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ABSTRACTS OF PAPERS PRESENTED AT THE CHAPEL HILL MEETING OF THE NATIONAL ACADEMY OF SCIENCES

Vacuolation a factor in the division of animal cells: H. V. WILSON. Division of the animal cell is usually described as brought about through the activity of an outer denser layer, the ectoplasmic layer, which by a process of constriction or in some other way cuts the mass in two. This idea irresistibly comes into the mind as we observe the segmentation of living eggs. Only a part, however, can be learned from such observation. The interior must be seen and sections become necessary. Sections through early stages in the segmentation of fish eggs (shad, sea bass) and of the small holoblastic egg of a gephyrean worm (Thalassema) all show the following points. (1) The cells are not complete in the sense that each shall have an ectoplasmic layer of its own. Adjoining cells are separated only by single partition walls, the partition being common to the two cells. (2) A cell may enter upon division before it is completely separated by a partition from its sister cell. (3) A partition wall is foreshadowed by an arrangement of vacuoles which in sections appears as a row. (4) The partition itself appears piecemeal and is very often observable in the interior of the mass when it has not yet formed at the surface. (5) The pieces of the developing partition bear such relations to the vacuoles as to force the conclusion that they are formed as lateral thickenings of the vacuolar walls, the thickened areas uniting and the vacuoles eventually disappearing.

Can mitochondria be used to identify mammalian germ cells?: GEO. T. HARGITT (introduced by H. V. Wilson). There are two main views regarding the functional germ cells of mammals: (1) These are all direct descendants of primordial germ cells arising in the early embryo; (2) while embryonic germ cells are present, they usually degenerate and the functional germ cells arise secondarily from the germinal epithelium of the gonad, either in the immature or adult animal or in both. It has frequently been stated that evidence of the first view is furnished by the form of the mitochondria, germ cells possessing granular mitochondria and all other cells filamentous or rod-shaped mitochondria. Post-natal stages of male and female rats have been studied to test the latter claim.

the ensemble being mounted on the top of the cover for the oscillograph about midway between the ends. The larger cylinder has cut in it two slots opposite each other on the upper and lower sides. Above the cylinder ensemble is mounted a small tubular light bulb. Below the cylinder in the top of the oscillograph box is cut a small transverse slit, five inches long. The small inner cylinder in which is cut anywhere from two to forty opposing slots is turned by a geared synchronous motor which revolves the cylinder at the rate of one revolution per second. Enlargement of one of these pairs of slots will provide heavier time lines at half-second intervals in addition to the regular markings at one-fourth, tenth or twentieth second intervals. Light from the bulb passes through the pairs of slots in the two cylinders whenever these slots coincide, and through the slotted box cover to a 90 degree reflecting prism or mirror where it is directed forward through the oscillograph condensing lens to a second mirror and onto the paper. Fig. 1 presents

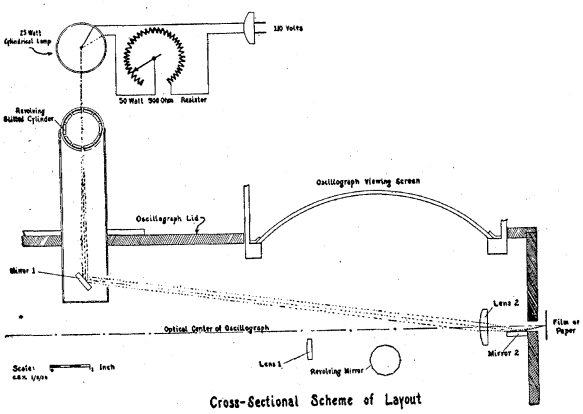

FIG. 1.

a diagrammatic sketch of the arrangement. The light used is a 25-watt, 120-volt cylindrical house bulb which may be purchased for 40 cents. The motor is a synchronous one of one-one hundred and fiftieth horse power geared to turn the drive shaft one revolution per second. It is a product of the Bodine Electric Company of Chicago. The 90 degree reflecting prism is a standard Bausch and Lomb product, while mirror number 2 is a chrome-plated first surface one produced by the Evaporated Metal Film Corporation of Ithaca, New York. A rheostat of 500 ohms permits adequate adjustment of light intensity for any sensitization of paper or film and for the different speeds at which it may be run. A sheet brass housing encases the lower portion of the cylinders and extends down through the top of the oscillograph box so as to prevent extraneous light from entering the box. The lower end of this housing serves also as the mounting for the reflecting prism. Fig. 1 shows a diagrammatic

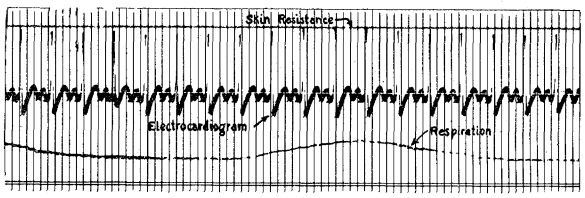

FIG. 2.

sketch of the timer and mirror arrangement, and Fig. 2 a sample of time lines at one tenth second intervals as they appear on a skin resistance, respiration and electrocardiographic record made with the apparatus. The apparatus was built by A. E. Berdon, Yellow Springs, Ohio.

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BOOKS RECEIVED

ALLEN, SHIRLEY W. *An Introduction to American Forestry.* Pp. viii + 402. 122 figures. McGraw-Hill. $3.50.

Anthropological Papers; Bureau of American Ethnology, Smithsonian Institution, Bulletin 119. Pp. ix + 204. 37 figures. 18 plates. Superintendent of Documents, Washington. $0.40.

BRAUER, OSCAR L. *Chemistry and Its Wonders.* Pp. viii + 760. Illustrated. $2.00. *Exploring the Wonders of Chemistry.* A Workbook and Laboratory Guide. Pp. ix + 230. 25 figures. $0.48. American Book Company.

BRIMLEY, C. S. *The Insects of North Carolina.* Pp. 560. North Carolina Department of Agriculture, Division of Entomology, Raleigh. $2.00.

CHAMOT, EMILE M. and CLYDE W. MASON. *Handbook of Chemical Microscopy, Vol. 1.* Second edition. Pp. xvi + 478. 165 figures. Wiley. $4.50.

CHONG, L. T. *Contributions from the Biological Laboratory of the Science Society of China; Birds of Nanking and Its Vicinity, Part I. Vol. XII, No. 9, Zoological Series.* Pp. 190. 113 figures. The Society, Shanghai.

JENSEN, HANS F. *Insulin; Its Chemistry and Physiology.* Pp. xii + 252. The Commonwealth Fund, New York. $2.00.

KAUFMAN, GERALD L. *The Book of Time.* Pp. xvi + 287. Messner. $3.00.

LAMB, FRANK H. *Sagas of the Evergreens; the Story and the Economic, Social and Cultural Contribution of the Evergreen Trees and Forests of the World.* Pp. xi + 364. Illustrated. Norton. $3.50.

LEYSON, BURR. *Aeronautical Occupations for Boys.* Pp. 207. Illustrated. Dutton. $2.00.

MARSH, C. S., Editor. *Educational Broadcasting, 1937; Proceedings of the Second National Conference on Educational Broadcasting, Held in Chicago, November–December, 1937.* Pp. xx + 386. University of Chicago Press. $3.00.

WEIDENREICH, FRANZ. *The Relation of Sinanthropus Pekinensis to Pithecanthropus, Javanthropus and Rhodesian Man.* (Reprinted from the Journal of the Royal Anthropological Institute, Vol. LXVII, 1937.) Pp. 51–65. Illustrated. The Institute. London.

WEIDENREICH, FRANZ. *The Ramification of the Middle Meningeal Artery in Fossil Hominids and Its Bearing Upon Phylogenetic Problems.* New Series D, No. 3; Palaeontologia Sinica. Pp. 16. 30 figures. National Geological Survey of China, Peiping.