

shall add at least once the author and year of publication of the quoted name or a full bibliographic reference.

The foregoing resolution was adopted in order to inhibit the confusion which has frequently resulted from the fact that authors have occasionally published a given name as "new" in two to five or more different articles of different dates—up to five years in exceptional cases.

The three propositions submitted by Dr. Franz Poche, of Vienna, failed to receive the necessary number of votes in commission to permit of their being recommended to the Congress. Out of a possible 18 votes for each proposition, Poche's proposition I received 9 votes, II received 6 votes, and III received 7 votes.

Zoological, medical and veterinary journals throughout the world are requested to give to the foregoing the widest possible publicity in order to avoid confusion and misunderstanding.

C. W. STILES,
Secretary to Commission

SPECIAL ARTICLES

A NOTE ON THE CHROMOSOMES OF MOINA MACROCOPA

BANTA and Brown¹ have shown that this cladoceran as well as certain others may be induced to increase the number of males by crowding parthenogenetic mothers. In order to study chromosomal evidence, several hundred parthenogenetic and sexual females have been sectioned. The most favorable time for observing the chromosomes is just before and after the eggs are laid.

The nucleus of the young egg is characterized by a number of deeply-staining granules, which increase in number and size until they fill the nucleus excepting a thin space beneath the membrane. This substance is not chromatin, as it does not react to chromatin stains after fixation in Gilson's fluid. Shortly before the eggs are laid, the mass breaks up into very fine granules, forming a homogeneous material which extends to the nuclear membrane. It gradually loses its staining properties until it appears relatively faint. At this stage there appears near one side a small, faintly-outlined spindle with a few irregularly shaped bits of chromatin within it. At about this time the nuclear membrane begins to dissolve, and the granular substance mingles with the yolk. In it very small, apparently ellipsoid chromosomes appear, and at a little later stage a well-defined spindle appears at the periphery of the egg, lying usually at right angles to the egg membrane.

¹ Banta, A. M. and Brown, L. A. 1923. Some data on control of sex in Cladocera. *Eugenics, Genetics and the Family*, Vol. 1.

After the egg is laid, the first division occurs: in the parthenogenetic egg without reduction in the number of chromosomes. In the sexual egg, the first maturation division results in the haploid number, which is 11. The diploid number is 22 in both types of egg. In the eggs of crowded mothers which should produce a high percentage of males, no evidence has yet been obtained indicating that the male number of chromosomes is haploid. Several such crowded mothers have been studied.

The chromosomes have not been seen in the form of rods. They are too small to determine whether tetrads are formed in the maturation divisions. It does not seem that their nearly spherical shape can be accounted for by faulty technique, as the tissues in general are in excellent condition.

With the exception of Schröder's work,² the number of chromosomes reported for Cladocera is not more than 8 or 8-10. Schröder reports 24. The chromosomes in *Moina macrocopa* have been previously studied, so far as the author can learn, only by Weismann and Ischikawa,³ who report 4 in the females of *Moina paradoxa* (now *M. macrocopa*) and *M. rectirostris*.

The sperm cells in *Moina macrocopa* are extremely small in all stages, and thus far have yielded no satisfactory pictures of chromosomes.

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GENETIC EVIDENCE THAT THE CLADOCERA MALE IS DIPLOID

CLADOCERA males have long been supposed to be diploid in chromosome make-up. Because of the difficulty of Cladocera material for cytological study, not much evidence on this point has been produced. Chambers (1913, *Biol. Bull.*; 25, p. 134) reported the male *Simocephalus vetulus* as having "considerably more than eight" chromosomes, which number he found in spermatogenesis. Miss Taylor (1914, *Zool. Anz.*; 45, p. 21) gave 8 or 10 as the diploid number in male *Daphnia pulex* and 4 or 5 as the reduced number in spermatogenesis. In view of the much larger chromosome numbers, 24 in females, found in material of a *Daphnia pulex* type studied by Schröder (1925, *Zeit. ind. Abs.-u. Vererbungslehre*; 40, p. 1) and by Dr. Ezra Allen in *Moina macrocopa* (about 20 in females) compared with the reports of these earlier workers, verification of the supposed diploid condition of the Cladocera male seemed desirable.

We are now in a position to report genetical evi-

² Schröder, F. 1925. The cytology of pseudosexual eggs in a species of *Daphnia*. *Zeit. f. induktive Abstammungs- und Vererbungslehre*, Bd. XL, Heft 1/2.

³ Weismann, A., and Ischikawa, C. 1891. Ueber die Paracopulation in Daphnidenei. *Zoöl. Jahrb. Bd. 4*.