It will be noted that out of a total of 132 embryos operated only 11 (not counting one fixed) survived the first week, which is always the period of heaviest loss in experiments of this kind. However, the high mortality in this case was due in all probability not so much to the character of the operation as to the fact that the *tigrinum* eggs had to be shipped from Chicago to New Haven, where the experiments were carried out in the Osborn Zoological Laboratory of Yale University. The *punctatum* eggs were collected in the vicinity of New Haven.

The table also shows that the highest percentage of survivals was obtained in Series III, in which Stage 24, for *punctatum,* and Stage 25, for *tigrinum,* were used for operating. This group also proved to be the hardiest and it was possible to carry one of them to metamorphosis.

The eleven embryos surviving the first week were of varying degrees of vitality and all except one were preserved at different times during an eight-week period following operation. One of them, belonging to Series III, a *tigrinum* embryo with a *punctatum* graft, lived to the onset of metamorphosis, as already noted. It reached a length of ten centimeters and seemed to be in vigorous health, but, unfortunately, died during transportation from Woods Hole to New York. However, it was possible to preserve it at once so that it was not a total loss.

Comparison with control animals showed that limb development in operated embryos proceeded in a normal fashion both structurally and functionally, at a somewhat slower rate. So far as the observations go they substantiate the general conclusion reached by Harrison that the anterior limb-rudiment of *Amblystoma* is a self-differentiating system.

FIG. 1

Sectioned embryos show that the transplanted cord unites with the cord of the host and becomes an integral part of the latter's nervous system. Presumably, the nerves forming the brachial plexus and innervating the anterior limb grow out from the transplanted cord segment; but this matter requires more extended study before a definite conclusion can be reached.

A fuller account of this work will be published elsewhere and, in the meantime, more extended experiments will be carried out this spring which, it is hoped, will furnish more abundant material for study.

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CHROMOSOME NUMBERS IN MAMMALS[1]

As my investigations upon the sex chromosomes of mammals have been extended I have had occasion to make diploid chromosome counts in three orders of eutheria which I have not reported on before. In two instances the chromosome numbers reported by earlier investigators have been found erroneous.

Rodents: The rabbit was studied and counts were made on amniotic tissue in both prophase and division phases. The chromosome number for the rabbit was reported to be about 22 by Bachhuber ('16). I find consistently 44 chromosomes in the cells of 8 different embryos. Figure 1 gives the typical appearance of an amnion cell. When the chromosomes of different embryos are paired up, in some individuals all elements have mates of like size and shape, while other embryos have two elements without mates of like size or shape. From this we may conclude that the sex chromosomes of the rabbit are of the X-Y type. A detailed study of the spermatogenesis is now being made.

Edentates: The amnion of armadillo embryos has been studied. The chromosome number for this form had been previously reported as approximately 31 in the male, by Newman and Patterson ('10). I find consistently 60 elements (Fig. 2) in all amnion cells. My investigations on this form have not been carried on far enough as yet to indicate the type of sex chromosome which may be found here.

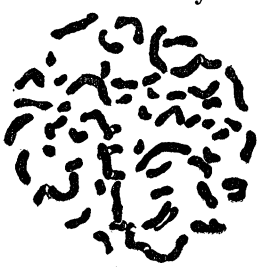

FIG. 2

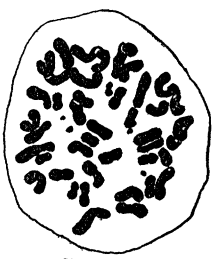

FIG. 3

Insectivors: The spermatogonia of the common European hedgehog has been studied. As Fig. 3 will show there are 48 chromosomes in this animal. This is the first chromosome count to be made on any insectivor, as far as I am aware.

We now know the diploid number of species in seven out of nine eutherian orders, the cetacea and sirenia being the only orders not yet investigated.[2] The chromosome numbers encountered in the species so far studied are as follows:

[1] The writer has been aided in this work by a grant from the Committee for Research on Sex Problems.

[2] For more extensive data concerning the counts given below see bibliography under Painter, 1924, in *Amer. Nat.*, Vol. LVIII, p. 524; Bachhuber, L. J., 1916, *Biol. Bull.*, Vol. 30; Newman and Patterson, 1910, *Jour. Morph.*, Vol. 21.

Insectivor—Hedgehog		48
Chiroptera—Bat		48
Primates—	Man	48
	Macacus	48
	Cebus	54
Ungulata—Horse		60
Edentata—Armadillo		60
Carnivora—Dog		50+
Rodent—Rabbit		44

It is thus clear that the typical eutherian number is a high one, and the occurrence of 48 chromosomes in three different orders would seem to indicate that it may be about the typical number.

The facts recorded above are of especial interest in that they indicate a unity of chromosome constitution above the marsupial level and effectively dispose of the suggestion that extensive polyploidy may have occurred within this subclass.

In the marsupials the chromosome number is a low one and in the opossum is 22. At first sight it might appear that the eutherian condition might have arisen from this by tetraploidy. There are two objections to this, however. In the first place the bulk of the chromatin in marsupials is about the same as in the eutheria, using the sex chromosome as our measure. In the second place, polyploidy could scarcely occur successfully in animals with X-Y sex chromosomes, as most mammals possess, because of the complications occurring in the sex chromosome balance. A full discussion of the theoretical bearing which these results have is being sent to press with this note.

THEOPHILUS S. PAINTER
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THE AMERICAN MATHEMATICAL SOCIETY

THE two hundred and thirty-ninth regular meeting of the American Mathematical Society was held at Columbia University on Saturday, February 28, 1925, extending through the usual morning and afternoon sessions. The attendance included sixty-one members of the society. There was no meeting of the council or of the trustees.

At the beginning of the afternoon session a paper was read, at the request of the program committee, by Professor J. W. Alexander, of Princeton University, on "Problems in the topological theory of manifolds."

The following other papers were read:

Minimal varieties of two or three dimensions whose element of arc is a perfect square: C. L. E. MOORE.

Fields of parallel vectors in a Riemannian geometry: L. P. EISENHART.

On the Riemann tensor: G. Y. RAINICH.

Integrals in curved space: G. Y. RAINICH.

Comitants of a curve under inversion: FRANK MORLEY.

Null geometry: EDWARD KASNER.

Extensions of the equations of Gauss and Codazzi: LOUIS INGOLD.

Tensors determined by a hypersurface in a Riemann space: HARRY LEVY.

Symmetric tensors of the second order whose covariant derivatives vanish: HARRY LEVY.

Congruences with constant absolute invariants: H. L. OLSON.

On normal forms of differential equations: W. F. OSGOOD.

Two new arctangent relations for π: A. A. BENNETT.

Diophantine arccotangent relations: A. A. BENNETT.

The fitting of curves by the use of moments and conjugate moments: E. L. DODD.

Linear complex of conics: E. E. LIBMAN.

On the map-coloring problem, with particular reference to connected sets of pentagons: C. N. REYNOLDS.

Solution of the problem of the thick rectangular plate, clamped or supported at its edges and under uniform or central load: C. A. GARABEDIAN.

A complete solution of the cubic equation: GLENN JAMES.

Functions of two variables for which the double integral does not exist: R. L. JEFFERY.

On the number of elements in a group which have a power in a given conjugate set: LOUIS WEISNER.

The number of even and odd absolute permutations of n letters: J. M. THOMAS.

Note on the projective geometry of paths: J. M. THOMAS.

Combinatorial analysis situs: J. W. ALEXANDER.

On the regions of convergence of real power series in several variables: O. D. KELLOGG.

Transcendental transcendency of certain functions of Poincaré: J. F. RITT.

Concerning the sum of a countable infinity of mutually exclusive continua: J. R. KLINE.

On extending a continuous (1, 1) correspondence of two plane continuous curves to a correspondence of their planes: H. M. GEHMAN.

The inverse problem of the calculus of variations. Preliminary report: J. H. TAYLOR.

On the problem of inversion of abelian integrals: S. LEFSCHETZ.

Osculating curves and surfaces: PHILIP FRANKLIN.

On the momental constants of a summable function: R. E. LANGER.

The solution of a difference equation by trigonometric integrals: NORBERT WIENER.

On Gibbs' phenomenon: T. H. GRONWALL.

Some remarks on Dirichlet's series: EINAR HILLE.

Remarks on convex regions: BÉLA DE KERÉKJÁRTÓ.

The society will meet at Columbia University, May 2, 1925.

W. BENJAMIN FITE
Acting Secretary