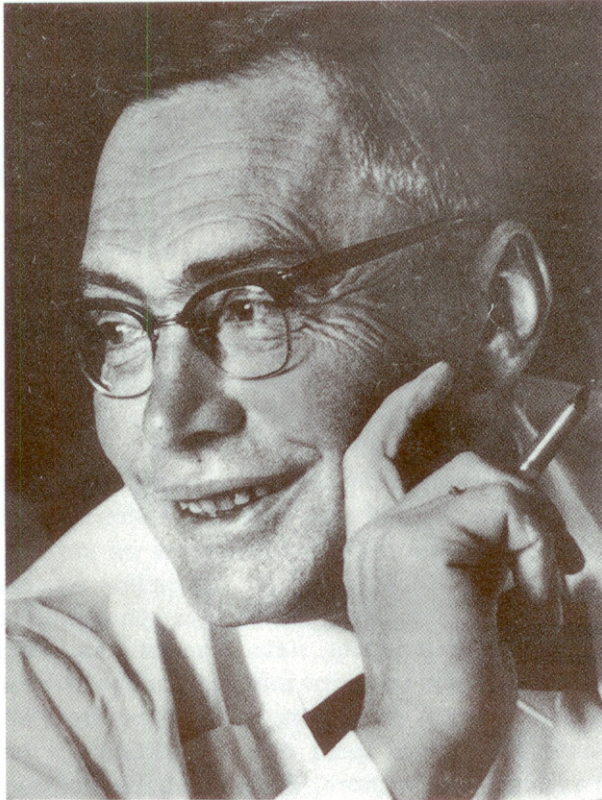


EDITOR'S PREFACE



Alf Brodal
1910-1988

With the death of Professor Alf Brodal on 29 February 1988, the scientific community lost one of the great neuroanatomists of the last half century. His impressive contribution to modern neuroscience is documented by a long list of published papers, as well as by books and monographs in which he summarized the results of his valuable observations.

At the time Alf Brodal started his career, only a few experimental anatomical methods were available. One of these was the method of retrograde degeneration, originally developed by Gudden. He modified this technique to study the topical organization of the olivocerebellar projection. In addition, there was the Marchi method, which he and Professor Jan Jansen used to perform their classical study on the cerebellar corticonuclear projection. However, both these methods had their limitations. Therefore, as soon as the modifications of the Bielshowsky silver stain

became available (especially the Glees, Nauta and Fink-Heimer methods), he utilized these in experiments where the course and termination of degenerating fiber tracts were mapped systematically. Finally, in his last group of studies he turned to the tracer horseradish peroxidase, an enzyme which brought his analysis to even greater details.

By using these techniques, Brodal directed his attention to the organization of brain structures involved in the control of basic functions. In a masterly way he correlated his findings with the available neurophysiological data, and often a physiological finding was for him a stimulus for new anatomical experiments.

Following the tradition of the Oslo School, the cerebellum was the major subject for his investigations. In particular, he and his colleagues performed a detailed analysis of cerebellar afferent and efferent projections, with the objective of determining to what extent the organization of the cerebellar connections was consistent with the idea of a functional and topographical localization within this part of the brain. He revealed that there was indeed such an organization on the afferent, as well as on the efferent side. We will here particularly emphasize the studies of the intimate relation between the cerebellum and the vestibular, trigeminal and reticular nuclei.

An urgent need for detailed anatomical studies came soon after the demonstration by Magoun of descending reticular systems, assumed by the physiologists to exert generalized excitatory or inhibitory influences on posture, as well as after the discovery by Moruzzi and Magoun of the "ascending reticular activating system", which acts on the whole cerebral cortex, thus controlling relevant functions of the brain including the sleep-waking state. The observations made by Brodal and his collaborators in this field provided information about the detailed organization of the efferent and afferent projections of the brain stem reticular formation and led to observations which to some extent modified the original idea of a broadly organized system. Furthermore, Brodal and his colleagues also brought forward a wealth of new data concerning the detailed organization of the vestibular complex and its efferent and afferent connections. This series of papers provided a basis for the rapid development of modern aspects of vestibular and space physiology.

Although a severe illness affected him in 1972, Brodal managed to maintain his commitment to science, which is documented by his further studies published during the following years.

Alf Brodal was not only an eminent scientist, but also an inspired leader. He accepted in his laboratory researchers from all parts of the world. One of us (O.P.), who for the first time met him early in 1954 during his visit to Moruzzi's Institute of Physiology in Pisa, had the privilege to work with him during the years 1956-57. He also has personal memories of the friendly atmosphere of close cooperation and mutual reinforcement during his work at the Anatomical Institute, and he recalls the warm hospitality that Alf and his wife Inger and their children offered him in their house at Blommenholm.

Alf Brodal's standing as a scientist is reflected by the honours bestowed upon

him. He was Honorary Doctor at the Universities of Uppsala (1966), Paris (1975) and Oxford (1983). He was furthermore member of several Academies and Scientific Societies and a recipient of Monrad-Krohn's prize (1941, 1960), Fridtjof Nansen's prize (1952) and the prestigious Jahre prize (1966). In 1963 he received from the Medical Academy of the Uppsala University the R. Bárány gold medal "an honour awarded to the person who had published the most valuable work on the vestibular system in its widest sense during the previous five years". He was also member of the Editorial Board of several scientific Journals, including the *Archives Italiennes de Biologie*, a Journal with old traditions, which with Moruzzi became an international vehicle for publication of neurophysiological and neuroanatomical data.

Alf Brodal's scientific work has been quoted in numerous monographs and in several textbooks, including his monumental work "Neurological Anatomy in Relation to Clinical Medicine". A further development of his ideas is apparent in the research by a large number of his previous associates, who have continued to develop the field of experimental neurobiology in Norway and elsewhere in the world. Some of them, who had the opportunity to work with him or were inspired by his work could not express their gratitude and recognition in a better way than by contributing with one of their scientific papers to this memorial issue dedicated to a great pioneer in modern neuroscience.

O. Pompeiano, Pisa, and F. Walberg and P. Brodal, Oslo

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