CHRONICLE, BIBLIOGRAPHIC DATA, AND PERSONALIA

FROM BELGRADE TO SOFIA WITH N.N. BOGOLYUBOV IN SEPTEMBER 1978

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It is with the ultimate pleasure that I greet you, as the attendees of the Conference honoring Nikolai Nikolaevich Bogolyubov acknowledged worldwide as the one of the great physicists of the 20th century. I had an honor to meet with Bogolyubov in Belgrade, Serbia, in September 1978, when he was the guest of the Serbian Academy of Sciences. At that time, I was doing a research in theoretical plasma physics in the Department of Theory of Plasma Phenomena at the Lebedev Institute of Physics, Russian Academy of Sciences led by Victor P. Silin and was on the leave of absence from the Lebedev Institute. Bogolyubov and I drove together in my car, along with Bogolyubov's wife and his collaborator, from Belgrade to Sofia, Bulgaria, whereby Bogolyubov was the guest of the Bulgarian Academy of Sciences. I was fortunate to get acquainted with the human side of N.N. Bogolyubov. At that time, he was the Director of the JINR at Dubna. He was informing me (in a fatherly manner) about the exciting work that was being done there on the hadron physics, on the work in the USA (the quark theory of M. Gell-Mann and the "MIT Bag" model of Victor Weisskopf and collaborators), and the research worldwide.

As I was driving my car, Nikolai Nikolaevich Bogolyubov would often turn to me, telling me about the physical problems that had been being addressed at the Dubna. He would do that as if I was on a par with him in the affairs. I call this the humility of a great man. I've been encountering this feature as a standard trait in men of great achievements: the greater the achiever, the greater the humility.

This was in September 1978. We were on our way (in my BMW-2002) from Belgrade, Serbia, to Sofia, Bulgaria, where Bogolyubov was the guest of the Bulgarian Academy of Sciences. He was sitting next to me, and his wife and his collaborator on the back seats.

Bogolyubov was working at that time on the quark theory of hadronic matter. He talked about Murray Gell-Mann who was one of the pioneers in the research. He also talked about Victor Weisskopf, whom he had known personally, as the MIT (Massachusetts Institute of Technology) leader and as the Director of CERN., Then I had not had a faintest idea that, in 3 short years, I would be at the MIT Plasma Fusion center, working in the Group of Abraham Bers. He talked about other researchers worldwide. Bogolyubov said that Gell-Mann is the closest to Einstein in the intellectual capacity.

I had met Nikolai Nikolaevich Bogolyubov a day before at the Vincha Institute. Bogolyubov was at that time the Director of the Dubna Institute and was visiting Belgrade as a guest of the Serbian Academy of Sciences. I told Bogolyubov that I had been doing research in the plasma parametric theory at the Lebedev Institute of Physics, in the Department of Theory of Plasma Phenomena led by Victor Pavlovich Silin. Bogolyubov had known Silin personally and had a great appreciation for Silin's scientific talent. The next day the group was planning to go to Sofia, Bulgaria, by train. I suggested to give them a lift in my car.

Bogolyubov's mathematical methods [1] played a crucial role in the theoretical nonlinear plasma physics and, in particular, in the plasma parametric theory. Sagdeev and Oraevky [2] used the Bogolyubov method in their pioneering paper treating the parametric decay of the intense plasma electrostatic Langmuir eigen mode, and Silin did so in his pioneering paper [3] on the parametric decay of an intense external electromagnetic wave in homogeneous plasma. Rosenbluth [4] also used the Bogolyubov method in his pioneering paper, by addressing the convective-absolute character of parametric instabilities in laser fusion plasmas.

On our way to Sofia, we were talking about many things. Bogolyubov's wife and his collaborator were chatting constantly... but not Nikolai Nikolaevich: he would talk only to correct the statements of others. By doing that, he would use 2-3 short sentences typical of a mathematician used to express his thoughts via short mathematical theorems and lemmas. At one point, we stopped by the restaurant along the road for lunch, somewhere near the city of Nish, Serbia. We were seated in the middle of the room. Somebody opened the door and a cold air swept in. Bogolyubov's collaborator said that cold air had hit him straight into his face. Bogolyubov corrected him by saying that it was not a straight hit: cold air first flows turbulently around the walls, ceiling, and the floor until it fills the whole space. That was a good lecture on aerodynamic turbulence. In Sofia, we encountered a very pleasant welcome by the members of the Bulgarian Academy of Sciences. They organized a dinner party (which I attended), honoring Nikolai Nikolaevich. Next day in the morning, I was driving back to Belgrade. A month thereafter, I was on the Aeroflot airplane on my way to Moscow. Recently, I wrote autobiographical notes entitled "My Passion" with one chapter dedicated to my encounter with Bogolyubov and entitled: My Encounter with N.N. Bogolyubov [5].

I am joining you in the celebration, and I salute the life and the achievements of Nikolai Nikolaevich Bogolyubov.

1. N.M. Krylov and N.N. Bogolyubov, *Introduction to Nonlinear Mechanics* (Princeton University Press, Princeton; 1947). The Bogolyubov mathematical methods of nonlinear mechanics are widely used in plasma parametric theory and in nonlinear plasma physics in general.

2. V.N. Oraevky and R.Z. Sagdeev, Zh. Tekhn. Fiz. **32**, 1291 (1962).

3. V.P. Silin, Zh. Eksp. Teor. Fiz. **48**, 1679 (1965).

4. M.N. Rosenbluth, Phys. Rev. Letters **29**, 565 (1972).

5. V. Alexander Stefan, *My Passion* (Stefan-University-Press, La Jolla, CA, 2008).