

at the University of Chicago in 1924. More recently, he has devoted much attention to the theory of probability, on which he has published (in collaboration with Prof. Halbwachs) "Le calcul des probabilités à la portée de tous."

The Henri Poincaré Institute will not, however, confine its attention to the new courses. It aims at being international in scope; in addition to the regular courses, single lectures or brief series of lectures will be given by distinguished scientific workers. Profs. Vito Volterra, of Rome, and de Donder, of Brussels, have already promised to co-operate.

The ever-increasing numbers at the Sorbonne has made additional accommodation necessary, and it was decided to erect a new building where not only the new courses but also all the advanced courses on mathematics will be given and where the mathematical library will be moved. The International Education Board is contributing one hundred thousand dollars towards these expenses; Baron Edmond de Rothschild has also contributed twenty-five thousand dollars, and the French Ministry for Education three hundred thousand francs. It is thus hoped to create in Paris a great scientific international centre for mathematical physics and calculus of probabilities.

Development and Morphology of Tunicates.

A RECENT issue of the *Quarterly Journal of Microscopical Science* (vol. 72, pt. 1) is entirely occupied by two memoirs on Tunicata. In the first, on the development of *Botrylloides* and its bearings on some morphological problems, by Miss Sylvia Garstang and Prof. Walter Garstang, uniformity in the purely ectodermal origin of the Ascidian atrium is established, which finally negatives the homology suggested by Van Beneden and Julin (1887) between the larval atrial canals of Ascidians and the spiracles of Appendicularians.

The investigation of the neuro-hypophysial system shows that the anterior part of the neural tube in front of the sensory vesicle undergoes a conspicuous development, and becomes longitudinally differentiated into two parts—a large ventral precerebral lobe which disappears entirely before the tadpole stage is reached, and a slender dorsal precerebral duct which persists and agrees essentially with the hypophysial duct of other Ascidians. This duct communicates with the oral region of the pharynx by a ciliated funnel, and gives rise to the brain by proliferation from its ventral wall.

It would appear that a considerable development of the pre-sensory region of the neural canal and its glandular modification was a primitive feature of the Tunicata, and distinguished them from *Amphioxus* and the Vertebrata. The comparative morphology and significance of the precerebral lobe is fully discussed.

The second paper is by Prof. Garstang alone. It is an interesting and speculative essay on the morphology of the Tunicata and its bearings on the phylogeny of the Chordata. He regards the current views of Tunicate ancestry—that the tailed larva represents the primitive or ancestral form from which the adult has been evolved by degeneration—as untenable. The neuro-muscular relations in Ascidian larvæ and Appendicularians are much more consistent with a theory of incipient than of vestigial metamerism and the development of atria before the gill-slits is in accordance with the phyletic history of the Protochordate type of gill-slit. The discontinuity between larval and adult nervous systems ("it is an error to assert that any part of the actual nervous system of the adult has formed a part of the larval nervous system") in Tunicates is unintelligible on the theory

that Tunicates have been derived from *Amphioxus*-like ancestors, and points to a derivation of Tunicates from ancestors with a metamorphic life history before the typical chordate nerve-tube had come into existence.

The author has re-studied the symmetry of *Amphioxus*, which he explains as the consequence of the secondary reduction of yolk in the egg entailing premature hatching and the improvisation of a larval feeding mechanism. A great enlargement of the mouth and special ciliation of its entrance seem to form the basis of this mechanism, which involves a temporary dislocation of the adjacent parts and is held to have entailed changes which have left a mark on the permanent organisation of the adult. The author concludes that the ancestors of *Amphioxus* were essentially primitive Ascidians. In a future communication he proposes to deal with the origin of the chordate nervous system, and with the various cephalic organs associated with it.

University and Educational Intelligence.

LONDON.—The Senate has accepted an offer of the Committee of the Bayliss-Starling Memorial Fund of the sum of £2500 for the establishment at University College of a scholarship for training in physiology and biochemistry, to commemorate the connexion with physiology of the late Sir William Bayliss and Prof. E. H. Starling.

The following doctorates have been conferred: D.Sc. (in anatomy) on Mr. H. A. Harris (University College), for a thesis in the form of a series of memoirs dealing with the problems of bone growth, radiology, and teratology, published in various medical and scientific journals; D.Sc. (in botany) on Mr. W. B. Turrill (Chelsea Polytechnic), for a thesis entitled "The Phytogeography of the Balkan Peninsula"; D.Sc. (in chemistry) on Mr. Edgar Stedman (Birkbeck and Goldsmiths' Colleges), for a thesis entitled "The Relationship between Chemical Constitution and Physiological Action"; D.Sc. (in psychology) on Mr. J. C. Flugel (University College), for a thesis entitled "Studies in Mental Oscillation and Related Functions."

Dr. A. Sterling Parkes has been awarded the William Julius Mickle Fellowship for 1929 in respect of the work he has carried out during the past five years on the physiology and biochemistry of the organs of reproduction. The Fellowship this year is of the value of about £250.

Dr. G. P. Crowden has been appointed lecturer in applied physiology in the Division of Public Health at the London School of Hygiene and Tropical Medicine as from Aug. 1.

In March last a committee was appointed "To consider the question of the limitations placed upon the Medical Education of Women Undergraduates and to report to the Senate thereon." This report has now been issued. The problem was to provide clinical facilities for women requiring them in schools open to both sexes. The report points out that the prepossession of the University is in favour of co-education in medicine as in all other faculties, and suggests that there should be three types of clinical education: (1) for men only, (2) for women only, and (3) for men and women. The Senate has given general approval to the report, and schools of medicine not at present admitting women are to be invited to admit a quota of women students.

THE annual meeting of the Association of Technical Institutions will be held at the Grocers' Hall, London,