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Note: The documents presented hereafter (the Declaration and the Conclusions) are the official translations of the Ministry of Science, Education and Sports of the Republic of Croatia

We, the scientists gathered at the First Congress of Croatian Scientists from Croatia and Abroad held in the capital city of Zagreb and in the town of Vukovar which, through its suffering, has become the symbol of Croatian destiny and struggle for freedom,

Aware of the challenges of the present moment when the Republic of Croatia, as a free and democratic country, is on its way to becoming a full member of the European Union,

Aware of the role of science and education in that process,

Believing that Croatia can develop economically, culturally and politically only by respecting human rights and freedoms, upholding the rule of law and fostering knowledge and education,

Considering the responsibility of scientists for the development of the Republic of Croatia,

We, therefore, the Croatian scientists from Croatia and abroad, adopt the following

Declaration

1. The aim of the Congress of Croatian Scientists from Croatia and Abroad, organized by the Ministry of Science, Education and Sports of the Republic of Croatia, which has brought us together from all over the world, is

- to affirm and give witness to our belief that of all types of investment in the development of any country, and thus also of our homeland Croatia, the most valuable and the most rewarding is the investment in people, especially in young people, and particularly in their education and learning,
- to demonstrate by our presence how much Croatia has given to the world by educating her scientists who later went abroad searching for more favorable working conditions, and to transform the "brain drain", which is simultaneously one of the greatest dangers for countries like Croatia as well as one of the greatest gifts that a country can give to the world, from an ailment into a remedy for our homeland, and through our cooperation as Croatian scientists from abroad and from Croatia, to let the world return to Croatia the same gift of support, in expertise and in kind, for the development of science in Croatia and for the overall development of the country, for which the investment in human capital and in education is a crucial precondition.

2. The development and prosperity of a country are based on the promotion of freedom and democracy on the one hand, and on its economic and technological development on the other. None of these things are achievable without knowledge and science. Science forms the basis of today's rapid development of technology, which in turn is the precondition for economic development. Thus the natural, medical, technical and information sciences play a crucial role in all modern economies. But the social sciences and humanities are equally important for the constitution of a modern society, particularly when it comes to preserving and developing a country's cultural identity and the achievements of modern civilization.

Political responsibility must be based on the sovereignty of peoples and citizens, expressed through their political institutions, and in a democratic country it cannot be supplanted by scientific expertise. The will of the people and their representatives must be based on reliable information about the options available for solving the problems of the modern world, in which respect science plays a major advisory role. Although a strong link between science and the economy is a precondition for both economic and scientific development, science should never become a mere instrument in the service of the economy, striving instead to preserve its autonomy, since almost all great discoveries have

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The First Congress of Croatian Scientists from the Homeland and Abroad

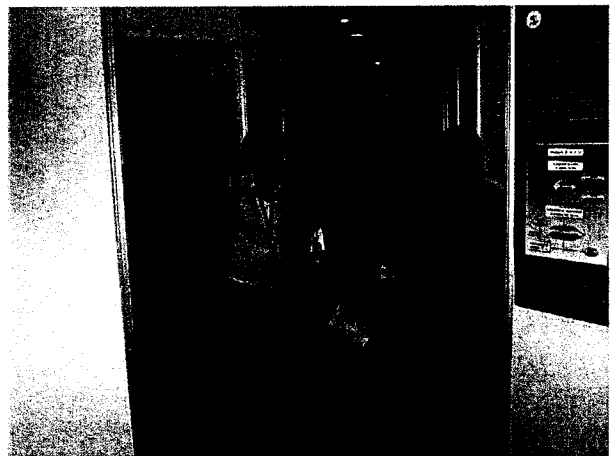
Zagreb-Vukovar, November 15-19, 2004

The First Congress of Croatian Scientists from the Homeland and Abroad took place on November 15-19, 2004, in Zagreb and Vukovar. The organizer was the Ministry of Science, Education and Sports of the Republic of Croatia. I believe that approximately 400 colleagues from the fields of natural, technical, biotechnical sciences, biomedicine, health care, as well as social sciences and humanities, have attended the Congress. Together with them, and thanks to cooperation between the Ministry of Science, Education and Sports and the Croatian Academy of Engineering, 267 assistants participated at the Congress Poster Section, where they presented their posters from the scientific meetings that were held abroad during 2002, 2003 and 2004. The Croatian Academy of Engineering has prepared and published the Proceedings of the Congress Poster Abstracts, Vol. I and II, and provided for that all assistants receive it during the Congress. Although the Congress had been announced as early as spring, 2004, it seems that only few colleagues from Croatia have recognized on time the meaning of this meeting, because there were only few of them that I noticed from the field of biotechnical sciences. The Congress started on a high political level, including the attendance of the President of the Republic of Croatia, the Prime Minister of the Croatian Government, the President of the Croatian Parliament, the Minister of Science, Education and Sports as well as other VIPs.

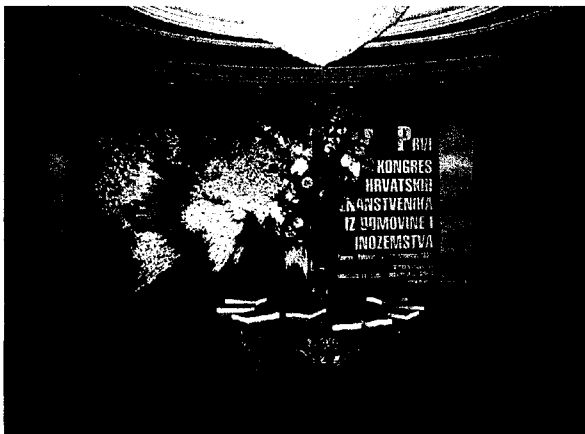
As most of the lectures presented at the Congress were not strictly expert-oriented, but rather principle-oriented and encompassing the issues of education, educational reform, science, promotion to higher scientific degrees, CC papers, project evaluation, international peer-reviewing, cooperation between professions, interdisciplinarity and other

topics interesting to the colleagues in the system of science and higher education, most of the lectures from one field were almost equally interesting to the other fields also. I kindly ask the colleagues that will not be mentioned in this review not to resent for my commenting only few lectures, because I either did not attend their lecture or I did not take notes.

There were 12 plenary lectures at the Congress in total, and more than 90 participants were involved in the discussions.



Young assistants at the Faculty of Food of Technology and Biotechnology, University of Zagreb



Hotel "The Westin" Zagreb

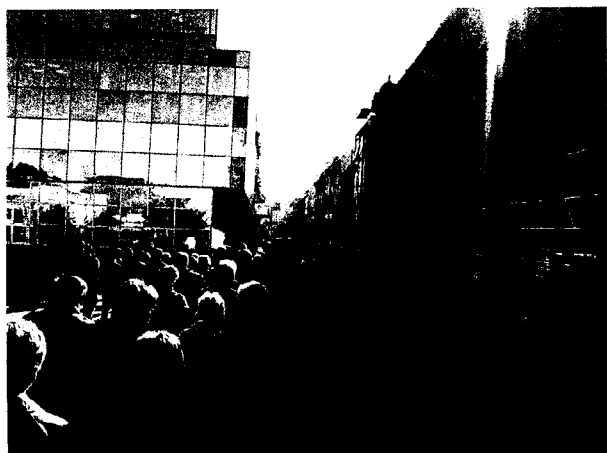
The Economic Forum was held on November 17, under presiding of Mr. Nadan Vidošević, President of the Croatian Chamber of Commerce. The Forum included the propositions and measures presented by the managers of our largest companies (such as Pliva, Podravka, Končar – Electrical Engineering Institute, Privredna banka), on how to facilitate a faster development of the Croatian production and economy via direct investments in science, education and technologies.

During the Natural Sciences Section, Mr. Vladimir Paar, Full Member of the Croatian Academy of Sciences and Art, was speaking on project estimation, results accomplished on the projects, analysis on how many CC papers were produced by a project (he stated 40), i. e. by a scientist engaged on a project. Mr. Paar considers unacceptable that all fields should have the same criteria for promotion of scientists to higher scientific degrees. On the contrary, the most prominent scientists should define the criteria for their fields. He also emphasized the importance of cooperation between scientists and the media, as well as the idea that

scientists should make efforts on gaining the positive perception of their professions in the media, as well as on improving the existing cooperation.

Mr. Zlatko Bačić from New York, U. S. A., stated that the young scientists do not have to stay in the scientific and higher-educational institutions exclusively, but they should accept the employment in the hi-tech companies instead. He admitted that he is aware of the lack of such companies in Croatia and that the problem should be seen in a wider perspective. He also emphasized that the scientific system should undergo a significant metamorphosis, including selective support to projects and more productive scientists. Thus more money should remain to support quality and productiveness of human resources instead of their equalization. The project evaluation should be more rigorous, including prevention of the conflict of interests, which can be realized only if we use the external peer-reviewers. The number of papers and the impact factor are overestimated in Croatia, while lesser significance is given to the peer-reviewers, which is a *vice versa* situation in comparison to the situation abroad. If the scientific peer-reviewers' public abroad evaluates someone's work positively, he is to become Professor, and if not, he is deemed to look for another employment after six years. Only successful scientists with projects have the assistants, who are in such cases on the project payroll. This means that young potential scientists develop under guidance of prominent top scientists only.

Mr. Mladen Petravić from the National University of Canberra, Australia, presented his opinion of the urge for interior changes in the Croatian science. As he sees it, the amount of funds of 100.000,00 HRK per project is intolerable and, moreover, insufficient. If the funds per project were larger, it would facilitate the import of scientists from abroad to Croatia, i. e. the Croatian projects could have guest researchers on the payroll. In Australia the scientific priorities are defined and scientists are involved with those priorities instead with their own interests, which would be intolerable. Therefore it is obvious that Croatia has no scientific priorities defined. When we define the priorities, especially the priority industries, only then the economy can be the engine of the education, science and the entire country respectively. The question is what is the Croatian speci-



Memorial procession heading towards the Vukovar Cemetery



Detail from Vukovar ruins

ficity, what is inventive and original for our country. He stressed that our research teams are small or at least inactive, if we consider the fact that we have approximately 1800 projects with as many active researchers. The final conclusion drawn from such a situation is that every active researcher has his own project. The relation between the number of researchers and the number of assistants is inappropriate also. In Croatia these numbers are equal, while in Germany the numbers of assistants and enrolled students are equal. In Australia there is a network of scientists, which is necessary for Croatia also, because it would prevent several groups of scientists from engaging on the similar problem without cooperation. Mr. Petravić does not support the postgraduate brain drain from Croatia abroad, but suggests that a material basis should be provided for the young scientists in order to facilitate their postgraduate studies at home. The scientific basis should provide proper working conditions for them, so only after acquiring their doctorates they can go abroad to develop cooperation with other institutions, but in such cases they will return to Croatia.

In the field of Technical Sciences Mr. Ivica Crnković, who is employed in Sweden, has presented his lecture. 50% of the Swedish youth are students, which should be a goal for Croatia also. He thinks that the teaching should be approached pragmatically and multidisciplinary, while the education should be internationalized. Aside from the State, the economy and foundations should also finance education and science. The scientific institutions should apply to contests to ensure the funds for their development. He is aware that the cooperation of scientists in Croatia and abroad is insufficient, and that it is often realized on the basis of common interest and personal acquaintances of scientists. Like Mr. Petravić, he also supports the idea of the scientists' networking, who would be involved in project and paper peer-reviewing and journal editing. According to him, the peer-reviewing and editing should be a volunteer work, because it is a duty that obliges every scientist. Teaching in collegia as well as the international recognition of collegia is very appealing form of cooperation also, together with undergraduate and postgraduate students' exchange. The cooperation might be also realized through organization of



Members of the HATZ in the memorial procession

conferences. We should also have in mind the cooperation on the European projects, some of which have very simple procedures of joining, for the inclusion on such projects is what is needed as much as possible. Neither the bilateral cooperation should be discarded, nor the applications for international and European funds. Mr. Crnković stated that he does not expect this Congress to create miracles, but what he does expect from every individual are the ideas on how to contribute the cooperation.

The data shown at the Congress have demonstrated that Croatia has 3 MScs and PhDs per 1000 inhabitants, while Europe has 6, Japan 9, and the U. S. A. has 6 MScs and PhDs per 1000 inhabitants.

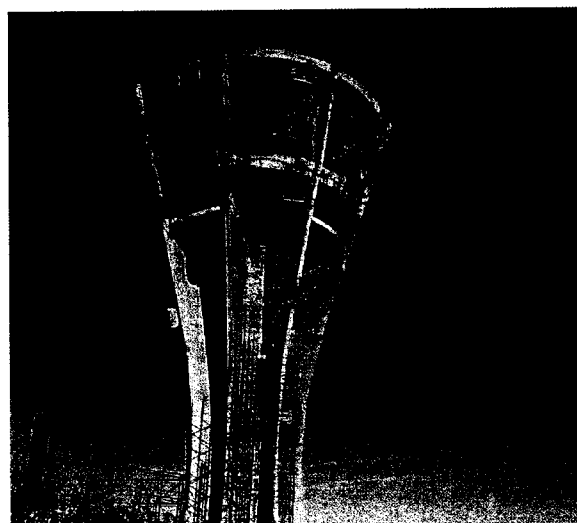
Mr. Bojan Cukić, employed at the University of Virginia, U. S. A., has presented his laboratory with 15 employees, whose weekly expenses are 28.000,00 USD. The laboratory is in a smaller part financed by the U. S. Ministry of Science, while the greater part of the funds comes from the international projects and the economy, which expects the investments to be justified. Another source of funds for the laboratory are the foundations. Mr. Cukić stated that the promotive activities are essential for every department and institution, because thus it is visible what happens with the money invested in one's work. We should not underestimate the papers in journals, but writing papers does not cover the entire working activities. Contacts make the money! As the idea for making funds, all available opportunities should be taken into consideration, such as concession of the building's or lecture hall's name for a certain period or several years, even for 99 years. An example that he demonstrated has shown that sometimes 50% of time can be spent on non-scientific activities.

During the Biomedicine and Healthcare Section many lecturers have spoken: Mr. Željko J. Bošnjak (Wisconsin, U. S. A.), Mr. Daniel Rukavina (Rijeka, Croatia), Mr. Mirko Dikšić, (Montreal, Canada), Mr. Mladen Boban (Split, Croatia), Mr. Željko Dujčić (Split, Croatia), Mr. Ivo Kalajzić (Connecticut, U. S. A.) and Mr. Davor Vugrin (Texas, U. S. A.). Here is a general scope of ideas presented in their lectures. The scientific diaspora can participate in Croatia through lectures and project evaluation, but they can also accept the young postgraduate students, who wish to accomplish their PhD degree if such students have no

proper conditions for that in their own institutions. This idea was demonstrated by an example of the young scientists from Split. Some of the lecturers mentioned above have also mentioned the initiatives for founding the national excellence centers, quality assurance in the higher education as well as quality management in the higher education and scientific institutions. Connecting clinical hospitals and medical faculties was also mentioned as a *conditio sine qua non*, because these institutions are in fact two spheres in charge of two Croatian Ministries, the Ministry of Healthcare and Social Welfare and the Ministry of Science, Education and Sports. One of the questions was also how much a scientist should be involved with teaching, and the conclusion was that the more prominent scientist one was, the less he should participate in teaching. One colleague from Toronto stated that his involvement with teaching is only 20 hours per year. If the case is opposite, the colleague who is not science-oriented should be involved with teaching maximally and expected to write textbooks. The idea that the application criteria for PhD should be harder, such as 3 CC papers as obligatory, was also very interesting. There was also the idea of founding the network of institutions involved with post-graduate teaching. Thus the post-graduate curricula might encompass various universities and towns. During the lectures the urge for the international cooperation in fighting cancer was also stressed, because it was estimated that approximately 6 million people will die from this disease in the next 10 years.

Mr. Stanimir Vuk-Pavlović (Minnesota, U. S. A.) has presented his lecture during the Biotechnical Sciences Section. He spoke in favor of all four biotechnologies, the so-called "red", "green", "white" and "blue", and against the simplified perception of biotechnology. He stressed that Croatia can make a significant success in health tourism, for example in obesity prevention and cure.

Mrs. Gordana Kralik, Rector of the Josip Juraj Strossmayer University of Osijek and President of the Rectorial Council of the Republic of Croatia, has spoken on the need for privatization and transformation of agriculture, on energy production in the rural areas and the ecological agri-



Ruins of the Vukovar Water Tower



Participants of the Congress during the commemorative ceremony at the Vukovar Cemetery

culture, on the agricultural potential for development of the Croatian economy, on the trends in production of agricultural products as well as on the role of forests and forestry in Croatia. Mr. Slavko Matić, Full Member of the Croatian Academy of Sciences and Art and Professor at the Faculty of Forestry, University of Zagreb, has also spoken on the condition of forests in Croatia. I have to admit that he emphasized the advantages of the natural forests very eloquently and from the heart, and reminded the auditory of the negative aspects and problems brought about in this field by the Act passed in 1996.

Mr. Vladimir Parpura (California, U. S. A.) has discussed the issue of patenting and whether or not one should patent the invention. He thinks that the proper answer is "yes", and before the paper is sent to the journal. In order to facilitate the procedure of patenting, an office for research activities as well as office for technological transfer should be founded.

Mr. Boris Mikšić (Minnesota, U. S. A.) has also stressed the importance of patenting. Mr. Davor Šamota has spoken on ecological food, as well as Mr. Zen Rengel from Australia. The issue of food technology was discussed in the lecture of Mrs. Žaneta Ugarčić-Hardi, Vice-Rector of the Josip Juraj Strossmayer University of Osijek.

Mr. Vladimir Mrša, Dean of the Faculty of Food Technology and Biotechnology, University of Zagreb and our young colleague Mr. Tomislav Hengl from Osijek, have both discussed the issue of education in biotechnical sciences, while Mr. Srđan Novak (Faculty of Food Technology and Biotechnology, University of Zagreb) and Mr. Krunoslav Kovačević (Pliva Institute Ltd. Zagreb) have spoken on the connection of biotechnology and economy.

It is important to mention that all information on the participants at the Congress is available in the Proceedings of Section Leaders' Abstracts. I would especially like to stress a worthy intention to gather together young scientists, the assistants, with our scientists who work abroad, and get these groups to meet each other. My opinion is that the assistants, who have the imperative of advancing in our system also, are unjustly discarded. However, in this moment

the main intention was to show the situation of those assistants, who still do not have the opportunities for employment, and yet our wish is that they stay in Croatia. Perhaps a very intensive curriculum of lectures at this Congress has disabled these two groups from meeting each other directly, but there is still the Proceedings of the Congress Poster Abstracts, containing the information on posters that the assistants had presented 2002, 2003 and 2004 at the scientific meetings abroad, and thus the opportunity for their senior colleagues abroad to get a perspective of our younger colleagues' activities. The Proceedings consists of two parts, Vol. I – Natural, Technical and Biotechnical Sciences (493 poster abstracts) and Vol. II – Biomedicine and Healthcare, Social Sciences and Humanities (320 poster abstracts). At the end of the Proceedings there are lists of young scientists, project leaders and countries in which the posters had been presented (most of which in Italy, Slovenia, Hungary and Austria).

In the work of the Congress have also participated the members of the association "Društvo znanost.org" (in English: "Society science.org"), whose aim is to bring together people and projects that wish to make a shift in Croatia towards a knowledge-based society. President of this association is Mr. Damir Kovačić, and more information about the association is available at its web address: www.znanost.org, or via e-mail: ured@znanost.org.

During the social program of the Congress the National Foundation for Science, Higher Education and Technological Development of the Republic of Croatia was presented to the participants. The presentation was led by Mr. Pero Lučin, President of the Foundation's Managerial Board. The other members of the Managerial Board are Mr. Rudolf Scitovski, Mr. Tomislav Cvitaš, Mr. Ivo Babić, Mr. Stjepan Marčelja and Mr. Zvonko Kusić. The information on aims and first activities of the Foundation are available at its web address: www.nzz.hr. The Foundation shall finance scientific, developmental and educational projects according to its Strategic Plan.

The first part of the Congress was taking place in Zagreb, the Croatian capital, on November 15-17, while the second part was scheduled for November 18-19 in the Croatian heroic town of Vukovar. On Thursday, November 18, the participants of the Congress have joined the solemn commemorative procession on the occasion of 13th anniversary of the Vukovar tragedy in the Homeland War. Afterwards the Congress proceeded with its work in Vinkovci, where the Conclusions of the Congress were passed. The Conclusions are conceived as appendix to the Declaration of the Congress. The Declaration was passed in a very important moment for Croatia, when there is a need for public awareness of the challenge that the Croatian application for membership in the EU brings about. As the Declaration emphasizes affirmation of knowledge and investment into education and science as the most profitable investments, this Declaration shall be presented to the Croatian Government as an obligatory document.

Milena Mandić