

IN MEMORY OF JERZY KONORSKI <sup>1</sup>  
(1903-1973)

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Professor Jerzy Konorski loomed as a great figure in neuroscience in general and a great personage in the Polish science. He had shaped to a large degree the present scientific profile of the Nencki Institute, and to many of us gathered in this hall he was a teacher and master. I should like to speak today not only of Professor Konorski's scientific achievements, but also of the specific features of his personality and his work, which made these achievements possible. To do it in a short speech, I must be of course very selective.

To start with, this year represents respectively sixtieth and fortieth anniversary of the publication of his two very important works. Thus, in 1928 Konorski and his medical friend Stefan Miller (murdered by the Nazis during the war) published jointly their first experimental paper (3). In 1948 Konorski published his famous monograph "Conditioned reflexes and neuron organization" (1). I shall confine myself to a brief description of these two works, representing the first half of Konorski's scientific activity.

The idea of the first Konorski's and Miller's experiment originated from their reading of Pavlov "Lectures on conditioned reflexes" (4). While they perused, however, Konorski and Miller felt an admiration tinted with the sense of insufficiency of the book. They realized that Pavlovian conditioned reflexes do not explain the behavior established by means of reward or punishment. The next step they took was to

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<sup>1</sup> The English version of the lecture delivered at the conference on the 70 anniversary of the Nencki Institute, held in Warsaw, December 1988.

elaborate under experimental conditions a new kind of reflexes which they called type II conditioned reflexes and which later were named instrumental conditioned reflexes.

Their 1928 publication, where these findings were described is of triple importance. First, they created an original method of producing and investigating the instrumental conditioned reflexes which, alongside the methods described by American behaviorists, plays an important role in the study of animal behavior. Second, they described basic forms of instrumental conditioned reflexes. Third, they formulated fundamental differences between the Pavlovian (classical) and instrumental conditioning.

The studies on instrumental conditioned reflexes were continued by professor Konorski till the end of his life. After the war he established a big scientific school (5). In the nineteen sixties, when such studies were very popular, Konorski's Department of Neurophysiology was visited by researchers from all over the world. Figures 1 throughout 4 show Professor Konorski with some of his pupils and foreign guests.

Let us now pass to Konorski's monograph published in 1948. It contained an extensive critique of the Pavlovian concept of the cerebral cortex activity, the concept incompatible with the actual state of knowledge in neurophysiology. The enormous experimental material from Pavlov's laboratories Konorski explained basing on his own concept, whose substance was that the neural mechanism of conditioned reflexes is consistent with that of the spinal reflexes. In those days there was already substantial information on spinal reflexes, owing mostly to the studies of Sherrington's school. Later years brought a full confirmation of the Konorski's concept.

Professor Konorski's monograph was published in the period of severe stalinism and it got him into some troubles. In those days some scholars (among them were great and mediocre, dead and living) got the privilege of infallibility in the fields of science they represented. Pavlov was also among them. While Konorski's and Miller's work published in 1928 could be considered as a creative continuation of "Pavlov's teaching", the 1948 book was an open revolt. Although the book could not be published at that time in Polish or in Russian, it was condemned in both these languages by many so-called "naive Pavlovians". That Professor Konorski could still work in relative peace we mostly owe to Professor Jan Dembowski, director of the Nencki Institute, who at the time held also an important governmental post.

Professor Konorski's monograph played an important part in brain research. Konorski described there, among others, his famous concept of neuron plasticity and foresaw its structural mechanism (reorgani-



Fig. 1. J. Konorski with W. Wyrwicka, one of his oldest pupils. 1958.  
The photograph was taken by W. Kozak.

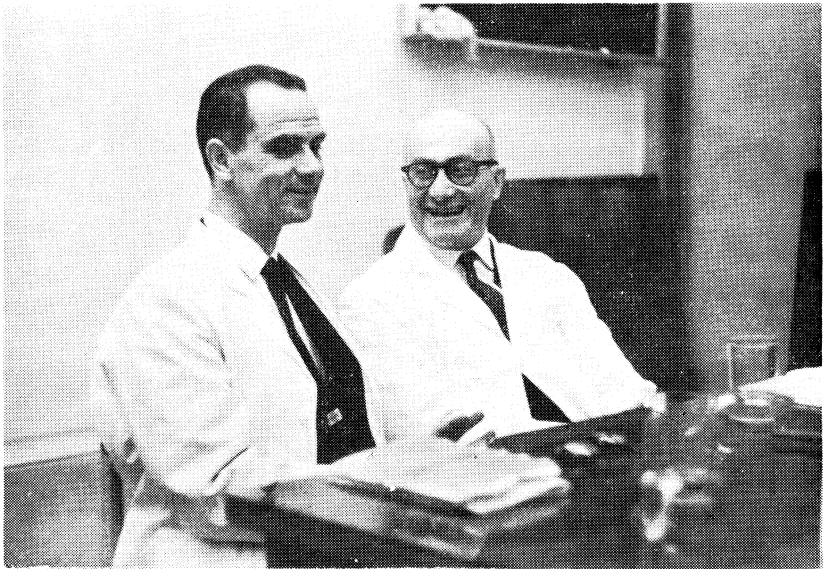


Fig. 2. J. Konorski with H. E. Rosvold. 1961. This and the following photograph  
were taken by R. Tarnecki during Wednesday seminars of the Department of  
Neurophysiology.

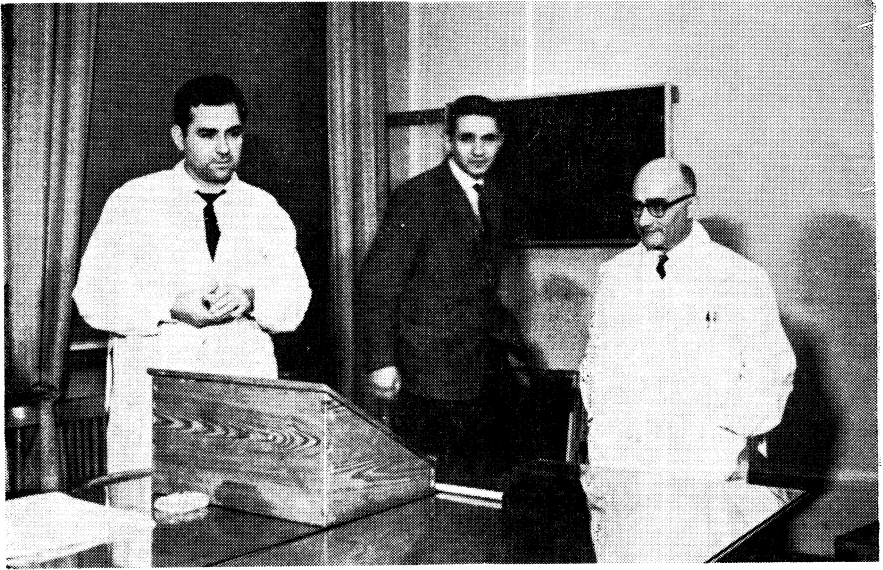


Fig. 3. J. Konorski with G. Santibañez and I. Divac (in the middle). 1967.



Fig. 4. J. Konorski with B. Żernicki in a valley near Zakopane. 1971.  
The photograph was taken by L. Turner.

zation of synaptic connections). This concept is nowadays crucial in neuroscience. Several lines of evidence suggests a common plastic mechanism of the neural processes responsive for learning and memory, the sensory effects on brain development and the recovery after brain damage.

I shall now pass to the specific features which characterized the work of professor Konorski. I shall mention only two. First, he was a brilliant scientific adviser. It came not only from his mind quickness, but also from his gift of listening to the interlocutor with total attention and commitment. Konorski had his own broad concept of brain activity (its full version is available in his last monograph, ref. 2), and a new fact often became immediately incorporated into this general framework. The talks with Konorski were mostly inspirational for his students, collaborators and frequent visitors. It was typical that during the Department's seminars eminent scientists from many countries listened almost humbly to Konorski's comments.

The other significant trait of Professor Konorski was that brain physiology was his great and only passion. Talks with Konorski almost exclusively concerned various aspects of brain activity. There were periods when I had spent a lot of time with him. Walking together through the valleys around Zakopane and through the ravines in Kazimierz, we talked only about science (Fig. 4). For instance, I did not know his political views, and what I knew about his private life I had not learned from him. One could always enter Konorski's room at the Institute and ask him to watch an experiment, but it was unthinkable to go there to wish him happy birthday. I remember one day when I had found, to my surprise, that Konorski did not know the word "scalp". I realized later that he had never read the books by Karl May and was atypical even as a schoolboy. I remember also that he investigated systematically the neurological symptoms of his own illness. I think that his premature death was, to a degree, caused by his not taking care of his own health.

It is now 15 years since Professor Konorski's death; from the death of the man who augmented his talent by enormous self-discipline and to whom so many of us owe so much.

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