

## ACADEMICIAN

### JURIJ ALEXANDROVICH ORLOV

( 1893—1966 )

Jurij Alexandrovich Orlov is one of the most prominent Russian palaeontologists. His continuous activity during many years embraced various aspects of science on extinct animals. Besides his personal investigations it concerned organization, lecturing and popularization of the palaeontological knowledges.

Jurij Alexandrovich Orlov did not intend to become a palaeontologist; he came into palaeontology in the second period of his life already being a completely formed histologist. This circumstance allowed Jurij Alexandrovich not to follow the way of the descriptive science, which was very usual in palaeontology of that time, but to accomplish very profound investigations in the realm of biological palaeontology.

J. A. Orlov was born in 1893 in the province of Simbirsk in the family of employee of the forestry service. His early dead mother was a physician. Jurij Alexandrovich spent his childhood in the northern town Velsk. Very often he accompanied his father during his trips round the woodlands of Arkhangelsk and Vologda provinces. Secondary education Jurij Alexandrovich got at home. In his childhood he was very impressed by the book of Hutchinson "Extinct monsters". At the same time he visited excavations of Permian reptiles on the Northern Dvina carried out by Professor V. P. Amalitzki. In 1911 Jurij Alexandrovich was enrolled in the Faculty of Physics and Mathematics at Petersburg University. Here he listened lectures and studied at the outstanding professors and teachers. He was specialized in zoology and histology and got acquainted with hydrobiological investigations. After graduation from the University Jurij Alexandrovich left for Perm where he, as an assistant of Prof. Zavarzin, took part in organization of the Chair of Histology and lectured the course of histology and embryology at this new University.

Before starting his personal scientific work Jurij Alexandrovich was disposed to get an additional medical education and studied the human anatomy very thoroughly. The subject of his scientific work was offered him by A. A. Zavarzin. It abuted upon the personal investigations of A. A. Zavarzin on the nervous system

of invertebrates. Orlov accomplished very extensive study of the vegetative nervous system of insects, which revealed close resemblance of neuronal relations within vegetative ganglia of Arthropoda and vertebrates. Later on Jurij Alexandrovich began to study the nervous system of crawl-fishes and then he set himself to mollusks (*Anodonta*). The results of this work received a high appraisal and were published later on by A. A. Zavarzin in his monograph. Combined with the personal investigation of A. A. Zavarzin they served as a base of his conception about the parallel evolution of histological structures.

In Perm Jurij Alexandrovich had also to organize the Chair of Anatomy of Domestic Animals as well as to prepare skeleton materials and to give lectures on this subject. In 1924 he moved to Petersburg and here again, working on the Chair of Histology of the Military Medical Academy, he became an assistant of A. A. Zavarzin. He was teaching here till 1935. From 1925 till 1927 Jurij Alexandrovich was also a scientific worker in Bechterev's, Institute of Brain and organized there a small histological laboratory to study the development of brain. Later on J. A. Orlov managed the section of Comparative Anatomy in the Department of General Morphology of the All-Union Institute of Experimental Medicine.

All above occupation and personal scientific investigations of J. A. Orlov brought him to unexpected, but, owing to his inclinations understandable step. In particular, his constant interest in comparative morphology of vertebrates caused him to pass to the palaeontology of vertebrates. This transition was not instantaneous but very confident. The participation of Jurij Alexandrovich in the geological expedition to West Siberia, and for the most part, the discovery of Late Tertiary Hipparion-fauna occurring in the vicinity of Pavlodar city on the Irtysh River greatly contributed to it. In 1929 Jurij Alexandrovich became a coworker of the academician A. A. Borissiak who worked at the Osteological Department of the Geological Museum of the Academy of Sciences of the USSR, which was shortly after that reorganized into the Palaeozoological Institute.

The locality at Pavlodar proved to be quite unexpectedly rich in remains of "African" animals which spread during the Tertiary period far to the north. Besides the hipparions, the remains of mastodons, dinothoria, rhinoceroses, giraffes, deer, antelopes, hyenas, saber-toothed cats and other mammals were found here. So, how not to take a fancy to the palaeontology! J. A. Orlov described from Pavlodar saber-toothed cats, badgers, ictitheria, hyenas and murtens as well as an exceptionally interesting skeleton part of the Semantor which united in itself many features of otter-like murtens and seals.

Thus, very soon J. A. Orlov came up to a leading scientist of the Academy of Sciences in the realm of vertebrate palaeontology. He became the nearest assistant of the academician A. A. Borissiak.

During the first period of his work at the Institute, before the Great Patriotic War Jurij Alexandrovich conducted a series of large-scaled excavations, e.g. that of Permian reptiles on the Volga, Tertiary mammals in Hungry Steppe and on the Aral Sea, and Hipparion-fauna in the Caucasus. In time the scope of his field work highly increased. During the post-war period of the existence of the Institute large-scaled work on prospecting and digging out of Mesozoic and Cenozoic vertebrates have been carried out in Mongolian and Chinese Republics (1946—1949 and 1959-1960).

After the death of A. A. Borissiak in 1944 Jurij Alexandrovich, as the most deserving successor of the deceased, took over the management of the Palaeontological Institute, and felt equally responsible for all aspects of the life and work of the Institute, its Museum, and moreover, for all palaeontological investigations accomplished in the Soviet Union. To rise the general level of investigations in the field of Palaeontology, biostratigraphy and palaeobiogeography of the continental deposits, which previously attracted less attention than marine sediments, Jurij Alexandrovich initiated the organization of the compartments on the vertebrates palaeontology in the Academies of Sciences of the Ukraine, Kazakhstan and Azerbaijan.

Jurij Alexandrovich was closely connected with the Palaeontological Institute and all palaeontologists of the Soviet Union. This connection was much more closer than it is usually the case. And everybody knew this, in our country and abroad, where he was held highly in respect; he was met as an outstanding Russian scientist, the head of an academic palaeontological institution and as the representative of the Soviet palaeontology. Jurij Alexandrovich repeatedly visited foreign countries, and it could not be any other "messenger" of the Soviet palaeontology, better than he. All this resulted in electing him Honorary Fellow of some foreign societies and

awarding him by the Indian Palaeontological Society the first golden medal.

During 20 years long directorship of J. A. Orlov Palaeontological Institute became the major palaeontological institution of world-wide reputation. It began to issue "Palaeontological Journal" and the capital edition of 15 volumes of "Principles of Palaeontology" ("Osnovy paleontologii") was published as a result of the work of a huge number of soviet palaeontologists. The "Principles" were honored with the Lenin Prize.

In 1953 J. A. Orlov was elected associate member of the Academy of Sciences of the USSR and in 1960, academician.

Some classical papers on fossil vertebrates belong to J. A. Orlov and brilliantly demonstrate his Orlov's "way of investigation of the fossil materials". One of these papers, i.e. "Peruniinae, a new subfamily of murtens from the Neogene of Eurasia (to the phylogeny of murtens)" was published in 1947. It presents all elements which fascinated J. A. Orlov in palaeontology, such as: comparative osteology and its analysis from the view point of function and structural regularities of the organism as a whole; biomechanics of the skull; palaeoneurology, and restoration of "the picture of life". It should be emphasized that all his considerations on the mode of life of this glutton-like murtens are based on its skull and brain structure.

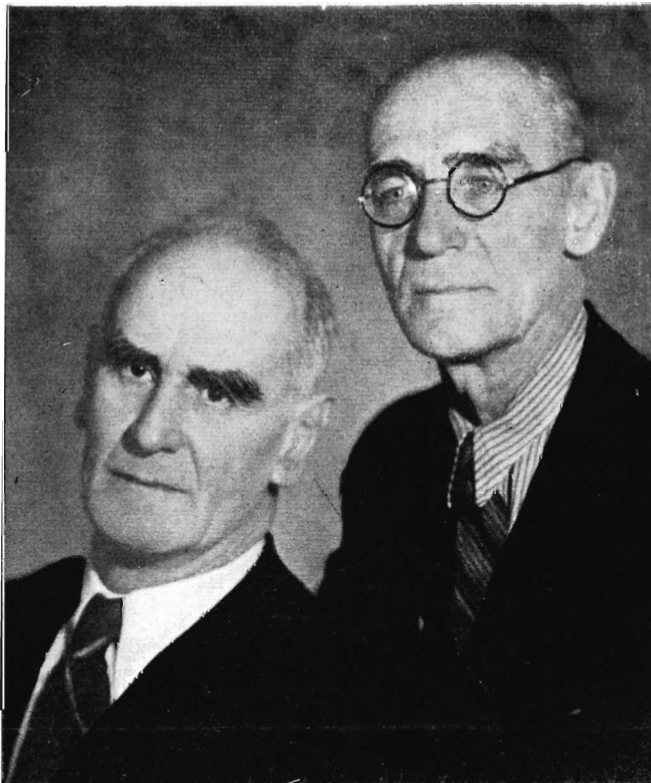
J. A. Orlov always took interest in the problems of palaeoneurology, what was connected with his previous investigations of neurology. He has shown which results could be obtained in regard to the life activity of extinct animals when we study the casts of their brain. He also revealed different aims and potentialities of this branch of science.

The results of the last prominent studies accomplished by J. A. Orlov have been summarized in "Predatory Deinocephalia of the fauna from the Ishevo (*Titanosuchia*)" which was published in 1958. It presents a classical and clear account on the osteology of one of the most interesting groups of mammal-like reptiles, which is considered to be the evolutionary transitive from more archaic Pelycosauria from the Lower Permian of North America to more late Deinocephalia and Theriodontia of South Africa. Brilliantly illustrated monograph of J. A. Orlov is still peerless in its exactness. J. A. Orlov revealed many biological peculiarities of titanosuchia from the Ishevo approaching on their mode of life the recent crocodiles. Shortly after that the monograph was translated and published in France.

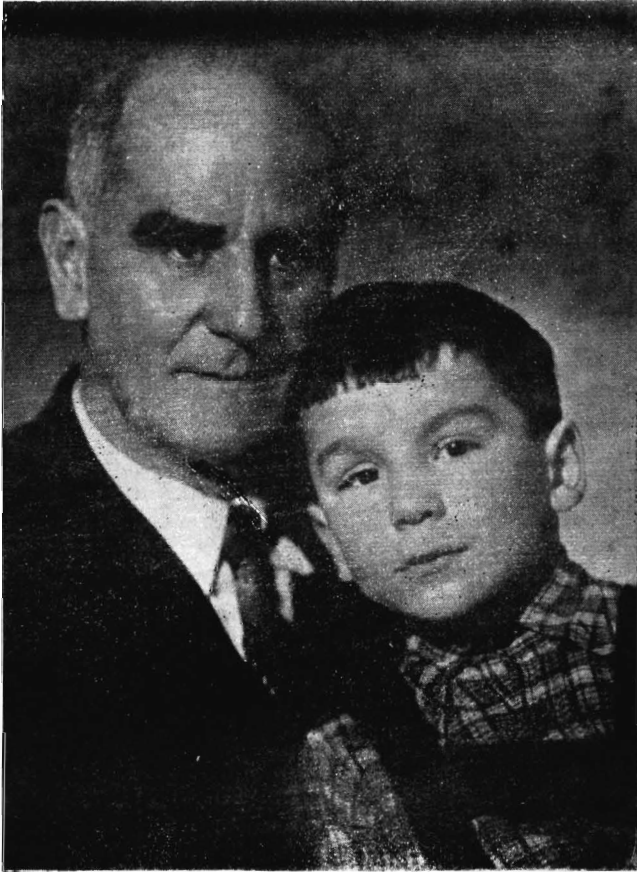
J. A. Orlov was by his nature very talented teacher with a wide practical training and a rich pedagogical experience. He felt, therefore, greatly satisfied to commu-



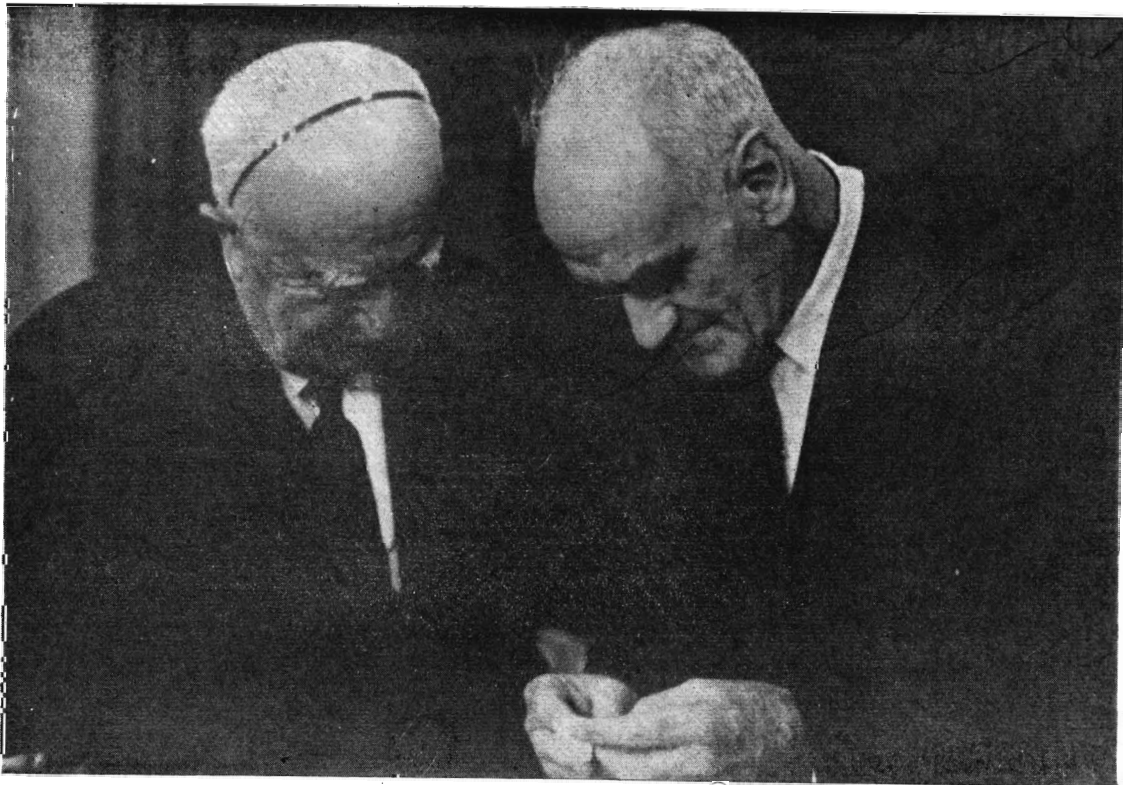
J. A. Orlov as a student



J. A. Orlov and his brother



J. A. Orlov and his grandson



Acadmicians V. N. Sukachev and J. A. Orlov.

nicate with the students, lecturing during 50 years first at Perm University, then at the Military Medical Academy, at Leningrad, and, at last, at Moscow University (where he organized the Chair of Palaeontology). Jurij Alexandrovich could not be thought of without higher educational institution, and the latter, in town where he lived, without him. Orlov without students were not Orlov of himself! Orlov did not separate the Academy from the university. He regarded them only as integral parts of the indissoluble whole. And many young people, which graduated from Moscow University, were invited by Orlov to the Palaeontological Institute where they worked under the general supervision of J. A. Orlov, Director of this Institute.

Comprehensive progress in palaeontology, as a biological discipline, propagation of the right world outlook and popularization of extremely valuable finds are impossible without having a museum for that. Jurij Alexandrovich contributed very much to the enrichment of the Palaeontological Museum with new exhibits. The Museum is disposed in one of the small buildings

of an ensemble of the former Neskuchniy Palace. J. A. Orlov, supported by all palaeontologists, persistently and very confidently strove for the erection of a new spacious building of the Palaeontological Museum deserving the soviet science, the Academy and the Soviet Union too. Such Museum named after J. A. Orlov is being erected now and will be opened in the near.

J. A. Orlov wrote tens of popular scientific papers. It was compiled (and twice published) the most remarkable book "In the world of ancient animals" which comprises popular essays on eight faunas of vertebrates, that have inhabited the territory of the USSR and Mongolia from the Late Palaeozoic to Late Pliocene and were studied by Orlov and other Soviet scientists. This book is considered to be an excellent and unique instance of an active popularization of the palaeontology.

It is only to imagine how interesting, as a handbook of the students, the textbook on the palaeontology of vertebrates could be, at which Jurij Alexandrovich only started to work. Unfortunately it was not completed.



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