

Speech held by Acad. Prof. Dr. B. S. Sokolov

- Translation -

Ladies and gentlemen, dear persons engaged in the activities of the Foundation, dear friends.

I have the honour to be awarded a prize by such a famous Foundation; so, it is quite natural how grateful I am, but now I feel more than simple thankfulness. It is a wellknown fact that the Foundation and its founder Dr. Alfred Toepfer lay particular emphasis on Russian science and culture and to the Russian Academy of Sciences. They assuredly deserve consideration, not only because they are now in strained circumstances. Russian culture and science, like those of Germany, endured in the past hard and even tragic times. However, the society always understood the place our countries occupy in the history of World culture and science and the loss would not be purely a national one. The understanding of this is an important factor in our common intellectual activity.

I should say that my attitude to a Prize attached to the name of A. P. Karpinskij - the first elected President of the Russian Academy of Sciences - is much more personal than that of colleagues who were awarded this prize earlier. I am the first among the prize-winners whose interests in science directly follow the interests of Alexander Petrovich. Besides this, I accepted with great pleasure a proposal of the Presidium of my Academy to head the Expert Commission for the awarding of gold medals and premium named after this outstanding scientist and man.

The formal ceremony calls for a speech appropriate to the occasion. But it is difficult to choose a particular topic. All the issues could turn to be too specific. Better I should tell you something about what I have done during my fairly long life and how my scientific interests have been shaped and in other words how fortune has favoured me.

Of course, it is not an autobiography and not a confession, least of all I would like to produce an impression of a self-opinionated moralist. Not always we could choose a way of our own free will but each has his own way. Here are some fragments from the way I have passed.

What I have done for many years (since my school days to the present) I studied (now I am studying as well), taught, worked with interest, participated in organizing something. I think that during the epoch which fairly widely disposed the destiny of its children many can call me a lucky man. I married early and was happy for half a century; God defended me from fools and scoundrels, almost always I was surrounded by interested, educated and clever people; have never been on the military service, never participated in the battle but I think it is a debt too great to be repaid, never belonged to any party but I cannot say that I am politically indifferent; have never been arrested or subject to persecution though sometimes felt a suspicious attitude, never had a special concern about my career: I have not taken any post-graduate course, never wrote a dissertation on purpose, the time passed and I provided the already published books;

Good
to start
book
with

1992 0

even my election to the Academy followed rather the logics of the circumstances related to my scientific activity and research.

I believe that incentives of the activity are the most important for any man. For me the answer is quite simple: the interest especially for the Earth sciences and sciences of life, I was always indifferent to technics. My interest in research and related affairs undoubtedly guided the path of my life. However, it was a zigzag path as concerns the interests proper and general trends of activity.

The St. Petersburg University (then Leningrad University) was my passionate dream implemented at most. In the early 1930-s, it still had traditions of its century-long history with splendid professors on its staff, for me it was inexhaustible source of knowledge. I used an opportunity in full measure and during five years coming from one speciality to the other I studied many brilliant courses and practical works at the geological, geographical, and biological faculties. Such students were deprecatively called the rolling stones, but even now I feel grateful to the destiny and my wonderful tutors who let me off leash during the study process. Since then I am sure of the invaluable importance of freedom in attaining knowledge and in quest for new trends in science.

I made my debute concurrently in different fields: paleontology (Paleozoic corals), stratigraphy (Carboniferous of the Moscow Basin), Quarternary geology (oxbow lake deposits) and geological survey of the Tien Shan Mountains and in 1937 when I graduated from the University my pedagogical work which continued for more than 30 years started. But the major work during these years and years that followed was the study of fossil corals, their ecology reefal facies; a new system was worked out for one of the main subclasses, it is still widely used. Many papers and about ten books were devoted to corals; two monographs were provided as dissertations. Not along ago, the International Association on the study of fossil corals has elected me its Honourary President-Organizer.

The spring of 1941 was marked by the first zigzag in my life when I was asked to carry out the long-term expedition geological study in West China (East Tien Shan and later the adjacent desert depressions of Dzhungaria, Turfan and Takla Makan). In fact, it was a cessation of my paleontological and stratigraphical studies along a certain trend but a direct continuation of my earlier work in Central Asia. When the war broke out I was in China and remained there for a long time, then I worked in Kazakhstan, Kirghizia and Uzbekistan. Two overviews were written on the basis on seven field seasons spent in a huge area of the Tien Shan Mountains and adjacent depressions (mainly oil-bearing). Unfortunately, they have not been published but an important experience has been gained of various regional geological studies which became very helpful in future.

Of great importance was the second, post-war, stage of my work in Leningrad where I returned after a four-year period not only as a paleontologist-stratigrapher but as a petroleum geologist. Hence my work, apart from the University, at the All-Union Petroleum Geological Prospect-

ing Research Institute (VNIGRI). At that time the Deep Drilling Programme aimed at the oil prospecting and research having nothing equal in the scale of works began over the huge area of the East European platform. As to me, I studied the oldest pre-Devonian part of a sedimentary cover, the most unexplained in terms of its age range, composition, structure and relationship with the basement. Earlier there were only hypothetical statements about the Early Paleozoic paleogeography of the entire European Russia west of the Urals. Some reconstructions made by A. P. Karpinskij turned to be very realistic due to detailed study of the drilling data.

I think that the following results are the most important: 1) the development of the stratigraphy for three Early Paleozoic systems which served as a basis for the compilation of lithologo-paleogeographic maps for the Cambrian, Ordovician and Silurian and 2) a discovery and recognition of the earlier unknown assemblage at the base of the sedimentary cover, I bravely (for which I have been strongly criticised) separated from the Lower Cambrian considered classical for the entire Scando-Baltia. Thus, by the early 1950-s, the first step to the recognition of a new geological system which I soon called Vendian, has been made. Many disputable units on different continents have later found their place in this system. Now it is one of the most interesting and popular issues of the historico-geological, stratigraphic and paleobiological study. We have voluminous literature on the Vendian, its boundaries, geological events and paleontology.

A new zigzag in my life appeared quite of a sudden in the late 1950-s: the Academy of Sciences began the organization of the Siberian branch. Those who initiated this could not imagine that it would be a largest research institution set up in the XX century. I was proposed to organize and head stratigraphic and paleontological studies at the new Institute of Geology and Geophysics to be carried out over the entire area from the Urals to the Pacific Ocean. What won my heart is that my initiatives were fully trusted and a strong material support. In 1958, in fact there was nothing (at the site of Akademgorodok wordly known now as taiga) and now it is the important Centre of paleontological and stratigraphic studies to the east of Moscow. Of course, personal studies shifted to the activity of new laboratories and gave way to new projects incorporating different institutions. As to me, I focused my attention on the Paleozoic and especially on the Late Precambrian whose occurrences are extremely wide in Siberia.

The work in Siberia broadened the scope of my activity, it has not even interfered with my pedagogical work because at a new Novosibirsk University directly associated with the Academic Centre a Chair of Paleontology and Historical Geology was created. During these years I was elected a leader of the All-Union Paleontological Society, International Paleontological Association, International Paleobiological Association, Stratigraphic Committee of the country. Very soon the Akademgorodok became a centre where different All-Union and International conferences

and symposia were held. To be mentioned is the First International Symposium on Fossil Corals (1971) and First International Symposium on the Precambrian Paleontology (1965). The latter is especially worth mentioning. The 1950- and 1960-s marked a fast but not systematic accumulation of knowledge about various evidence for the life in the Precambrian (stromatolites, problematic microfossils, trace fossils, impressions of non-skeletal organisms); hypotheses of the Cambrian population explosion in the evolution were vividly discussed. It was an agonizing question for Ch. Darwin as well: undoubtedly there was a Precambrian history of life but the geological record provided no evidence. A new trend of studies, i. e. Precambrian paleontology was approved virtually at this Symposium. A sphere of these studies now goes far beyond the purely paleontological issues.

The last zigzag in my life took place in 1975. It coincided in time with the 250 anniversary of the Academy of Sciences when I was invited to present a paper "Organic world of the Earth on the way to the Phanerozoic differentiation" at the plenary session. Soon I became a member of the Presidium of the Academy of Sciences and I had to move from Akademgorodok to Moscow. Now the sphere of my activity drastically changed owing to research carried out in two departments: geology, geophysics, geochemistry and mining science on the one hand and general biology, on the other hand. A new Laboratory of the Precambrian Paleontology was organized at the Paleontological Institute which affected the studies in this field in the country in general. The important result was the publication of the two volume monograph "The Vendian System. Historico-geological and paleontological substantiation" in 1985, its English translation was published by Springer-Verlag (Germany), 1990.

The recognition of the Vendian period in the history of the Earth separated from the present by a 600 m. y. time was a sort of a window into the Archean-Proterozoic and at the same time into the Phanerozoic future of our planet. The Precambrian paleontology has opened new pages in the history of the Precambrian life for the period of more than three billion years providing indisputable evidence for the geological continuity of life in general. Aside from this, it became possible to distinguish the turning points in the course of the biotic process as a whole. The Vendian stage of the evolution shows that the Cambrian life has appeared not all of a sudden. However, that most highly organized elements of the Vendian biota (multicellular) do not have many forms which could be considered as parental for the appearance of a fantastic diversity of animal and plant world as early as in Early Phanerozoic. It means that the rate of their appearance was unusually fast. We do not know what was a leap from the physico-chemical evolution to biological evolution but at the very beginning of the biotic process bacterial forms of life are recorded so early that it is impossible to give a scientifically substantiated answer to the question: what is older - the Earth or life?

The Precambrian evolution of living systems can exclude the statement

about the Cryptozoic as an eon in which life is hidden for ever. Now quite real forms and stages in the evolution of this life become quite evident, it is a multifacet process forming a single whole with the Phanerozoic stage. The main features of the process are: still uncertain but extremely long duration, continuity, orientation, irregularity, it became more complex and rapid, was subject to periodic ecosystem changes related to ecological crises. Critical epochs allow us to better understand the relationships between biotic and abiotic factors. On the whole it is a co-evolutionary (synergetic) process, the kernel of the biospheric evolution in general. The mightiness of this phenomenon will become even more obvious if we add that billion years records of biospheric events confirmed now exclusively for the Earth.

Based on these statements, a new Programme of comprehensive study on the evolution of the biosphere and ecosystem reconstructions in the geological past was launched recently at the Academy of Sciences. This Project is to be aimed at comprehension of the early history of the modern biosphere. The state and the destiny of the latter are now the main concern of the people. However, scientists, those involved in technology, political leaders of different states are not yet ready to create global systems for the biosphere protection as a first order ecological system; the knowledge available is also not sufficient to make reliable predictions. We just begin to understand that the modern biosphere is not a simple living shell surrounding our planet and only a part of an extremely complex ecological system whose mechanism resulted from a long-term geological history. Therefore, the knowledge of geohistorical trends and character of the biospheric process and primarily about the crisis epochs marked by changes in ecosystems is very important. The study of global changes of the environment and climate becomes the main issue for the scientists of the whole world. Its biospheric-evolutionary aspect is of prime scientific interest for me during the recent years.

Thank you for your attention.