it possible to determine the "zero" of the torsion balance with greatly increased ease and precision.

The left hand of the chainomatic balance was replaced by a long weighted wire, which exactly balances the right-hand pan and extends downward below the balance case. A thermostat was not used for the work reported in this preliminary article, but the temperature was determined and corrections were made for variations in temperature. It may be mentioned that if the liquid is to be lowered from the ring, the coarse and fine adjustments of a microscope stand may be employed.

This work is being continued by one of the writers under more exactly controlled conditions, with a greater number of rings and of liquids and it is hoped that an accuracy of ± 0.1 per cent. may be attained, though this may not be possible with ordinary precautions.

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THE CHROMOSOMES OF RODENTS[1]

DURING the present year students working under my direction have made careful studies of the chromosomes of the house mouse, the albino rat and the guinea pig. The purpose of this note is to give the results of these studies briefly. Detailed papers will appear later under the names of the students who have carried out the work.

1 2 3 4 5

House mouse (worked out by Elizabeth Cox). A number of investigators have reported the haploid or reduced chromosome number of both male and female mice as twenty, but diploid counts have not been made. Numerous counts made on dividing spermatogonia show that the diploid number for the male is forty chromosomes. Figure 1 is a typical spermatogonial plate. The haploid number is twenty. The sex chromosomes are of the X-Y type, the Y being somewhat larger than the smallest pair of autosomes. In the first maturation division the X and Y appear first as joined (Fig. 2) but they later segregate to opposite poles. As a result the sperm are dimorphic as regards the sex chromosomes.

Albino rat (worked out by Irene Kehoe). The diploid chromosome number for the rat has been given by Allen ('18)[2] as thirty-seven, a number based largely on first spermatocyte counts. It has been found that spermatogonia of albino rats (Wistar stock) show forty-two chromosomes (Fig. 3). This count has been confirmed by a careful study of the somatic (amnion) chromosomes of a number of male and female embryos. The haploid number is twenty-one. Observations on the sex chromosomes have not been completed, but apparently they are of the X-Y type, similar to those found in the mouse (Fig. 2).

Guinea pig (worked out by Bessie League). Stevens ('11)[3] reported that there were approximately fifty-six chromosomes in this form, but recently Harmon and Root ('25) have reported thirty-eight as the diploid number.[4] Counts made at this laboratory indicate that the diploid number is between sixty and sixty-four (Fig. 4) and the haploid number is thirty (Fig. 5). Sex chromosomes have not been identified. The guinea pig has proved of especial interest because in prophases of spermatogonia the chromosome number is lower than in the equatorial plate stages. This suggests that the high number is a late acquisition for this form and has resulted from a breaking up of a smaller number of elements. It seems possible that different strains of guinea pigs may differ in the degree to which this fragmentation occurs and as a result that the chromosome number may vary in well-fixed material.

Four rodents have been carefully studied at this laboratory with chromosome number determinations as follows for males: rabbit forty-four chromosomes, albino rat forty-two chromosomes, house mouse forty chromosomes, and guinea pig about sixty chromosomes.

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2 Allen, Ezra, 1918, *Journ. Morph.*, Vol. 31.

3 Stevens, N. M., 1911, *Biol. Bull.*, Vol. 21.

4 See Abstracts of Christmas Meetings, Amer. Soc. Zool., at New Haven, 1925. Also Biol. Bull., vol. 51.