCIENCE: On April 20 of this year I discovered a star-nosed mole (*Condylura cristata* (Linn.) Desmarest) entering a half-rotten willow stump at the edge of a little pond in the woods at West Roxbury, Mass. The crevice it had entered proved to be a *cul-de-sac,* and, after watching for some little time its eager efforts to escape by burrowing out, I easily captured it by seizing the tip of the tail between thumb and forefinger. I dropped it on the path close by, where it at once burrowed below the surface of the humus and progressed with some speed there, its progress being indicated by a lengthening ridge of earth. Catching it again, I carried it home wriggling and placed it in a wire cage with a wooden floor. It was very active but, owing, I suppose, to the position of the fore paws, which, of course, were fixed with palms outward, it could not get over the ground very rapidly. In the cage it kept going the rounds, poking its nose between the wires in an effort to escape. I dug some earthworms and placed them one by one in the cage. Apparently the mole's power of scent was nearly or quite as weak as its eyesight, for it paid no attention to the worms unless they were dropped directly in the path it pursued about the edge of the cage. When it actually ran its nose into a worm, however, it ate with astonishing greediness, and in a curiously piggish way, with a constant shaking of the head, and shuffling the worm into its mouth with the help of the *backs* of its "hands," which it moved in unison. It devoured about ten worms before its appetite appeared to flag, but one worm, a very large, fat one, it abandoned after cutting it into three pieces by transverse bites. Perhaps this worm was uncomfortably large for its mouth and gullet, for it afterwards ate one or two smaller ones. Little or no chewing took place, apparently, and the worm always disappeared down the animal's throat in a very short time. I heard no noise of the teeth in eating, such as Audubon and Bachman mention in describing the feeding of the common mole. A saucer of water put inside the cage, was not noticed for some time, but finally the mole put its nose into it and appeared to drink, with the same continual motion of the head that it used in eating. It tipped the saucer up a little and spilled some of the water, which it then seemed to drink off the board in a way that resembled sponging out the bottom of a boat. It continued the same operation on the dry part of the board, as if it could not tell where the water ended except by feeling. It struck me as a creature of very small intelligence. Its eagerness to escape was perhaps due less to fear than to a desire to get below the surface of the ground and to a habit of perpetual motion that seemed to possess it. I use the word "eagerness" advisedly, for that seemed to be the dominant mental attitude of the little animal. There was nothing frantic or nervous about its actions, simply eagerness to enjoy life, liberty and the pursuit of earthworms. The tail, and, in fact, the whole body, was very flexible and had a distinctly sneaky suggestion. This was especially noticeable as the animal climbed up and down the crevice in the stump. The mole escaped the same afternoon, so that my observations on its habits are not extensive, but certain mammalogists to whom I have told the story have advised me to put it on record in the pages of SCIENCE.

FRANCIS H. ALLEN

WEST ROXBURY, MASS.,
May 16, 1912

ECONOMIC IMPORTANCE OF THE MITE PHYLLOCOPTES SCHLECHTENDALI NALEPA

THE introduction of this mite into the pear and apple orchards of southern Oregon