

MAJORING IN BIOPOLITICS IN THE I.U.B.E.

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The pendulum phenomenon and the need for education

Due to the new Gorbachev policy of 'glasnost' and 'perestroika,' the Soviet Union entered into a turbulent transitional period in its history which turned out to be very peculiar in many ways. This applies particularly to the diverse ecological issues which, during the past five years, underwent a spectacular metamorphosis from near criminal negligence to a sometimes unhealthy and groundless exaggeration. This poses many new problems not only for the politicians and journalists, but also for the scientists and particularly the educators.

The most dramatic case to be cited here is the tragic Chernobyl disaster in which the incident was significantly identified with the very beginning of perestroika and which is now unjustly misused and sometimes wholly unrelated to the political and economic issues—all of this due to the lack of proper and systematic ecological education and the general ecological ignorance of the population. The pendulum phenomenon which is so characteristic in almost all walks of life in the USSR, including ecology, manifested itself in the anarchistic acts of the small and irresponsible groups or individuals which were dead silent five years ago about the most acute ecological issues such as the Aral Sea case and today noisily and 'quite democratically' protest against almost every project, however perfectly safe it might be, like the construction of a hotel, zoo or electric power station in Moscow. The understanding of the just and fine balance between the ecological safety and the continuity of the economic progress, which turned out to be peculiarly intertwined with the development of democracy—and its unwelcome by-products—could be achieved only through the scope of proper and very well thought-out educational measures.

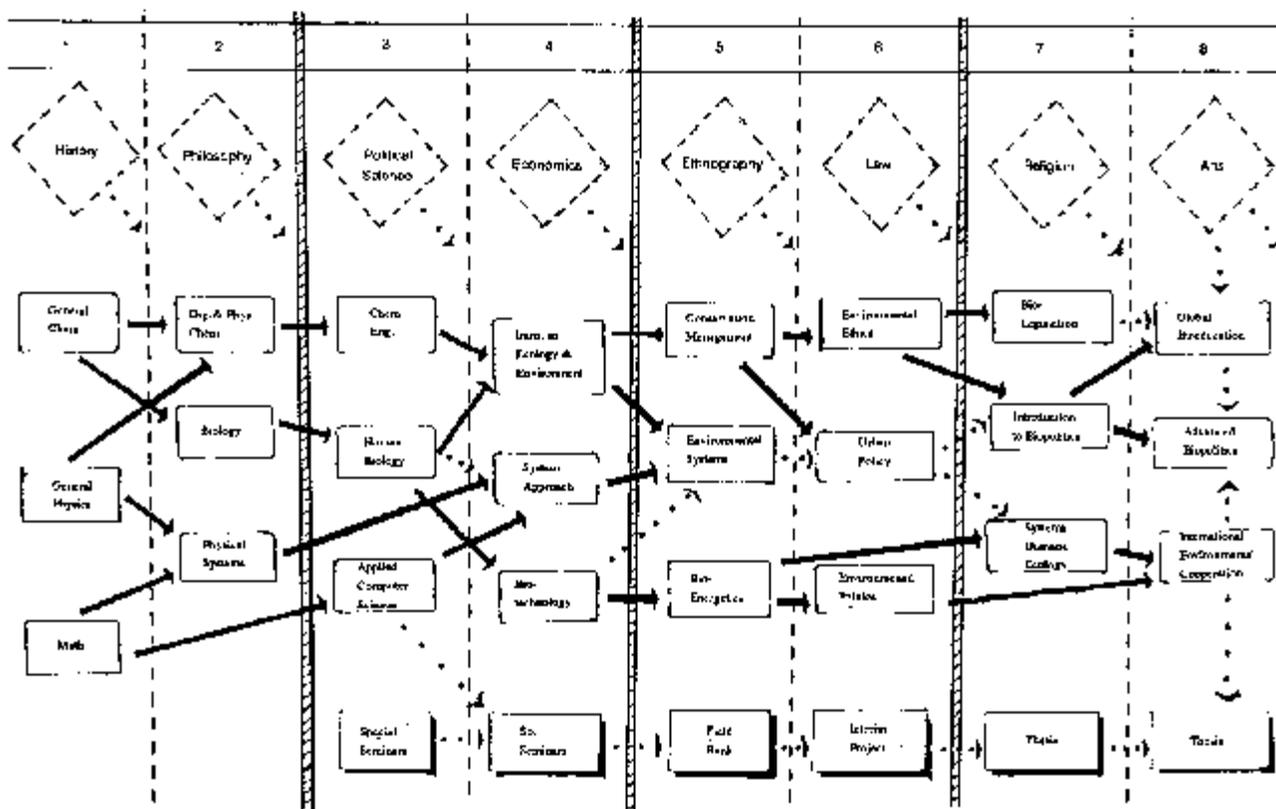


Figure 1: Structural - Dynamical Model (SDM) of the Biopolitics Major.

A tentative curriculum

Whatever problems the world is having now with regard to ecology and environment—and they are numerous—all of them could be solved when the proper element is included in the systematic approach to their solution—that is, adequately qualified personnel. 'Amateurs' in biopolitics,

although some could be great specialists and experts in their respective narrow, professionalized fields-such as economics, chemical engineering, biology, international relations-could sometimes contribute a significant in that process but only a properly trained, highly qualified specialist could and, ultimately will, provide day-to-day services to the respective agencies, offices, and enterprises, directly and inadvertently dealing with the environmental problems of today.

Let us re-emphasize: in the systematic approach to the solutions of today's and tomorrow's problems of environment, all elements are important. These include proper assessment and evaluation of short-term and long-term planning, creation of efficient organization, sufficient financing, achieving international cooperation, and working out the legislation for tackling bio-environmental problems-all of them imminent, all very important.

To use an analogy, what does one need to construct a modern, multi-story, multi-purpose house? One must have the bricks, the beams, concrete panels, communication elements of all sorts, tubes, cables, glass panels, as well as all kinds of adhesive materials, such as cement. But all those things would be useless without properly trained construction workers and qualified maintenance personnel who can actually build the building and keep it efficient. And the better this building is built, the better and longer and more efficiently it will function.

The training, or rather, the education of such personnel is a very complicated and rather difficult job to accomplish. It is mostly because so far hardly any precedents in the world educational practice and experience exist today in this field. To the best of this author's knowledge there is no single institution in the world which offers an established or constitutionalized Major in Bio-Environment let alone Major in Biopolitics. Even the majors offered in so obvious a field as 'Environmental Problems' could easily be counted using the fingers on both hands. Thus there is no precedent, no example to follow, no models to copy or else to adjust by a little. This kind of curriculum should be constructed-designed the more proper word-practically from scratch.

Of course, in designing this unusual curriculum, some fundamental principles of designing regular curricula should be used. Some say, 'why re-invent the wheel?' But the structure and content of the curricula used in the best universities in the world-such as MIT or Princeton-represent the perfect 'wheels' for the 'educational vehicle.' And after all, the wheel is indeed an ideal construction; the only problem is how to use it with the utmost efficiency. So, using the fundamental features of the best existing curricula and infusing them with the proper content-that is, the right courses-would most probably advance the solution of the cumbersome task of designing the brand new curriculum of a Biopolitics Major.

As mentioned already, there are some fundamentals of curriculum structure. For instance, the optimal curriculum is really optimal when the workload, usually a 'weekly workload', is distributed by semesters, when every semester contains a roughly equal number of courses-usually five plus one courses- and where there is a proper balance between different types of learning and teaching procedures such as lectures, laboratories, seminars, independent studies. In every curriculum worth its salt, different academic cycles should be represented. These are fundamental or 'natural' science courses, courses in the humanities and social sciences and departmental or 'major' courses, and they should be properly distributed by semesters. Hence fundamental courses should be taken in the first half of the program in the first to third semesters. Major courses should be taken in the second half of the program and humanities should be taken throughout the whole program with a minimum one course taken in each semester. More important is a sequence of courses, where every course should be preceded by 'prerequisite' course, except in the case of starting, fundamental courses, which are de facto also preceded, but outside the curriculum, by the secondary school or any other form of previous education.

The optimal curriculum principally has two different types of courses: mandatory courses and required without any exception by this university, a given school such as the School of Engineering, or a particular department, and elective courses. The former types of courses should be included in the individual study program of every student. The latter, 'elective' courses should have varying degrees of selectivity, from 'restrictive' to 'free' electives.

Completion of this kind of study program intends to build a breadth around the depth which is usually acquired by completion of a regular departmental major such as Biology or Chemical Engineering. There are also many smaller and finer requirements to designing the optimal curriculum, but we will omit them here because of their 'technical' nature.

Much more important, of course, is a list of courses, that forms the program's content. And here lies the greatest difficulty, since mistakes in the proper choice of courses would either lead to the overload of work and value, and to the lessening of the quality of the program.

The Biopolitics Major represents a fine example of a university major which is truly inter-disciplinary in nature. It has to involve sufficient intellectual strength to produce persistent and dedicated bio-environmental leaders which are so badly needed now in almost any country of the world. Actually, this major should be designed to provide the student with the opportunities to:

- Acquire a broad, scientifically-based understanding not only of the structure and function of our physical surrounding and biological diversity, but also, which is more important, of their intertwining and interspersing into life-support systems which make up the world we live in and which is bios.
- Become a citizen-even more so, a leader-who effectively and conscientiously participates in all kinds of processes which demand a

utilization of scientifically based knowledge for making different kinds of policy decisions which foster wise and proper use and, more so, enhancement of bios, i.e. our life-supporting finite ecosystems and resources.

- Become familiar with monitoring and discovering trends and forecasting the tendencies in environmental quality and general conditions and solving the problems involving the analysis and integration of environmental data.

If the curriculum of the Biopolitics Major is designed and implemented properly in the educational process, we would fulfil the major task of the International University for the Bio-Environment (I.U.B.E.) which is to set the example for the other educational institutions of the world. Thus, the I.U.B.E. should be and, I hope, will be the scientific 'research laboratory', the 'pilot plant' and the 'producing unit' all at the same time. This unique combination presents an awfully difficult, yet paramount task to be achieved.

Dr. **Boris A. Gontarev** is President and Academic Dean of the Academy of World Civilisations for the U.S.S.R. branch of the World Laboratory. Having received his Ph.D. in theoretical chemistry, he is an expert in technology and has conducted research in comparative education, higher education management and quality control, educology, the humanitarisation of engineering schools, perestroika in Soviet science and education, and the renewal of religion education in the U.S.S.R. Author of Technical University, U.S.A., Dr. Gontarev is responsible for all entries on the American universities in the forthcoming edition of the Encyclopaedia Sovjetica and has published numerous major articles on higher education in the Soviet Union.