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Newsletter

NATO Science and Society

NATO Science Committee and Committee on the Challenges of Modern Society

UKRAINE, OUR HOST

The Science Committee will soon convene in Kyiv, in line with its policy of having direct contact once a year with a Partner country. Last year we were in Tashkent in Central Asia and the year before in Tbilisi in the Southern Caucasus. Each of these seminars is a source of mutual enrichment - for Committee members who are able to discover new cultures and a new scientific environment, and for the host country which is able to understand better the Committee's political orientations and ways of working.

As for me, these visits offer the opportunity for contacts with the political, administrative and scientific authorities of the host country. But from now on, in the context of the new Public Diplomacy Division, I will also use the occasion to meet with influential members of the media, with NGOs and Think Tanks which deal with questions of security, to declare the merits of NATO's Third Dimension, and take on board suggestions for deeper and more effective scientific cooperation.

For the Science Committee, Kyiv will be a key stage in the process of adjustment to the new missions of the Alliance, and a point of departure for new initiatives.

Jean Fournet



Scientific and Environmental Cooperation with Ukraine

At the invitation of the Ukrainian Authorities the **NATO Science Committee** will meet in Ukraine from 24-28 June 2003. This meeting will consolidate the already good relationship which exists between NATO and the Ukrainian scientific community. The relationship is formalised in the special NATO-Ukraine Working Group on Scientific and Environmental Cooperation which meets annually within the framework of the NATO-Ukraine Commission. **Ukraine is the most active participant in the Science Programme after Russia**, and it is fitting that the Science Committee should be able to visit Ukraine to cement the ties that have been built up over the past twelve years.

A stimulating programme of meetings and visits will be the backdrop to the Science Committee meeting itself. Among these events will be the first meeting of the **NATO-Ukraine Working Group** in

full Science Committee session. One of the principal tasks of the group is a commitment to analyse the relevance of the activities supported under the Science Programme to Ukrainian national priorities in science and technology; **discussion of relevance to national priorities and to NATO objectives** will be a particular feature of the June 2003 meeting.

As has become the custom when the Science Committee meets abroad, a **seminar with 'Leaders of Tomorrow'** will take place, and to encourage debate a number of significant topics will be introduced which are outlined on page 3.

We hope that the events surrounding the Science Committee meeting, and the items featured in this Newsletter, will stimulate the interest of the scientific community in Ukraine and elsewhere in developing further ties within the Euro-Atlantic community.



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Survey of NATO-Ukraine Collaboration

Since 1999, over 140 Ukrainian research teams have been successful in the competition for Collaborative Linkage Grants (CLGs) and have therefore collaborated directly with colleagues in 27 different countries (see chart). A further 30 have received support for Expert Visits. Transatlantic collaboration accounted for about 20% of the total.

27 NATO Workshops or Advanced Study Institutes have taken place in Ukraine since 1999, and a further eight will take place this year, both in Kyiv and elsewhere in Ukraine. More than 1100 Ukrainian scientists have participated in these or other NATO workshops.

16 Science Peace projects are underway in Ukraine, involving 21 research teams; Ukrainian research will receive over 2 million Euros for development of R&D projects under this programme.

Computer Networking development has also been a feature of Science Programme support, with assistance most recently focussed on policy issues to ensure integration with pan-European networks.

In the same period, 250 Ukrainian researchers have received Science Fellowships to study in NATO countries.

Some of the stories behind this broad picture of collaboration built up over the past few years will be presented in this Newsletter. As may be seen, the NATO umbrella covers many diverse activities that collectively contribute to the progress and understanding that are essential for a secure and stable world.

Number of CLGs to Ukraine since 1999 and number of research partners in each collaborating country

141 .. Ukraine	3 .. Netherlands
44 .. United States	2 .. Armenia
37 .. Germany	2 .. Azerbaijan
24 .. Russia	2 .. Belarus
16 .. France	2 .. Canada
15 .. Italy	2 .. Denmark
15 .. United Kingdom	2 .. Hungary
13 .. Poland	2 .. Norway
9 .. Spain	1 .. Estonia
9 .. Turkey	1 .. Israel
8 .. Belgium	1 .. Kazakhstan
7 .. Greece	1 .. Lithuania
6 .. Czech Republic	1 .. Romania
5 .. Bulgaria	1 .. Uzbekistan

NATO-Ukraine Milestones in Science and Environment

- Nov 1991 **First NATO Grant to Ukrainian scientist** under the Science Programme. A grant was awarded in November 1991 to Dr. A.V. Rynditch of the Academy of Science's Institute of Molecular Biology & Genetics to study with Dr. G. Barnadi of the Stazione Zoologica Anton Dohrn, Naples, Italy on research on the Human Genome.
- Dec 1992 **First CCMS Study Visit to Ukrainian Ministry officials** Mr. J. Ruban and Mr. A. Kurduk to work on the pilot study on Cross Border Environmental Problems Emanating from Defence Related Installations and Activities
- Nov 1994 **First NATO Workshop to be held in Ukraine**, in Yalta, on a topic of High Technology - co-directed by Prof. V.S. Lysenko of the Academy's Institute of Semiconductor Physics, **Kyiv** and Prof. J.P. Colinge, of the University of California at Davis, **USA**.
- Oct 1998 **First Science for Peace grant to Ukraine** for the study of the Black Sea Ecosystem Processes and Forecasting/Operational Database Management System - see page 4
- Mar 2000 **NATO Secretary General Lord Robertson** opens exhibition on the Science Programme at the NATO Information Centre in Kyiv. On that occasion Lord Robertson said:
- "We are often asked why NATO supports a civil science programme, which does not contribute to military capability. One important reason is that we are convinced that strengthening personal trust and cooperation among scientists contributes directly to increased stability in the Euro-Atlantic region. And this is a core NATO objective."*
- May 2000 **Creation of NATO-Ukraine Joint Working Group** on Scientific and Environmental Cooperation.
- Apr 2001 **Mr. Jean Fournet**, then NATO Assistant Secretary General for Scientific and Environmental Affairs, **visits Kyiv** to co-chair meeting of NATO-Ukraine Joint Working Group.
- April 2002 **CCMS workshop** on Risk Assessment of Chernobyl Accident Consequences (see page 5)
- Oct 2002 **First NATO Science Partnership Prize** awarded to Prof. Artem Khalatov of Ukraine, together with Aleksandr Kozlov (Russia) and Nick Syred (UK), for their collaboration on innovative cooling techniques applied to gas turbine engines At the prize-giving ceremony Lord Robertson put forward the idea that the science programme should place more emphasis on new NATO objectives of addressing new threats and challenges.
- June 2003 **NATO Science Committee meets in Kyiv and holds seminars in Kyiv and Sebastopol**

Secretary General Lord Robertson (right) tries his hand at the NATO Science Info Quiz during the Science Programme exhibition in Kyiv in March 2000, assisted by then Foreign Minister Tarasyuk, and by Dr. Keith Gardner (left), Deputy Chairman of the Science Committee



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Seminar directed to the future

Topics to be discussed at a seminar with Science Committee members and young scientists in Ukraine ('leaders of tomorrow') will deal with thought-provoking issues to provide a basis for interaction. Two of the topics will be introduced by Science Committee Members.

- Industrial innovation: the role of R&D in an industry under expansion
- Challenges for biotechnology in the defence against terrorism

Practical considerations of environmental security issues in Ukraine will be introduced by Ukrainian speakers dealing with:

- Consequences of the Chernobyl disaster
- Defence reform and environment



Joint winner of the 2003 NATO Science Partnership Prize Artem Khalatov being congratulated by NATO Secretary General Lord Robertson

Collaborating on Threats to Society

Scientific research topics often hide their purpose from the layman under a thick layer of scientific terms and vocabulary. Such is the case for many of the topics of Collaborative Linkage Grants. Further investigation, however, often reveals an area of study that deals with an interesting topic that is of direct consequence to society and security.

One such example is a study underway of **Novel Sorbents Used for the Solution of Ecological Problems** which deals with a new more efficient technology for purifying drinking water. The need to purify drinking water arises from contamination from leakage of highly toxic radionuclides, heavy metals and organic compounds from industrial and energy facilities, such as occurred after the Chernobyl accident. Among the wide variety of methods currently available for purification of waters containing many toxic substances, sorption methods are the most promising from many perspectives - one being that they are simple to apply because they do not require bulky constructions of apparatus. The use of traditional sorbents does not provide complete purification to drinking water standards, however, and this project will investigate the use of spherical granulated sorbents created with so-called sol-gel technology, to produce much more selective adsorbents. The research teams are led by Prof Volodymyr Strelko, Institute for Sorption & Problems of Endoecology, Academy of Sciences of Ukraine, Kyiv, Dr. Michael Taffet, Lawrence Livermore National Laboratory, California, USA and Dr. George Gallios, Aristotle University, Thessaloniki, Greece

A similarly opaque title to the uninitiated is **Calculating Robust Bayesian Estimates using Optimization Approaches**, the topic of a Linkage Grant which dealt with **assessment of the safety and reliability of nuclear power plants in Ukraine**. The research addressed problems in reliability of different estimation techniques, and particularly where there is a scarcity of data samples. The work of the researchers demonstrated that using so-called robust Bayes estimating procedures can prevent possible significant errors in safety assessments, and their work was published in five papers or books, and presented at different research conferences. The collaboration was between experts at the V.M. Glushkov Institute of Cybernetics of the National Academy of Sciences of Ukraine, led by Prof. Pavel S. Knopov, and the University of Florida, USA, led by Prof. Panos Pardalos.

A research project supported by the Security-Related Civil Science and Technology area is assessing the consequences of possible **Terrorist Attacks on Nuclear Power Plants and Nuclear Material Transports**. Experts from the State Nuclear Regulatory Administration of Ukraine, and the Institute for International Studies, Stanford University, USA, will evaluate different terrorist threat scenarios. The project will involve multi-national expertise from different European and US research centres, including from Kazakhstan and Russia.

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Black Sea Studies – NATO and partner countries contribute to the international effort



I suggest that you also avoid territorial reflexes and that you look for synergy and complementarity with scientific work undertaken under the aegis of the UN, the OSCE and the EU

Lord Robertson, Science Committee Grand Gathering, Oct. 2002

The NATO Science and Environment programmes are helping with a number of studies in the urgent international effort to tackle the daunting ecological problems of the Black Sea. One of the biggest is a Science for Peace project to study, quantify and predict the ecosystem variability of the Black Sea. A **NATO Black Sea Data Base and Management System**, begun under an earlier NATO study in the region, has been further developed under Science for Peace to manage the increasingly huge amount of data being collected.

A significant impact of the project has been **its relevance within the framework of various international regional programmes relating to the Black Sea**. For example, the two regional Black Sea organisations established under the Bucharest Convention, namely the Black Sea Commission (BSC) and the Black Sea Environmental Programme (BSEP), **have used relevant results in the planning of Black Sea research activities for the years 2003-04.**

At a time when regional cooperation is considered of crucial importance for security and stability, such studies are essential achievements in so far as they bring together high-level scientists and experts of neighbouring countries to find collective solutions to common problems.

The data and results arising from the project are not used only by the organisations dealing with the Black Sea, but are also used by other regional programmes. In particular, various aspects of the project have **contributed towards the**

development of a model for the Caspian Sea Environmental Programme, and expertise and know-how acquired within the framework of the Science for Peace project have been transferred to the Caspian Programme through training programmes and expert guidance.



About ten scientific research cruises were supported in the framework of the Project, to organize studies of physical, biological and chemical processes in the Black Sea, most of them undertaken by the four research vessels pictured here. Dr. Sergey Konovalov, of the Marine Hydrophysical Institute, Sebastopol, and Prof. G. Shulman, Institute of Biology of the Southern Seas, Sebastopol were Co-Directors from Ukraine, and other co-directors came from Turkey, Russia, Romania, Georgia and Bulgaria.

NATO Science for Peace helps in development of Ukraine's new industries

I suggest that . . . you look out in particular for projects that may have a concrete, beneficial impact on the economic and social systems of our Partner countries - and that will help bring them closer to our Alliance

Lord Robertson, Science Committee Grand Gathering, Oct. 2002

New Ceramic Materials

A Science for Peace project on the topic of *High Melting Point Nanocrystalline Composites: the Materials of the New Millennium* is co-directed by Prof. V. Skorokhod, of the Ukraine Academy of Science's Institute for Problems in Materials Sciences, and colleagues from Canada, Russia and Belarus. Although problems associated with the development of advanced ceramics and their composites are well understood by the scientific community in Partner countries, their industrial application is lagging behind. The traditional technologies are no longer capable of solving current industrial problems and new innovative approaches are sought. Since the start of this project in mid-2000, **new technology has been developed, and a pilot-plant facility is currently being built** at the Institute of the Ukraine co-director for the production of a newly-developed nano-

powder. The research work is being undertaken in consultation with industrial partners ALCON, Kyiv, which specialises in cutting tools and articles based on high-melting-point compounds, and the Small Business Enterprise INTEM, Kyiv, which specialises in manufacturing ceramic laminated objects and heating elements based on ceramic composites. The other project co-directors are Prof. V. Krstic, Queen's University, Ontario, Canada, Prof. R. Andrievski, Russian Academy of Sciences, Moscow, and Prof. V. Urbanovich, National Academy of Sciences of Belarus.

New Aluminium Alloys

Ukraine currently has no industrial production of aluminium powders and high performance aluminium alloys, and needs to import significant amounts of powders for its metallurgical, chemical and other industries. A Science for Peace project is underway to develop *Advanced Aluminium-Based Alloys for Transport Produced by New Rapid Solidification technology*. Water atomisation is the most efficient and economically sound technology for the rapid solidification of molten metals and alloys, but it is well-known that it is inapplicable for use in the production of aluminium alloys,

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CCMS Studies on the Consequences of the Chernobyl Accident

A new pilot study entitled "**Risk Assessment of Chernobyl Accident Consequences: Lessons Learned for the Future**" was launched at the meeting of the Committee on the Challenges of Modern Society (CCMS) in March 2003 under the joint leadership of Italy and the United States. The proposed methodology for the study includes revision of **epidemiological studies** of the different population groups and **other relevant biological data**, with a correlated detailed definition of the relevant exposure patterns and their trends. Evaluations carried out in Ukraine, Belarus and the Russian Federation will be compared, and the possible causes of the differences found there will be examined. It is proposed that this activity will be carried out with a limited group of ten to twelve experts identified by the Eastern Europe countries involved. The study is expected to take about three years.

Plans for the **pilot study grew following a workshop** on the same topic which was held on 9-12 April, 2002, in Kyiv. The workshop was hosted by Ukraine, and was organized in the framework of the CCMS pilot study on **Advanced Cancer Risk Assessment Methods**, jointly led by Italy and the United States.

While participants from countries most directly concerned gave accounts of their studies of the Chernobyl accident consequences in their countries, the presentations by participants from NATO member countries mainly dealt with methodological aspects, with the introduction of advanced risk assessment procedures and with the assessment of Chernobyl accident impact on Western Europe territory.

mainly because of the high risks of explosion and of contamination of the material. **The objective of the Science for Peace project** is therefore, with these obstacles in mind, to **develop new high-performance aluminium-based alloys** for which water atomisation rapid solidification technology may be used.

The technology that has been developed to date has enabled the investigators to overcome the above-mentioned obstacles and to produce a set of high-performance aluminium alloy powders and powder materials with a unique combination of tensile strength, corrosion resistance and weldability by the water atomisation process. The co-directors of the project are Dr. Alexander V. Krajnikov, IPMS, Kyiv, Ukraine, Prof. George E. Thompson, UMIST, Manchester, UK, and Dr. Yu.V. Shmakov, Moscow, Russia:

The general opinion was that thyroid cancer in children was certainly the most evident adverse effect, but not the only one, and that other carcinogenic and non-carcinogenic effects were detected. Psychological effects have also been identified as a major impact resulting from the Chernobyl accident. **The workshop identified a need to reconcile, within a risk assessment framework, the exposure and dosimetry data from Ukraine, Belarus, Russian Federation and Lithuania.** One of the positive results of the workshop was the opportunity for an open and frank discussion of the similarities and differences of experiences from different countries.

Concluding remarks of the workshop **highlighted the need for a more active international cooperation in analyzing the Chernobyl data within a consistent risk assessment framework**, and the new CCMS study was one of the outcomes of the workshop.

The Science for Peace Label

Every new instrument or piece of equipment bought with Science for Peace funds bears the label below. This label can now be found on hundreds of pieces of equipment in almost 240 laboratories the length and breadth of Europe and Central Asia, from Gdansk to Novosibirsk. We feel it is a visible symbol of the solidarity between researchers now collaborating worldwide under the NATO Science Programme.



The picture shows a Japanese-produced standard Auger microprobe in place in the Institute in Ukraine. Such analytical instruments are widely used for surface analysis. Although the electron and ion optics and other systems of the apparatus are efficient, it had an archaic computer control system (CCS). Science for Peace funded the development and installation of a new user-friendly CCS and related software compatible with a standard personal computer. The new CCS can be seen on the right of the picture, with the blue NATO SfP label attached (see above).

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PREVENTION AND MITIGATION OF SOCIETAL DISRUPTION

CCMS-EAPC Roundtable

Under the auspices of the Euro-Atlantic Partnership Council (EAPC), the Committee on the Challenges of Modern Society (CCMS) organised a Round Table discussion which took place at NATO Headquarters on March 20. About 80 participants from 34 nations, as well as representatives from other NATO committees, and from international organisations including the European Union and the Food and Agricultural Organisation (FAO), attended for a full day of discussions.

The point of departure for organizing the roundtable around the chosen topic was the increased focus on new threats and the vulnerability of society, combined with the

key objectives of CCMS. In his introductory remarks, **Jean Fournet, Assistant Secretary General for Public Diplomacy, and Chairman of CCMS**, gave his view that the Committee should :

- take a long-term view on challenges to society
- foster inter-organisational cooperation
- work towards collective responses
- concentrate on knowledge sharing
- identify gaps and future work
- develop recommendations



Food Chain Security & Environmental Crime was the first topic discussed, and five speakers raised key challenges to be addressed in the future. Among the key issues of food chain security were:

- Centralization of information versus protection of sensitive data.
- Societal complexity
- Diversity of impact of food chain security problems
- "Stovepiping" – i.e. mutual isolation of different agencies, organisations and disciplines
- Difference in vulnerability between developing and developed countries



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Roundtable continued

National perspectives on response structures to threats and Risk communication were the topics of the second session of the day. Seven speakers covered a wide range of experiences and viewpoints, to a large extent confirming the existence of a number of generic challenges to be dealt with such as:

- Emergency response plans
- Dealing with constant disasters
- The role of science in reducing the impact of terrorism
- How to communicate risk in society – risk perception

CCMS KEY OBJECTIVES

- reducing the environmental impact of military activities;
- conducting regional studies including cross-border activities;
- preventing conflicts in relation to scarcity of resources;
- addressing emerging risks to the environment and society that could cause economic, cultural and political instability;
- addressing non-traditional threats to security

Future initiatives.

Based on the round table discussions, some topics were identified as highly interesting for new studies in the CCMS context:

- Integrating new features related to potential terrorist attacks into food chain security systems
- Environmental crime
- Organising to meet new threats
- Decision support processes for governments
- Emergency response plans and societal complexity
- The public as partners in handling risk - education
- Preparing and handling risk communication

New Pilot Study on Food Chain Security

A new CCMS pilot study on **Food Chain Security** was launched at the Committee's plenary meeting, which took place the day following the Round Table. This study, to be led by Turkey, will examine the safety and security of foodstuffs in the face of their careless or ignorant handling, as well as against terrorist attacks on the system which may destroy or degrade it at source, during distribution, processing or in the consumption phase.

Further studies are expected to come out of the Round Table, and proposals will be considered at the meeting of CCMS in October.

Further details of the Round Table may be found through the CCMS web site – including audio and text files of the presentations – see <http://www.nato.int/ccms>

First Meeting of NATO-Russia CCMS

The first meeting of the NATO-Russia Committee on the Challenges of Modern Society (NRC-CCMS) took place on 21 March at NATO Headquarters. The aim of NRC-CCMS is to promote, encourage and coordinate joint cooperative projects involving experts from NATO countries and Russia on new threats and challenges to security, including environmental protection problems arising from civilian and military activities, as well as topics of primary importance to both parties, as formulated by the NATO-Russia Council.

Participants in this first meeting of the NRC-CCMS may be seen in the photo, and include the Russian delegates – Ambassador **Alexander P. Alexeyev**, Counsellor, Ministry of Foreign Affairs, Dr. **Victor V. Kutsenko**, Director, Department for Environmental Security, Russian Ministry of Natural Resources, and Mr. **Enver Akmedov**, Counsellor at the Mission of the Russian Federation to NATO, Brussels, surrounding the NRC-CCMS Chairman, **Mr. Jean Fournet**, and the CCMS Programme Director **Deniz Beten**.



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NEWSBRIEFS

- NATO Secretary General, **Lord Robertson**, and the President of the Academy of Sciences of Azerbaijan, Prof. **Mahmud Kerimov**, inaugurated a new station of the Virtual Silk Highway network in Baky, Azerbaijan, on 15 May 2003. With this new station, Azerbaijan is the 6th country to be connected to the Virtual Silk Highway network, which was launched by the NATO Science Committee in 2002, supplying state-of-the-art satellite ground stations and networking equipment to provide reliable Internet connection for the academic communities of the Southern Caucasus and Central Asia.
- At the invitation of the Bulgarian Academy of Sciences (BAS), Mr. **Jean Fournet**, Assistant Secretary General for Public Diplomacy, paid a visit to Sofia from 19-21 May, accompanied by Ms. **Enid Austin**, Science Programme liaison officer for Bulgaria. The visitors were welcomed by the Board of the Academy, including Prof. **Nikola Sabotinov**, Vice-President, Prof. **Naum Yakimoff**, Scientific Secretary General and Prof. **Stefan Hadjitodorov**, Scientific Secretary. In addition to members of the Academy Mr. Fournet was able to meet with Foreign Minister **Solomon Passy**, with Deputy Defence Minister Mrs. **Sonya Yankulova**, with the Minister of Education and Science **Vladimir Atanassov**, with the Chairman of the Parliamentary Foreign Policy and Security Committee **Stanimir Iltchev**, MP, and with the Rector of the University of Sofia, Prof. **Boyan Biolchev**. Visits were organized to several institutes and laboratories at BAS to meet scientists who had benefited from NATO grants, some of which were featured in our last Newsletter. There was thus the opportunity to make the acquaintance of the project directors and members of their research teams, including Prof. **Pencheva**, Institute of Geology, Dr. **Marina Stanilova**, Institute of Botany, and Prof. **Zdravko Stoykov**, Central Laboratory of Electrochemical Power Sources, as well as the Prof. **Yanko Arsov**, Director of the Academy's Institute of Metal Science. Included in the busy schedule was also a Round Table discussion under the auspices of the Atlantic Club of Bulgaria and organized by Ms. **Avugstina Tzvekova**, Secretary General of the Atlantic Club.
- Mr. Jean **Fournet** was accompanied by Dr. Walter **Kaffenberger**, Computer Networking Programme Director, on a visit to **Almaty, Kazakhstan** at the end of April. At the Al-Farabi Kazakh National University they were received by Prof. **Z.A. Mansurov**, First Vice-Rector, and were able to meet the research team involved in the Science for Peace project assessing the radiological situation in the Semipalatinsk nuclear test site. At the Academy of Sciences of the Republic of Kazakhstan, they met the Vice-President of the Academy, Prof. **U.M. Sultangazin** and had discussions with a number of directors of the Academy's research institutes. At the Kazakh National Technical University, they were met by Prof. **G. Mutanov**, First Vice-Minister of Education and Science, Prof. **D.K. Suleyev**, Rector, Prof. **G. Zholtayev**, Vice-Rector on Research and International Connections, Prof. **R.A. Alshanov**, Rector 'Turan' University, and President of Association of Higher Educational Establishments. This university is the future location of the satellite dish of NATO's Virtual Silk Highway project, and will be the networking operation centre.



NATO-country flags on display in Sofia in celebration of Bulgaria's signing of the Protocols of Accession to NATO (cf Newsletter 62)

- At their meeting in Kyiv the Science Committee will consider revised Terms of Reference for approval by the North Atlantic Council. Drafted by a sub-group of the Committee at a meeting in Brussels at the end of May, the **new Terms of Reference** are designed to better reflect the new directions and objectives both of the Alliance and of the Science Programme.
- A workshop on **Strengthening Influenza Epidemic and Pandemic Preparedness through Civil-Military Cooperation** took place in St. Petersburg, Russia, on 9-11 May, just as the SARS outbreak was making the headlines. The World Health Organization (WHO) participated in and co-sponsored the meeting. The workshop reviewed influenza disease and virological surveillance standards and capacities; identified possibilities for enhanced collaboration among existing national and international influenza surveillance laboratory networks; and initiated preparation of a response plan to an influenza pandemic that includes vaccine availability and access to antiviral compounds. The workshop was co-directed by Dr. **James Neville**, US Air Force Institute for Environment, Safety and Occupational Health Risk Analysis, and Prof. **Oleg Kiselev**, Russian Academy of Medical Sciences, St. Petersburg. A book detailing the results will be published in the NATO Science Series.
- Dr **Aldo Boccaccini** of Imperial College, London, UK has received the 2003 Verulam Medal and Prize for distinguished contributions to ceramics, awarded by the UK Institute of Materials, Minerals and Mining. Mr. Boccaccini is the **NATO Consultant** on a Science for Peace project with Russia and Ukraine (Donetsk Physical and Technical Institute) on novel nanostructured glasses and textured glass-ceramics being developed as components for optoelectronic devices. As the citation for the prize noted *Dr Aldo Boccaccini has an enviable international reputation for his contribution to the field of ceramic materials.*

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