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INTRODUCTION

It was a very great pleasure for me to be invited to the second Company of Biologists Discussion Meeting, and a special privilege to be asked to preface this volume with a personal note. I first met Stephen Kuffler in 1939 in Jack Eccles' laboratory in Sydney which he had joined, as a complete novice, the year before. We soon became close friends. My first impression of Stephen was that of a very likeable young fellow, kind and humorous, with a sharp eye for the pretentious and the ridiculous, good at tennis and swimming, very bright but not particularly knowledgeable in the field of neurophysiology. I still remember one of his characteristic remarks about neurophysiological terminology, a subject which he pretended to find difficult: 'When the excitability goes up, the threshold goes down.' 'Well, it's funny; it is fifty-fifty, and I always get it wrong.' But I also remember our, that is Jack Eccles' and my surprise when, in 1941, Stephen suddenly produced an absolutely terrific solo performance in the laboratory. He showed that it is possible to isolate a single living intact nerve-muscle synapse and recorded unexpectedly large endplate potentials, with ensuing action potentials, from it. This was an extremely delicate task of such difficulty that nobody had tried to bring it off before. Since then, Stephen has gone from strength to strength and illuminated many different areas of neurophysiology. But that early work was, in some respects, typical of what he achieved later: he discovered a new, more suitable preparation and developed an exquisite technique which was difficult and rather complicated, but he did all this for one purpose only, namely to obtain experimental results which were simple and capable of straightforward interpretation, and in this way could give a definite answer to a scientific question. This was his guiding principle everywhere he went, in Chicago, at Johns Hopkins, at Woods Hole and at Harvard where he built up a unique and world-famous department of neurobiology.

He made so many exciting discoveries, and brought new light to so many aspects of neurobiology that I will content myself with enumerating just some of them: the exploration of the 'non-spiking' slow muscle system in the frog; the study, with Cuy Hunt, of the intrafusal motor system in the cat; the pioneering and extremely influential work on 'concentric' or 'lateral' inhibition of optic neurones, carried out with a superb *in situ* technique in the intact mammalian retina; the classical study, with Carlos Eyzaguirre, of synaptic inhibition in the crustacean stretch receptor neurone which nowadays decorates most neurophysiological textbooks; the discovery, with Josef Dudel, of the presynaptic inhibition in crustacean muscle; the identification of gamma-aminobutyric acid as the peripheral inhibitory transmitter in crustacea; the first exploration of the physiology of neuroglia cells; the study of the chemical mechanism of transmission in sympathetic ganglia; and in between, re-visiting the neuromuscular junction and by ingenious improvement in the methods adding enormously to our information.

Of course, this is only one side of the story. Stephen was blessed, not only with consummate ability as a scientist but with a very happy and gentle nature, an attitude of playful informality, and a great sense of fun, by which he would lighten serious arguments and sometimes dissolve into laughter what could have turned into an unpleasant dispute.

It is as a personal friend no less than as a scientist, that he attracted so many distinguished workers to his laboratory, and it is, above all, this feeling of personal affection that caused us to assemble at Woods Hole and bring him our greetings and best wishes.

BERNARD KATZ