

the two liver lobes will traverse the hepatic sinus, enter the ostium and descend an oviduct as far as the top of the oviducal gland, in three hours. There are no muscular movements of any of the organs concerned.

(2) In addition to its function of secreting albumen and the egg-case, the oviducal gland of the dogfish is a receptaculum seminalis. By triturating a portion of the shell secreting zone of the gland in saline solution, active spermatozoa can be seen at all times of the year. There does not seem to be any sharply defined breeding season, but an increase in breeding activity is noticed in the spring. The oviducal glands of all adult females contain spermatozoa, but the sperm content is very variable. In preparations of resting glands, spermatozoa can be seen in the shell-secreting tubules, whilst in actively secreting glands, a proportion of these spermatozoa are emitted in the shell material. In this way fertilization of an ovum is practically ensured.

A detailed account of this work will appear later.  
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<sup>1</sup> Rugh, R., *J. Exp. Zool.*, 5, 71, No. 1 (July 5, 1935).

### Kinetic Regions in Chromosomes

I HAVE previously disavowed any deeply founded conviction concerning the name applied to the kinetic region which, in one form or another, seems to be present in most chromosomes. The first thing needful is agreement on such a name, and then the abandonment of the ten or more other names now in use. I proposed the adoption of the word 'kinetochore', partly because it seems at least as good as any now in use and also because Sharp has employed it in a rather widely used book. But at about that time the term 'centromere' was used by Darlington, and British workers have accepted it quite generally. I should like to point out that not only is thereby added another to the long series of words that already have caused much confusion ('centrosphere', 'centrodesmus', 'centrosome', 'centriole', 'central body', etc.); but that the word 'centromere' was coined by Waldeyer in 1903 to designate the neck region of the spermatozoon. Since it seems certain that many future investigations will concern themselves with the chromosome region in question, I propose that an entirely new name be adopted if the word kinetochore be considered unacceptable.

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### Points from Foregoing Letters

GRAPHS showing the relation between the incidence of cancer and of tuberculosis in different age groups are submitted by D. Barron Cruickshank. The author connects these with a theory which postulates the existence of a *Bacillus tuberculosis* 'phage' which causes cancer, the relative tendency of the hypothetical 'complex' of bacillus and 'phage' to break down determining how many persons die of cancer and how many of tuberculosis in any age group.

By deciphering an astronomical text in the Demotic language now at the Carlsberg Foundation in Copenhagen, and other texts in the Liverpool Museum, Prof. O. Neugebauer has elucidated some of the methods used by the Egyptians in their astronomical calculations. The texts refer to the dates in which the planet Mercury entered the different signs of the Zodiac and astronomical calculations show that they belong to the period A.D. 70-132; the same methods were probably in use at much earlier periods.

Assuming that the Universe has been uniformly expanding with time, Dr. G. Gamow and Dr. E. Teller calculate that the existing nebulae were dragged apart about one thousand million years ago. Up to that time the nebulae had been together as part of a non-expanded Universe, consisting of particles having a velocity of about 100 km./sec. (of the same order of magnitude as the velocity of the stars, with which the 'particles' may be identical).

Prof. C. Störmer submits photographs of auroral lines taken on September 14-16. Unlike those reported by Prof. Vegard the red auroral lines are

fairly strong and in one instance stronger than the green line.

The discovery of a well-preserved upper left third molar at Sterkfontein, South Africa, more human like than the corresponding teeth described by Broom, is reported by Prof. J. C. Middleton Shaw.

A method of determining the magnitude of the resonance occurring in the external auditory meatus is described by Dr. T. S. Littler. A gas (hydrogen or coal gas) in which the velocity of sound is different from that in the air, is introduced in the meatus, and the change in the intensity level of the sound at different frequencies is observed. An appreciable pressure magnification (about three times) due to meatus resonance was found.

According to F. Haurowitz and T. Astrup, the ultra-violet absorption of genuine and hydrolysed protein seems to be in greater accordance with the classical theory than with the cyclol hypothesis.

Dr. F. B. Straub, H. S. Corran and Dr. D. E. Green have shown the identity of coenzyme factor and the flavoprotein isolated from heart muscle by Straub. This flavoprotein appears to be the normal physiological agent for catalysing the oxidation of reduced coenzyme I.

A photograph of a cross section of a Roman lead water pipe welded by means of lead containing 0.08 per cent copper is submitted by Dr. J. A. Smythe. Owing to the copper percentage being higher than the eutectic proportion, the weld shows a fine grained structure, which has persisted for 18 centuries.