resolution of the electron microscope has made possible a more detailed study of these structures, which are now known as the 'sarcoplasmic reticulum'. The recent work of A. F. Huxley (Cambridge) and his colleagues goes a long way towards showing that this reticulum, or probably one particular part of it, is somehow concerned in conducting the excitatory stimulus.

In a paper entitled "Comparative Study of the Activation of Contraction in Muscle", Huxley described how isolated muscle fibres were viewed in an interference microscope or in a polarizing microscope, while the potential difference across the surface membrane was changed over a very small area by passing current through a micropipette in contact with the membrane. It was found that excitation was conducted transversely (inwards into the fibre) only when current was applied at the levels of the Z lines in frog fibres, and near the $A : I$ boundaries in crab and lizard fibres. But responses were not obtained everywhere as the micropipette was moved around the perimeter of the fibre at these levels; instead it was found that the sensitivity was limited to definite small areas. Stimulation at these places resulted in local contractions which extended into the fibre for a distance several times greater than the length of the sarcomere, but did not spread longitudinally into adjacent sarcomeres. Effective stimulation in the frog fibre always resulted in an equal shortening of both halves of the I band, the Z line remaining central; but in lizard or crab fibres it was possible to cause the Z line to move towards one A band, its distance from the other A band usually increasing as this half of the I band was actually stretched. All these results were elegantly and convincingly demonstrated in ciné films.

The location of the sensitive regions near the $A : I$ boundary in crab and lizard fibres, and the finding that only one half of the sarcomere shortens, suggest that the Z line cannot be the structure concerned in conducting excitation. Instead, it is probable that certain differentiated elements of the sarcoplasmic reticulum—the 'triads' first described by Porter and Palade—are involved, because as Huxley showed in electron micrographs, these 'triads' are located at the Z line level in frog fibres, and near the $A : I$ boundary in lizard fibres.

As the title shows, the symposium was planned to emphasize the value of the comparative approach to biological problems. The papers on muscle illustrated two successful applications of this: the identification of structures concerned with a given function (for example, transmission of stimulation into a muscle fibre) by comparing systems where these functions are differently located; and the recognition of fundamental properties (for example, the structural features which are common to all kinds of contractile systems) by comparing muscles specialized in different ways. Similarly, a comparison of different kinds of cells, particularly mammalian, which vary in the intensity and distribution of cytoplasmic basophilia, helped to locate ribonucleic acid at the sub-microscopic level. Also the importance of getting away from stock laboratory animals and looking for other more suitable experimental material was brought out by the notable success of Dr. Palay in preparing the central nervous system for examination in the electron microscope: he chose to work on goldfish. However, the only papers which dealt with invertebrate animals were those on muscles, and it was disappointing that in none of the papers was there any mention of plant cells.

J. Lowy

NEWS and VIEWS

Thermo-Nuclear Physics at Sydney: Prof. C. N. Watson-Munro, O.B.E.

Mr. C. N. Watson-Munro has been appointed, as from January 1, 1960, to the chair of physics in the field of thermo-nuclear physics in the School of Physics, at the University of Sydney. The chair normally will be vacant on the retirement of Prof. V. A. Bailey at the end of 1960, but provision has been made for the earlier filling of the chair. Mr. Watson-Munro was born at Dunedin, New Zealand, in 1915. He graduated at Victoria University College, Wellington, with first-class honours, winning the Sir George Grey scholarship and later a Jacob Joseph scholarship for postgraduate research. In 1935 he joined the Department of Scientific and Industrial Research, New Zealand, where he carried out original work on problems of seismology and geophysics at the Dominion Physical Laboratory. In 1939 he joined a team engaged on radar development of which he became the leader. In 1941 he went to the United States and worked on radar research at the Massachusetts Institute of Technology before establishing the first New Zealand Scientific Liaison Office in Washington in 1942. Later that year he returned to New Zealand to become the director of the New Zealand Radar Development Laboratory. Early in 1944 he was specially invited to join the Atomic Energy Research Project at the Chalk River Laboratories in Canada under the direction of Sir John Cockcroft. He was largely responsible for the design and operation of the first power heavy-water pile to be built. Transferring in 1946 to the Atomic Energy Research Establishment, Harwell, he was, as principal scientific officer, in charge of the team responsible for the design, construction, and operation of Britain's first atomic pile, *Gleep*, a low-power graphite pile that was constructed in fifteen months and has proved very successful. He returned to New Zealand in 1948 to take charge of the Department of Scientific and Industrial Research. Accepting the chair of physics at Victoria University, Wellington, in 1951, Prof. Watson-Munro became dean of the science faculty of that University in 1954. In 1955 he was appointed chief scientist of the Australian Atomic Energy Commission responsible for the Lucas Heights Research Establishment which was constructed under his supervision.

Theoretical Physics at Sydney: Prof. S. T. Butler

Dr. S. T. Butler has been appointed, as from November 2, 1959, to the chair of physics in the field of theoretical physics in the School of Physics, at the University of Sydney. This is a newly created chair.