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Editor *Dr. Barbara B.S. Price*

For professionals in government, industry and academia in Chemical, Biological, Radiological and Nuclear protection, defense and counterterrorism; public health and emerging diseases; disarmament and nonproliferation; emergency and disaster planning; industrial health and safety; and environmental protection.

The Executive Summary CBMTS Industry VII

Zvonko Orehovec, PhD, Congress Director
Slavko Bokan, MD, Congress Chair

Executive Summary

The CBMTS-Industry VII, "The World Congress on CBRN Threat and Terrorism" was held from 10 to 15 April 2011 in Cavtat, Croatia under the auspices of the Government of Croatia. The CBMTS Industry VII was organized by Applied Science and Analysis, ASA, USA; the Croatian Chamber of Economy; Ministry of Foreign Affairs and European Integration; National Protection and Rescue Directorate; State Office for Radiological and Nuclear Safety; and with the executive organization of Journal Protection - Tectus and Perfect Meetings Zagreb, Croatia. This extremely important seventh meeting in the CBMTS-Industry series, which provided a specific focus on the topic of chemical, biological, radiological

(cont. p.5 -- Exec CBMTS Ind VII)

Dr. Benjamin Garrett continues his well conceived and received series on our fellow professionals that have influenced the direction and course of history across the convoluted arena of chemical warfare.

Profiles in CBR History: French Biographical Series

Benjamin Garrett, Ph.D.

French scientists were active in selecting and developing chemical warfare agents during World War One (WWI). Their specific contributions appear to have been overlooked or poorly described in historical studies of chemical warfare in the English language, however. This situation might be the result of an effort on their part or on the part of their biographers to avoid calling attention to such work owing to the controversies after the war regarding the use of chemical weapons. In this series of profiles for the ASA Newsletter, I have collected some of the reports to improve our knowledge of

(cont. p.7 -- French Chem)

Dumped and abandoned munitions, whether or not they contain chemical warfare agents, endanger commerce, recreation, environment and, of course, humans and other animals. There is a history, too, often with political, legal and safety issues, for each munition. As the munitions are removed (destroyed or corroded) record keeping is careful, but hard to complete and validate. Has the residue been measured? Validated? Is it still hazardous? It may be hardest to confirm that sea-dumped munitions have been completely removed and that the area no longer presents risks.

Dumped Chemical Munitions: an Update

John Hart (SIPRI)

Environmental, political and legal concerns regarding the fate of dumped munitions, including chemical weapons, continue. A variety of activities and frameworks exists in which such dumping has (or might be) considered. Large amounts of data (not necessarily validated) also continue to be generated. Frameworks in which dumped munitions are considered (including evaluated, enumerated, mapped, and even removed or destroyed) include: environmental research (base and applied), various

(cont. p.22 -- Dumped)

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The Professional Library: To further understand the problems associated with nuclear, biological, and chemical defense, disarmament and verification, the requirements for emergency or disaster preparedness, and the possible effects of natural and manmade disasters on the civilian and military medical communities, ASA will continue to provide information on all publications of interest to the professional. Please contact ASA for information or to make an input.

a. "Method of Static Diffusion Cells for Assessment of Pesticides Skin Permeation", Misik J, Pavlikova R, Cabal J, Novotny L, Kuca K. Mil. Med. Sci. Lett., 2011, vol 80, p. 46-51, ISSN 0372-7025. The article describes the permeation of paraoxon, the active metabolite of parathion, through skin. Only 0.1% of the applied paraoxon permeated dry skin over 8 hr. Wet skin was more permeable. The discussion of skin modeling, including animal, location, skin condition, frozen and thawed skin, damaged skin, hydrated skin, etc., speak to some of the major difficulties of in vitro measurements and applicability to life models.

b. "Beyond the BTWC RevCon," Disarmament Forum, Volume One, 2011, ISSN 1020-7287, has five articles describing some of the history of the BTWC and where it is headed. This is a timely description because so many of us have forgotten, or did not know, what has gone on since the last BTWC Review Conference in December 2006. The articles include Millett's "Why the 2011 BTWC RevCon might not be business as usual, Berger and Davison's "Bringing science to security: soft implementation of the BTWC", Burns, et al, " Biosafety professionals as stakeholders in the BTWC", Lennane's "Verification for the BTWC: if not the protocol, then what?", and Khan, et al, "The 2007-2010 intersessional process and the future of the BTWC." The concern for all is how to use technological solutions for political and societal issues.

c. "Chemicals Environment and Health - A Global Management Perspective," edited by Wexler, van der Kolk, Mohapatra, and Agarwal, August 2011, CRC Press. A dedicated chapter on issues linked to Chemical Weapons Convention (CWC) and the work of the Organization for the Prohibition of Chemical Weapons (OPCW) to chemical emergencies from natural or man-made disasters provides critical insight into the issue of chemical weapons, chemical emergencies and management. Written and edited by experts, this book will be a valuable asset to not only students of chemical management, but science and policy managers whose areas of interest are in chemical toxicology, emergencies, conventions, treaties, chemical assessment, management and communication.

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The CBMTS and future meetings:

**CBMTS IX
Spiez Switzerland
May 7 - 10, 2012**

**Planning Meetings:
CBMTS IX
Spiez Switzerland
October 2011**

**Proceedings from CBMTS Industry VII
Dubrovnik, Croatia
Due out Winter 2011/2012**

ASA 11-2, Issue No. 143, December 2011

1. History of French CW Scientists, continued.

by B. Garrett

2. Innovative and increased risks from CBRNE terrorism and effective, economical countermeasures.

by M. Dudziak

Note: Time constraints may delay articles

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The 19th meeting in the CBMTS series

Call for Papers

CBMTS IX

The Ninth International Plenary of the CBMTS

SPIEZ LABORATORY

Spiez, Switzerland

7 - 10 May 2012

SPIEZ LABORATORY, ASA and **IINPS** have partnered together so that CBMTS returns to the original setting where this highly respected series began in 1994. Dr. Marc Cadisch, Director SPIEZ LABORATORY and his staff are hosting and co-sponsoring this 18 year anniversary meeting of the CBMTS. Dr. Cadisch will open the **CBMTS IX** on Monday 07 May 2012. IINPS is the newly formed International Institute for NonProliferation Studies with Peter Lejeune, chairman.

The **CBMTS IX** will explore the scientific, medical, operational and policy aspects of chemical, biological, and radiological (CBR) warfare and terrorism. We will consider the effects of CBR agents wrongly used, intentional or accidental, on the community and individuals, military and civilian, and on the infrastructure of government. **CBMTS IX** will emphasize CBRN detection, decontamination and treatment; incident response (including emergency, disaster and crisis management); and, nonproliferation (including arms control, disarmament, dual-use, etc.). The **CBMTS IX** Symposium venue has a physical limit of 130 participants - REGISTER EARLY.

CBMTS Objective

Bring together the professionals most concerned with the scientific, technical and policy aspects of problems associated with the CBRN and WMD threats.

Symposium Model

To ensure the free flow of ideas, the **CBMTS IX** will continue with the CBMTS tradition of a relaxed shirt-sleeve environment, a first name basis in very short order, and as always a very enjoyable camaraderie between all participants. To encourage free discussions, attribution of any comments is permitted only with author/speaker consent.

Who Should Attend?

Industry, government and academic professionals with an interest in the CBRN threat, whether the threat is from war, terrorist actions, accidents or incidents, natural or man-made. These include medical, public health and medical research professionals, such as primary care physicians, practitioners and veterinarians; local, regional and national laboratory representatives; first responders and HAZMAT specialists including emergency, crisis management and mitigation, and

civil defense personnel; industry scientists and engineers; senior policy makers; and specialists in computer risk modeling and planning and training.

Proposed topic areas

CBRN detection, decontamination and treatment;
Incident response (including emergency, disaster and crisis management); and,
Nonproliferation (including arms control, disarmament, dual-use, security matters, etc.).

Format

Podium presentations: 20 minutes, with minimum 5 minutes for questions and discussion.

Poster presentations require a 3 slide presentation (title, author, topic). Poster size is 1.00 x 1.40 meters.

Abstract Submission

Abstracts will be 250 words or less, not including title, authors, organizations, and contact information and abstract. Full instructions are at www.cbmts.org/format

Each participant with accepted abstract is encouraged to supply a small picture and from 40 - 75 words for a bio sketch. This will be inserted into the Program and Proceedings with the Abstract and Paper.

Registration

Participation is based on abstract acceptance and/or geographical representation. Registration requires abstract submission. Once the International Science Review Committee has reviewed abstracts, registrations and abstracts acceptance will be confirmed.

For those participants requesting OPCW support, registrations and abstracts must be received by 15 December 2011 in order to meet OPCW requirements.

Sponsors may present papers, subject to review by the International Science Review Committee.

Registrations are simple and are to be sent by email sent to both cbmts@asanltr.com and irma.lehnherr@babs.admin.ch with subject: **CBMTS IX** . Include title, presenter, author names, organizations, contact information and method of payment.

Dates

- 1 September 2011 - registration opens
15 December 2011 - abstracts for OPCW funding due
If you believe you require, and may be eligible for OPCW support to attend the conference, the abstract will be due no later than 15 December. Please see the Fellowship and support section below.
15 January 2012 - all abstracts due
20 March 2012 - early registration fees end
21 March 2012 - full registration fees apply
16 April 2012 - all papers are due
07 May 2012 - **CBMTS IX** begins

Contact Information

The CBMTS web address: www.cbmts.org

For the **CBMTS IX** team:

1. **ASA**. Dr. Barbara Price at tel: +1-808-235-8010 and fax: 1-808-432-9670 and e-mail: cbmts@asanltr.com and
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Note: On all message traffic, please include both the ASA and SPIEZ LABORATORY e-mail and/or fax addresses. A must - please include **CBMTS IX** in the subject line.

Registration fees for CBMTS IX

Government/Academia: CHF 750, before 20 March 2012, and CHF 900 after 20 March 2012

Industry: CHF 900, before 20 March 2012, and CHF 1050 after 20 March 2012

Payments are accepted by credit cards Visa, Master Card, EuroCard, and American Express and via bank transfer or bank check. Bank data for **CBMTS IX** Switzerland: (To be supplied upon request)

The Registration Fee will include all lunches at the Laboratory Dining Room from Monday 07 May through Thursday 10 May 2012 and will also include Symposium Dinner and Program, Proceedings, Symposium bag, and local transportation for scheduled events.

Refund policy

Until 26 March 2012 = 90% refund, from 27 March until 24 April 2012 = 75% refund. No refund after 25 April 2012.

Accommodations

The SPIEZ LABORATORY has negotiated CBMTS rates with several hotels in Spiez. There will be a CBMTS bus service to/from SPIEZ LABORATORY and the hotels in Spiez. Once registered and accepted, please make reservations at the hotels. Hotel information will be on the CBMTS website.

Sponsors

Sponsorships by government organizations, institutions and industries are crucial to the success of the **CBMTS IX** and are a vital part of CBMTS. Sponsorship funding provides the primary source of revenue used to assist many CBMTS professionals, especially those from developing countries, to attend the CBMTS meetings.

The **CBMTS IX** is hosted and partly sponsored by the SPIEZ LABORATORY, with the Government of Switzerland. ASA works in partnership with the host to ensure that the CBMTS meets the goals and objectives of the Swiss Laboratory and the CBMTS.

There are three sponsorship levels for CBMTS meetings:

- **Silver Sponsor**. Includes up to two industry registrations, plus half page advert space in the program and proceedings, plus one half page space in the ASA Newsletter CHF 2500.
- **Gold Sponsor**. The above, plus full page in program, proceedings, ASA Newsletter, plus up to three industry registrations CHF 4500.
- **Platinum Sponsor**. Above, plus up to four registrations CHF 7500.

Only sponsors will be permitted to include product and service brochures in the conference package.

Fellowships and support

There may be limited support of professionals from developing countries and countries with economies in transition.

For any support, the participant must be registered and have an abstract be approved and accepted by the Science Review Committee and full papers must be submitted by 31 December 2011. The goal for the CBMTS Executive Organizing Committee is to be able to provide as available: registration fee, accommodations, train to Spiez, and Return fare to Zurich or Geneva. Recognizing that available funds for Fellowships will be limited, the CBMTS Executive Organizing Committee will more favorably consider specific requests for partial funding for those participants applying for support.



Executive Organizing Committee will more favorably consider specific requests for partial funding for those participants applying for support.

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(Exec CBMTS Ind VII--from p.1) and nuclear (CBRN) terrorism and anti-terrorism matters, was the 18th meeting in the CBMTS series. This meeting has brought together those professionals from around the world who are directly involved in the scientific, medical and technical aspects of medical treatment that are required for chemical, biological and radiological casualties.

This already traditional scientific conference was organized and held during the 2011 world economic crisis, and understandably there were fewer participants than usual. However, more than 100 highly respected professionals and experts from 31 countries worldwide participated in CBMTS Industry VII. These included industry, government and academic; public health and medical research professionals, including primary care physicians, practitioners and veterinarians; local, regional and national laboratory representatives; first responders and HAZMAT specialists including emergency, crisis management and mitigation, and civil defense personnel; industry leaders including scientists and engineers; and specialists in computer risk modeling and planning, training and local community interface and communications. During the Congress, 72 papers were presented (63 oral and 9 poster presentations) in five sectors (15 sessions).

This Congress explored the scientific, medical and policy aspects of CBRN defense, as well as the effects of terrorism on the community and the individual. We built on the base of knowledge established during the first three "World Congress on CBR Terrorism" beginning with the very prophetic "First World Congress on CBR Terrorism" in Dubrovnik from 21 to 27 April 2001. In that meeting we were provided information from those professionals charged with the task of responding immediately to crisis conditions. Their experiences proved to all of us the rationale for detailed planning and training and how this would lead to successful execution. Many of these same leaders participated once again in CBMTS-Industry VII "The World Congress on CBRN Threat and Terrorism".

The Workshop on the Chemical Weapons Convention (CWC) Protection against Chemical Weapons and Prevention of Terrorist use of WMD Related Materials, organized by the Croatian hosts and the OPCW Technical Secretariat, was held 09 - 10 April 2011. The Workshop provided an opportunity for National Authorities members, who are involved in implementing these regimes, to focus on best practices in that area. The workshop also offered a forum for discussion of the practical issues relating to contributions that academia could make towards the full implementation of both the CWC and of the Biological and Toxin Weapons Convention (BTWC), and towards the achievement of the objectives in regard to the non-proliferation of weapons of mass destruction, all of which are elements in

the global counter terrorism strategy. The forum additionally provided an opportunity for the OPCW to inform the participants of its activities in capacity building and in providing assistance at national and regional levels in case of use, or threat of use, of chemical weapons or the release of toxic chemicals.

Scientists and medical professionals from 31 countries established and expanded their network of professional contacts in WMD protection around the world. The CBMTS has always been noted for this ability, as have the OPCW Pre-Congress workshops, which have been part of the program since 2003; this benefit is invaluable. The Conference outcome can best be measured by what was provided to the participants and this included a listing of 72 presentations, which are will be included into the Proceedings. Measurement of the outcome is noted by the willingness of the participants to wish to return as often as possible to the CBMTS meetings and their willingness to participate further in their own national forums, as well as other international forums that deal directly with the subject matter of the CBMTS series.

This CBMTS Industry VII provided the forum for the exchange of very pertinent data on subjects of direct interest to developing countries and countries with economies in transition. These countries do not have the resources in science and medicine to develop and implement required programs in CBR protection on their own. At the CBMTS Industry VII the required data and experts are available to assist these countries to build their own programs. Additionally, because this forum provides each participant a built-in network of fellow professionals - the participants from developing countries meet and network with fellow professionals from any number of countries that will provide assistance on a needed basis.

The CBMTS's ability to bring professionals in science and medicine together to discuss mutual problems across the arena of CW protection reinforces and supports the goals and objectives of the CWC. The OPCW has been the only internationally recognized world body that has assisted professionals in these difficult areas to come together and surface the problems and learn from each other on the possible solutions.

CBMTS Industry VII Conference provided a forum for science and medical professionals from 31 countries to:

- Meet, surface and discuss and start solving the myriad number of problems within the crucial area CW protection within the framework of the Chemical Weapons Conventions.
- Discuss WMD protection in its many facets.
- Discuss the latest developments in providing chemical agent protection.
- Discuss medical treatment in the pre, trans-, and post

attack modes where chemical agents were a factor in the casualties.

- Surface and discuss the roles of toxic industrial chemicals (TICs) and toxic industrial materials (TIMs) and their effects on the safety and security of the populace.
- Discuss acute exposure guidelines for chemicals both agent and TICs/TIMs.
- Discuss detection, identification and decontamination/detoxification of chemical agent.
- Discuss emergency planning, implementation and management of mass casualties from chemical attack and/or industrial accident or incident.
- Discuss consequences, crisis management and risk assessment of nuclear catastrophe and tsunami in Japan.

CBMTS Industry VII Sector Summaries

Detailed summaries appear on page 10.

Summary of Sector 1: Chemical

Sector 1 chaired by Dr. David Moore from Battelle Memorial Institute, USA, was comprised of three sessions conducted over a three day period and included 9 podium presentations. Eight of the presentations were concerned with the development of medical countermeasures and one described an information tool for the regulation of industrial chemicals. These sessions were well attended and the topics generated some valuable discussion. All of the presentations were highly professional and we wish to thank each of the scientists for sharing their results with the congress attendees.

Summary of Sector 2: Nuclear/Radiological

Sector 2 chaired by Prof. Ronald Chesser from Texas Tech University, USA, was comprised of three sessions included 14 podium presentations. CBMTS Industry series of meetings have never had so many papers and such good presentations in radiological contamination, and we wish to thank each of the scientists from Texas Tech University, headed by Prof. Ronald Chesser, for sharing their results with the congress attendees. Two sessions included 10 presentations of different facets of the Dismantlement of Iraq's Nuclear Facilities and one session, International Efforts in Nuclear Nonproliferation, included four very interesting presentations. Special interest in issues was about nuclear catastrophe was sparked by discussions of the events related to the nuclear power plants Fukushima in Japan after the earthquakes and tsunami.

Summary of Sector 3: Biological

Sector 3 chaired by Dr. David Robinson from Battelle Memorial Institute, USA, was comprised of three sessions and included 13 podium presentations. All presentations were concerned with the development of medical countermeasures, biorisk and biosecurity, antibiotic resistance as global threat, biotechnology risk and scientists' responsibility and synthetic biology as potential biological risk and threat today. These sessions were well attended and the

topics generated some valuable discussion. All of the presentations were highly professional and we wish to thank each of the scientists for sharing their results with the congress attendees.

Summary of Sector 4: Modern and Advanced Scientific and Technological Approaches to the CBRN Threats

Sector 4 chaired by Dr. Stef Stienstra, from Active Technology Transfer Europe, the Netherlands, was comprised of three sessions and included 12 podium presentations. All presentations were concerned with the optimizing operational medical countermeasure deployment strategies for public health, emergency response, and medical systems, evaluation of cost-effectiveness of chemical detection equipment and a new approach on CBRN decontamination systems. One very interesting session "Protective Materials, Clothing and Equipment Against CBRN Threats" included five interesting presentations in which new approaches were presented in evaluating the performances of protective materials and clothes.

Summary of Sector 5: Emerging Issues & Technologies

Sector 5 chaired by Prof. Peter Leitner, from Higgins Counterterrorism Research Center, USA, was comprised of two sessions included 11 podium presentations and one session with 9 poster presentations. Special interest was sparked talk about possible technologies for remediation of biological agents and anthropogenic compounds in contaminated environments, including seven very interesting presentation in the session "Special Treatment of Antibiotic-resistant Bacteria and Antibiotics in the Environment".

The CBMTS Industry VII Organizers prepared one very interesting exhibition of the dedicated commercial production in the field of NBC Defense, and a round table Place and Role of the dedicated commercial production in the field of NBC Defense. This was organized with the Croatian Chamber of Economy, Congress Co-Organizer and Main Sponsor.

We consider this event will promote the cooperation among the members of the CBMTS international community and thereby fruitfully surmount this trying time characterized by globally crises, and particularly the recent disaster caused by nuclear incident in Japan having as consequences many shocked and suffered people by radiation/contamination disease, which will have long term effects. In these conditions, we believe that the last CBMTS Industry Congress has already offered the spring of better perspectives with reference to many global burning issues.

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ASA gives a special thanks to both Dr. Zvonko Orehovec and Dr. Slavko Bokan; without their determination and perseverance this meeting would not have happened.

Future and Direction for ASA

Barbara B. Saunders-Price, PhD
Peter Lejeune

Dr. Barbara B. Saunders-Price of ASA and Peter Lejeune of the International Institute for Non-Proliferation Studies have begun a partnership to continue and expand the readership of the ASA Newsletter. The partnership will also be working with the Spiez Laboratory in Switzerland, original host of the CBMTS, to organize and manage the CBMTS IX, May 7-10, 2012, the nineteenth meeting in the series.

Peter Lejeune has over 30 years of experience working with the Department of Defense, Federal government, commercial and state/local governments, as well as Tier One defense contractors and National Labs. The common threads of this experience include crisis management, security, business continuity after disasters, technology development and solving of large-scale, complex problems. Since the early 1990s he has worked on assembling technical capabilities and enhancing understanding for the development of countermeasures to emerging threats from use and proliferation of weapons of mass destruction. He participated in the creation of the Harvard Kennedy School of Government's "Innovations in Homeland Security" program and was the lead evaluator for this program performing reviews of applicants for its annual award. He is a member of the advisory board for James Madison University's Institute for Infrastructure and Information Assurance to assist the University in shaping their programs to the needs of National Security. He is also a fellow at the Potomac Institute for Policy Studies.

Most recently Mr. Lejeune became Chairman of the International Institute for NonProliferation Studies. This new Institute's mission will be to promote dialogue within the international science and policy community with regard to weapons of mass destruction.

While Vice President of Strategic Programs at L-3, Mr. Lejeune created and managed cross-group activities in multiple areas to identify and develop technology and capabilities to meet the requirements of the counter terrorism and special operations community including Counter IED, NBC programs. While advising Lockheed Martin (LMCO) as the NBC program liaison to Sandia National Laboratory, he conceived of and stood up the "Sniffer Star" program jointly with Lockheed and Sandia to develop the world's smallest Chemical Detector for Unmanned Aerial Vehicles and fixed point detectors. He is the inventor of the "Escort" biologic aerosol collector, patented by LMCO. Earlier in his career he was Director of Emergency Response for New York City and served as a Vice President at JP Morgan. **

(French Chem - from p.1)

contributions by these French scientists. One such Historical Profile has already appeared: "Gabriel Bertrand and The Bertrand No. 1" (ASA 10-3, Issue No. 138). This series of Profiles in CBR History will offer brief biographies of a further seven French scientists from the WWI era:

1. Stéphane Marcel Delépine (1871-1965)
2. Charles Robert Dufraisse (1885-1969)
3. François Charles Leon Moureu (1863-1929)
4. André-Jean Kling (1872-1947)
5. Charles-Victor Mauguin (1878-1958)
6. Adolphe Lepape
7. Louis-Jacques Simon (1867-1925)

DELÉPINE, STÉPHANE MARCEL (1871-1965). French scientist Marcel Delépine enjoyed a long life as well as a long career in both chemistry and pharmacology. He served as a civilian member of the subcommittee on chemical weapons of the Commission des Études Chimique de Guerre (Commission for the study of chemical warfare) during WWI. This commission, and its subcommittee, were formed by the French government following Germany's use of chlorine at Ypres, Belgium, in April 1915 and both were chaired by Charles Moureu. [Patrice Bret, "Managing Chemical Expertise: The Laboratories of the French Artillery and the Service des Poudres," in Roy MacLeod and Jeffrey Allan Johnson (eds.), *Frontline and Factory. Comparative Perspectives on the Chemical Industry at War, 1914-1924* (Dordrecht, The Netherlands: Springer, 2006): 210.]

Delépine contributed both his efforts and his surname to the French chemical weapons program. The French military took the initial letter of his surname and that of his close friend and colleague, Gabriel Bertrand, to form "BD1," which it used as the code name for an artillery shell containing perchloromethyl mercaptan. The French tested this shell on July 29, 1915, at Vincennes and used it during the battle of Champagne in September 1915, making it the first chemical-filled artillery shell to be used by the French in combat. [Augustin M. Prentiss, *Chemicals in War* (New York: McGraw-Hill, 1937): 154.]

Delépine received his professional training in Paris, where he would remain throughout his career. He studied pharmacy at École Supérieure de Pharmacie (Graduate School of Pharmacy) and the sciences at the Sorbonne, from which he received his doctorate in science in 1898. Delépine would continue this pattern of devoting his energies to both the practice of pharmacy and the pursuit of science. He interned as a pharmacist from 1892 to 1897 and was a pharmacist at the hospital of the city of Paris from 1902 to 1927. In 1895, in the midst of his pharmacy internship, Delépine was appointed an assistant to Marce-

lin Berthelot (1827-1907) at the Collège de France, working there until Berthelot's death. In 1904, Delépine was appointed agrégé (teaching fellow) at the École de Pharmacie and was promoted to professor in 1913. He relinquished this post in 1930 when he was named professor at



LE PROFESSEUR MARCEL DELÉPINE
(1871-1965)

Pl. LI

Professeur Marcel Delépine

DUFRAISSE, CHARLES ROBERT (1885-1969). French organic chemist Charles Dufraisse is remembered for the pioneering studies he conducted on auto-oxidation and anti-oxidants. His work was especially important to the development of rubbers that are resistance to oxygen-induced deterioration. His contributions to chemical warfare, however, are less well known.

Dufraisse began his career studying pharmacy under the tutelage of his father, who had a pharmacy in Excideuil. (There is still a Pharmacie Dufraisse in the city.) Later, he moved to Paris, where he enrolled in École Supérieure de Pharmacie (Graduate School of Pharmacy). In 1911, he was appointed as an assistant to Charles Moureu, beginning a collaboration that would last until Moureu's death in 1929. Dufraisse accompanied Moureu when the latter was appointed in 1917 to the chair of organic chemistry at the Collège de France. In 1927, Dufraisse was appointed professor of organic chemistry at l'École supérieure de Physique et Chimie industrielles (the Graduate School of Industrial Physics and Chemistry), and in 1942 he was appointed to the chair of organic chemistry at the Collège de France, succeeding to the post once held by his mentor, Moureu. Dufraisse was recognized for his accomplish-

ments in sciences; he was elected to the French Academies of Pharmacy and of Sciences and named the honorary presidents of the Chemical Society of France and the French Institute of Rubber. He was also made a Commander of the French Legion of Honor.

Following Germany's April 1915 initiation of large-scale use of chemicals in warfare, Dufraisse assisted Moureu in studying candidate chemical warfare agents. During these studies, Dufraisse was accidentally injured when exposed to benzyl iodide. That accident inspired the French military to dub benzyl iodide-containing munitions "Fraissite" in his honor. ["La Guerre des Gaz," <http://pageperso.aol.fr/guerredesgas/lesgaz/irritants/irritants.html>, accessed June 27, 2007.]

MOUREU, FRANÇOIS CHARLES LEON (1863-1929). French scientist Charles Moureu achieved widespread recognition in his lifetime both for his accomplishments as an organic chemist and for his advocacy of international cooperation in the sciences. He and his colleague Charles Dufraisse are closely associated with our understanding of the phenomena of auto-oxidation and anti-oxidation, work that was inspired in part by their experience with acrolein during World War I. In the context of chemical warfare, Moureu played a leading role in organizing the French response to German use of chemical warfare during World War I.

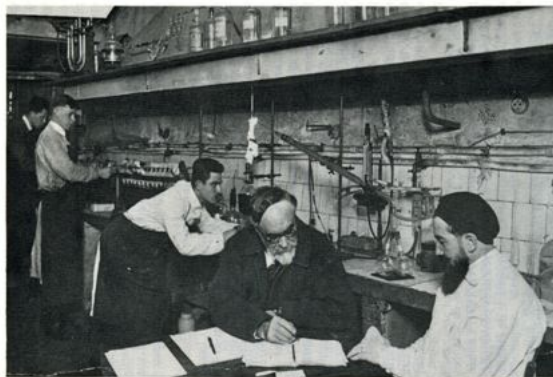
Moureu began his career studying pharmacy under the tutelage of his brother, a pharmacist in Biarritz. Moving to Paris, Moureu enrolled at École Supérieure de Pharmacie (Graduate School of Pharmacy), from which he obtained his bachelor's degree in 1888 and his doctorate in 1893. He eventually extended his studies into physical and organic chemistry at the Sorbonne, from which he obtained his second doctorate in 1899. He spent his early career at the École Supérieure de Pharmacie, becoming an assistant in 1893, a member of the faculty in 1899 and professor of pharmaceutical chemistry in 1907. In 1917, he was appointed to the chair of organic chemistry at the Collège de France, where he remained until his retirement in 1928.

Shortly after the April 22, 1915, release of chlorine by the Germans near Ypres, Belgium, the French government formed a civilian commission to oversee both protective measures and development of chemical weapons. Moureu led both this commission - Commission des Études Chimique de Guerre (Commission for the study of chemical warfare) - and its subcommittee on chemical weapons, Produits Agressifs ("Offensive Chemical Agents"). Several civilian scientists served with him on this subcommittee, including Gabriel Bertrand, André Kling, and Marcel Delépine. Their task was to select chemicals that would be effective as chemical weapons and could be produced domestically without competing with other military requirements, especially for explosives and medicines.

[Patrice Bret, "Managing Chemical Expertise: The Laboratories of the French Artillery and the Service des Poudres," in Roy MacLeod and Jeffrey Allan Johnson (eds.), *Frontline and Factory. Comparative Perspectives on the Chemical Industry at War, 1914-1924* (Dordrecht, The Netherlands: Springer, 2006): 210.]

Moureu had studied acrylic acid (propenoic acid) and its derivatives during his doctoral research at the Graduate School of Pharmacy. One of these derivatives is acrolein (2-propenal). Consequently, he was familiar with its disagreeable, choking odor. Furthermore, he knew that its production required neither bromine nor acetone, both of which were in short supply. For these reasons, he recommended use of acrolein as a chemical warfare agent. The French military adopted his recommendation, introducing its use in combat during January 1916. Acrolein, however, was found to polymerize on storage, forming a gummy mass that was ineffective as a munition. [Augustin M. Prentiss, *Chemicals in War* (New York: MacGraw-Hill, 1937): 139-140.]

Moureu and Dufraisse teamed up to explore this polymerization further and continued their studies after the war. These studies revealed that the polymerization was caused the reaction of acrolein and atmospheric oxygen. They labeled this phenomenon "auto-oxidation" and set about the systemic study of means of its prevention, which they labeled "anti-oxidants." Their studies had far-reaching consequences, especially in the development of rubbers that resisted cracking and oxygen-caused deterioration.



Charles Moureu (center) and Charles Dufraisse (right) in Moureu's laboratory in Paris 1923.

His wartime experiences leading the Commission for the Study of Chemical Warfare inspired him to write *La Chimie et la Guerre - Sciences et Avenir* (Chemistry and War - Science and the Future). The first part of this book provides a sort of inventory of the applications of chemistry among the belligerents of World War I. In the second part, Moureu presents vision for the evolution of science in his day. This book proved controversial, as some readers viewed Moureu as advocating use of chemicals in warfare.

Moureu received many honors in his lifetime. He was elected to the French Academies of Medicine (1907) and Sciences (1911) and was an honorary member of the Royal Society of Chemistry. He was chosen to be the first president of the International Union of Pure and Applied Chemistry when that body was formed in 1919. Following his death in 1929, a street in Paris was named in remembrance of his many contributions to science (rue Charles-Moureu in the 13th arrondissement), and memorials were erected in his honor in his native region of the Pyrenees.

Suggestions for additional reading

Readers seeking additional information on the contributions by French scientists during WWI are encouraged to consult Oliver Lepick, *La Grande Guerre Chimique. 1914-1918* (Paris: PUF, 1998). This French-language text presents a comprehensive examination of the response in France to the April 1915 initiation of chemical warfare by the Germans

Ralph E. Oesper, "Marcel Delépine," *J. Chem. Ed.* 27 (1950): 567-568.

Eugène-Humbert Guitard, "Le Professeur Marcel Delépine (1871-1965)," *Revue d'histoire de la pharmacie* 53 (1965): 435-440.

André Etienne and Ralph E. Oesper, "Charles Dufraisse," *J. Chem. Ed.* 29 (1952): 110-111.

Henry E. Armstrong, "Obituary. Prof. Charles Moureu," *Nature* 124 (1929): 238-239.

Some of Moureu and Dufraisse's work is described at the Center for Oxygen Research and Development, <http://www2.ulg.ac.be/cord/initiation%20au%20met%20oxygene/antiros.html> **

Ricin Revisited

Recent news articles have examined the possibility the Al-Qaida is researching the inclusion of ricin in IEDs and bombs. Apparently the group in Yemen has been collecting castor bean and with plans to extract ricin from them. Ricin is extremely toxic when delivered for inhalation or directly into the blood.

Back in 2002, UNSCOM inspectors reported ricin among the materials made in Iraq (ASA 02-4: www.asanltr.com/newsletter/02-4/newsletter.htm). They and others expressed concern about the castor oil plant Iraq claimed to be using the castor beans for. Perhaps Yemen also has classic cars and is going green for brake fluid. See also www.asanltr.com/newsletter/07-4/articles/074c.htm for a view of some history of research into ricin as a BW; Dr. Garrett's story of A.H. Corwin.

Many years of research have shown that ricin, a protein, can be unstable in high temperatures and may not be easily dispersed in bombs. But old biological and chemical weapon criteria for payloads may not be as important to terrorists. They are more interested in sensationalist fear and a big bang. **

CBMTS Industry VII Sector Reports

Summary of Sector I, Chemical

David H. Moore, Chair

Jiri Bajgar and Todd M. Myers, Co-chairs

The Chemical Sector was comprised of three sessions conducted over a three day period and included 9 podium presentations. Eight of the presentations were concerned with the development of medical countermeasures and one described an information tool for the regulation of industrial chemicals.

Examination of candidate enzyme reactivators (oximes) medical countermeasures against nerve agents was the topic of papers by Dr. Jiri Bajgar, Dr. Jiri Kassa, Dr. Daniel Jun, and Dr. Kamil Kuca all from the Czech Republic and by Dr. Kallol Ghosh from India. The ultimate goal of this line of research is to identify and develop an acetylcholinesterase reactivator with broad spectrum efficacy against the all classes of organophosphorous threat agents including pesticides. This can be attempted through logical drug design, synthesis and testing as shown during the presentations. While this goal may be difficult to realize, one alternative is to explore the possibility of combinations of oximes to accomplish broad spectrum efficacy. Additionally, oximes may be useful adjuncts to stoichiometric or catalectic bioscavengers that are under development in several countries. It was emphasized that there are numerous factors involved in the discovery of a universal oxime antidote including structure activity relationships and the basic chemistry of the drug interactions with the physiological condition of human plasma and penetration of the blood brain barrier.

The subject of topical protection from toxic chemicals was covered by Dr. Robert Chilcott, from the UK. He presented data supporting the effectiveness of a PTFE based passive skin cream with efficacy against vesicant and nerve chemical warfare agents. Such a cream could be beneficial for numerous applications not associated with CWA. The justification for the use of such a protective topical treatment was also covered.

Dr. Harkan Yaren from Turkey provided interesting results that demonstrated that melatonin could ameliorate the toxic pulmonary effects from topically applied nitrogen mustard. A biochemical explanation was provided for his results. Dr. David Moore from the USA presented information regarding new initiatives to expedite the advanced development, manufacturing and procurement of medical countermeasures to CBRN threats. Finally, Mr. Damir Pir_i_, from Slovenia presented a well validated informatics tool (REACH) used by his company to manage the regulatory requirement of many common and as well as hazardous industrial chemicals. These sessions were well attended and the topics generated some valuable discussion. All of the presentations were highly professional and

I wish to thank each of the scientists for sharing their results with the congress attendees. In conclusion, I wish to express my tremendous admiration for the Croatian organizers for their efforts to plan and conduct such a successful conference. It was a pleasure to serve as the Sector Chairman and I look forward to participating again in the future.

Summary of Sector III, Biological

David M. Robinson, Chair

Steven Adams and Elena Ryabchikova, Co-chairs

The Biological Sector was comprised of 13 presentations covering a broad range of topics related to biodefense and emerging diseases.

Peter Leitner and Anthony Treubrodt gave related presentations on recent advances in laboratory equipment and facilities that allow non-state actors to manipulate and engineer biological organisms at a level that was restricted to dedicated microbiology laboratories only a few years ago. This coupled with an increase in the number of amateur microbiologists promises to allow significant applications of microbiology across several unrelated fields. However, these advances can also be applied to design/produce microbial strains with increased capability as biological weapons. These amateur groups operate almost entirely outside of oversight. This presents a significant challenge to law enforcement and regulatory organizations during their design and implementation of laws and regulations to mitigate the problem of bioterrorism.

Wei Xiao-Qing and David Robinson presented papers on the relationships among bioethics, biosafety and biosecurity as they apply to microbiology laboratories. These three components are interrelated and impact greatly on the management and operation of biological laboratories whether they are diagnostic, research, or industrial. While biosafety has been emphasized for over 60 years in the US biosecurity is a recent emphasis and bioethics has lately been recognized as an essential part of monitoring the application of laboratory research. Biosafety was largely structured to protect the laboratory environment including researchers working in the laboratory. Biosecurity goes a step further to restrict the access to the organism to individuals with government approval to ship, handle, store or manipulate certain "Select Agents" or "Especially Dangerous Pathogens." Ultimately, the control of these agents and the control of pathogens that fall outside of these defined groups is the responsibility of the individual scientist. Each must develop a sense of responsibility as it relates to risk prevention and bioethics particularly as they relate to dual use studies.

Encho Savov presented on the increasing health problem of antibiotic resistance in bacterial pathogens. This is an increasingly widespread phenomenon and many strain

show resistance to multiple drugs considered to be the main compounds in the treatment “armamentarium” of physicians. Multidrug and pandrug resistance have been common in bacteria isolated from US military personnel in Kuwait, Iraq, and Afghanistan. Since this is a global problem it requires a global solution. In November 2009 a US-EU summit was held to define the strategies in the improved use of antibacterials to address this problem.

Stef Stienstra, Dizaye Kawa, and David Trudil discussed options for the treatment of bacterial infections that did not involve the administration of antibiotics. In studies using rabbits infected with *Bacillus anthracis* by the aerosol route combined therapy using a cocktail of antibodies to protective antigen (PA) as well as antibodies to lethal factor (LF) was more effective in preventing death than the administration of either of the antibodies alone. Dr. Kawa Dizaye described the isolation of bacteriophage from local sources in Erbil, Iraq that was effective in killing antibiotic resistant *Pseudomonas aeruginosa* isolated from chronic suppurative otitis media cases in humans. David Trudil described the usefulness of phage lytic enzymes and other components of the bacteriophage in the treatment of BW agents, antibiotic resistant strains of pathogens affecting both humans and animals.

Kennedy Kaonga presented information related to the incidence of *Entamoeba coli* in samples of human excreta. *E. coli* is a nonpathogenic microorganism found in the colon. As such it serves as a marker for human exposure to environments contaminated with fecal material. This provides a rapid mechanism to monitor environmental contamination and the efficiency of control measures intended to reduce the contamination; and thereby, reduce the incidence of pathogenic diseases spread through fecal contamination.

Heinz Ellerbrok described an integrated diagnostic approach that provides fast, sensitive, and reliable diagnosis of biological threats whether they are bacterial, viral or biotoxins. The project, termed BIGRUDI, is an integrated group of partners from academia, industry and government and covers the entire spectrum from scenario development, through an initial risk assessment using Raman spectroscopy, further analysis of potential bioagents in a mobile laboratory, and a final complete risk evaluation. Highly specific and sensitive reagents have been developed for bacteria, viruses and toxins and have been optimized for the rapid and specific detection of possible bioagents in the field environment.

Since *Francisella tularensis* has been proposed as a bioagent that may be delivered by the contamination of drinking water supplies, Lyudmyla Pozdnyakova has studied the inactivation of the bacteria under a number of common conditions observed in water systems. The model developed provided data indicating that the inactivation of *F. tularensis* was variable under these conditions of water treatment and delivery. Increased treatment of the water

either at the source or the use point would be necessary to completely remove the danger of human infections.

Gold nanoparticles have been proposed as the delivery mechanism for drugs and vaccines yet little information on their possible toxicity has been published. Elena Ryabchikova presented her studies on the effect of exposing HeLa cell cultures to 16 - 18 nanometer spherical gold particles and identical particles conjugated with bovine serum albumin (BSA). Light and electron microscopic studies were performed and toxicity was monitored with the MTT assay. While the gold particles conjugated with BSA tended to aggregate more than the unconjugated particles in the HeLa cells over time, no visible pathological changes were observed and no toxicity was detected by the MTT assay. The particles were still present in the cells at termination of the study at 72 hours. In this study no toxic effects were observed, but more sensitive assays might detect changes in cell metabolism and/or structure.

Summary of Sector V, Emerging Issues and Technologies

Peter Leitner, Chair

Roberto Mugavero, Co-chair

Sector V, Emerging Issues and Technologies was comprised of three full conference sessions with a total of 19 presentations or posters. This sector covered a very eclectic group of subjects ranging from antibiotic-resistant bacteria to lessons-learned from the devastating combination of the earthquakes and tsunami that hit Japan a few weeks ago. The overall outcome of these sessions was a fascinating and highly informative tour d' horizon of contemporary issues of relevance to the CBRN analytical community.

Special Treatment of Antibiotic-Resistant Bacteria and Antibiotics in the Environment was an excellent series documenting the growing problems of antibiotics infiltration into the environment. Over 59,000 tons of antibiotics are administered each year; antibiotics employed in the agricultural exceed 10,000 tons per year. Sewage treatment plants are not equipped to filter or neutralize antibiotics from the water treatment cycle. The infusion of such material has resulted in the evolution of extremely dangerous antibiotic resistant organisms, whose mortality rates are between 50 - 100 %, and may prove attractive to potential bioterrorists. In most countries there is little analysis or concern of the industrial runoff and dumping of antibiotics into the environment, yet these materials present a high potential for entering the food chain. Some of the many new antibiotics may also be transporting heavy metals, thus compounding the public health threat. Very few decontaminants are environmentally friendly and the increasing types and quantities of antibiotic resistant organisms will be present in the environment for a long time to come.

Poster Presentations. Nine posters were presented that covered a range of important issues. One focused upon the progress in the Russian Federation in eliminating its stock of chemical weapons in accordance with international agreements. This program is behind schedule due to several technical and financial issues, it is now scheduled for completion by the end of 2015. By the end of 2012 Sarin, Soman, V-Gas and Lewisite are to be eliminated from Schuchye, Maradykovsky, Leonidovka, and Pochip. However, the elimination of CW material from Kizner and Schuchye will not be completed until 2015. Another poster introduced a new automated integrated test system developed to assess the resistance of various materials and textiles to chemical weapon agents. The detection and identification of organophosphorus compounds through the application of a unique solid phase extraction methodology may provide rapid identification and quantification of a variety of agents. The distribution and identification of Francisella Tularensis in the Ukraine and the ineffectiveness of current chlorine levels in water treatment standards were described. But another described the successful development of rapid one-step tests for B. anthracis, Y. pestis, F. tularensis for epidemiological surveillance purposes. The next step will be to transfer these capabilities onto a biochip for rapid and simultaneous identification. The unique problems and conditions faced by military and police Special Forces operating in a CBRN environment were described with a focus on the vital nature of customized and focused training of these units. The importance of constructing a robust civil defense system that combines military, police, fire, health care, etc., interests in the development of a joint doctrine for defense strategy and rescue was described, with emphasis placed on a single national strategy combining biometric monitoring, intelligence, police, internal security, rescue services, civil defense and armed civil defense organizations.

Emerging Issues and Technologies. A patented topical ointment with remarkable restorative properties for necrotic skin lesions was described with the suggestion that this ointment be useful to restore damaged tissue from CBR agents. The dangers of tetramine (TET) as a deadly

chemical agent was described, including its prior use by a domestic terrorist in China that resulted in over 200 deaths. Research thus far indicates that MK 801 may be an effective treatment capable of inhibiting the effectiveness of TET as a neural agent by isolating and protecting the NR2A receptor which appears to be most vulnerable to this agent and its disruption triggers fatal epileptic seizures.

The need for a comprehensive network to be in place before a biological event occurs was emphasized and continued the discussion of the importance of preparation and networks. Important elements noted were special support that can only be provided by private actors, preparedness for emerging and re-emerging pathogens, workplace risk assessments, the importance of trained facility operators, and the importance of an effective early warning and early response system. An update and detailed descriptions of the earthquake/tsunami related disasters ongoing in Japan were presented. Some of the most interesting lessons learned to date concern were improvisation of large numbers of school children, who initially followed the established SOP of what to do when the alarm sirens sound, but when they noticed that the event appeared worse than what the SOP was designed to protect them from, evacuated their shelters and headed for higher ground thereby saving their own lives. Another major point of disaster planning was how to describe the “worse case” scenario. Despite repeated revisions and updates of Japanese disaster management scenarios, the actual confluence of events represented a one in a thousand year occurrence. The last time such an event of this magnitude happened in Japan was in 869 A.D. over 1200 years ago.

NOTE: ASA will include summaries for the Nuclear/Radiological and Advanced Science and Technology Approaches to CBRNE Threats in December.



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INDUSTRY NOTES

Strongpoint Security Limited. CBMTS member Dan Kaszeta (ex-US Secret Service and ex-US Army Chemical Corps) has left Smiths Detection to form his own London-based consultancy. Strongpoint Security Limited performs work across the spectrum of CBRN, as well as in traditional physical and operational security disciplines. With direct experience integrating CBRN concerns into VIP protection and high-visibility large public events, Dan is

hopeful that any CBMTS members needing such expertise will reach out to Strongpoint.



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INDUSTRY NOTES

Knotox Inc. is a US based company formed in 2004 to consult in security and training issues related to CBRNe. In March of 2011, Knotox formed a strategic partnership with Hotzone Solutions based in the Netherlands. Together, the two companies offer training exercises using live agents (chemical warfare agents and open/closed radioactive emitters) in outdoor and indoor environments. Currently exercises are conducted in the Czech Republic near Brno and in Seibersdorf, Austria. The two companies blend expertise formed in NATO and OPCW training exercises and offer various levels of exercises ranging from introductory (general awareness) to expert scenarios that include tactical entry situations. More information can be obtained at www.knotoxinc.com and www.hotzonesolutions.com.

Knotox Inc.'s staff has extensive experience in the CBRNe world. That experience provides our clients with the best live agent training in the world. With Knotox Inc.'s experience in the development of over a hundred scenarios currently available for our clients Knotox Inc. can provide cost effective and safe training experiences for our clients. Hotzone will start training radiological training and testing at Chernobyl Center and in the Chernobyl Exclusion Zone in the Ukraine in 2012.

Dr. Murray Hamilton, President and CEO of Knotox, is a neuropharmacologist who worked as a defence scientist for 22 years for the Canadian government, email: mhamilton@knotoxinc.com. Douglas Eaton, the Director of Field Operations, is retired Canadian Military with over 25 years' experience. Knotox Inc.'s Chief Operations Officer is Ray Hatfield who has worked in the US Government sector for over 25 years, and is a veteran of both the US Air Force and the US Army. For further information please contact rhatfield@knotoxinc.com.

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EOD Buyers Guide. A newly launched website, www.EODBUYERSGUIDE.com focuses on explosive ordnance disposal (EOD), improvised explosive device disposal (IEDD), counter improvised explosive device (CIED) and counter terrorism equipment and services. There are nearly 40 distinct categories, including CBRNE. Twenty-nine suppliers of CBRNE products/services are listed. CBRNE-related listings include protective clothing, safety products, tracing, detection and analyzing products, environmental services, training and software. Companies who wish to be listed can contact Bob Rozzi at sales@eodbuyersguide.com or call at 570-290-9123.

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Andy Oppenheimer. Editor of Chemical & Biological Warfare Review and author of IRA: The Bombs and the Bullets (Irish Academic Press). Andy Oppenheimer will be giving presentations at the City Security Resilience Networks (CSARN) CBRNe and Mass Contamination Briefing on 7th October 2011 in London and at the Global IED Defeat conference & exhibition 24th-27th October 2011 in Abu Dhabi. He presented the second annual SMI Group Summer Masterclass, IEDs: Defeat the Device on 20 July 2011 in London.

As an analyst, lecturer and published author on CBRNe, Andy is available for workshops and classes in counterterrorism and on the threat of IEDs, and on nuclear, chemical and biological threats. Andy is also Editor, G2 Defence Intelligence & Security, a member of the International Association of Bomb Technicians and Investigators, and a former editor of Jane's Nuclear, Biological and Chemical Defence.

You can contact Andy via his website www.andyoppenheimer.com, email: Oppenheimer@btconnect.com and phone +44 (0)77 6666 2655.

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Travelling the Globe with Dave Trudil.

NHDetect, a spin-off from New Horizons Diagnostics, is a Biotechnology company with a focus on detection, therapies and prevention of infectious disease and emerging pathogens. Dave Trudil, the founder, has been involved in Biodefense since 1986, longer if you include the earlier training he received at Fort McClellan as a young chemical officer in 1969.

Dave, with NHDetect, is also a consultant to Battelle Memorial Institute and in April 2011 was awarded a subcontract to support Battelle's contract with DTRA. He is the commercialization and science sustainment lead for DTRA's Federal Republic of Georgia Biological Engagement Program. In this capacity Dave is actively working with the various institutes, including the new Central Public Health Reference BSL-3 Laboratories, Georgian National Centers for Disease Control, Georgian Ministry of Agriculture, Georgian National Food Agency and the Eliava Bacteriophage Institute. His goal is to seek partners and projects for these institutes, with the objective to increase sustainability for the labs. There are numerous opportunities from utilization of the anthrax human samples (a reported 20 human cases this summer alone) to the unique strains that are culture positive, PCR negative. You may see Dave in the Far East, Europe, South America, or even the USA, espousing the benefits of working with these groups, as well as the US agencies... or better yet contact him if you have any ideas for sustainment ... or just slow him down for dinner. Dave can be reached at (410) 499-7062 and nhdetect@aol.com.

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ASA sadly reports the recent passing of several well-known and honored scientists. Although the results of their research continue, they will all be missed, in part because they were part of a history of CBW that is now lost.

In Memoriam

Dr Ronald R. Nelson (1941 - 2011) **Former OPCW Director of Administration**

by John Hart

Senior Researcher

Stockholm International Peace Research Institute (SIPRI)

Dr Ronald R. Nelson retired as Director of Administration at the Organisation for the Prohibition of Chemical Weapons (OPCW) in December 2010. He suffered a stroke and died in his home town of Sioux Falls, South Dakota.

Nelson obtained his doctorate from Duke University in 1967. He served in the US Army infantry during the Vietnam War and later became a Foreign Area Officer in Tactical/Strategic Intelligence. He was the recipient of a Bronze Star Medal and the Purple Heart and retired with the rank of Colonel. Nelson also served on the staff of US Senator Larry Pressler before working in the Department of Defense on arms control and international security matters. He was later attached to the US delegation to the Conference on Disarmament in Geneva where he assisted with the negotiation of the 1993 Chemical Weapons Convention (CWC). He moved to The Hague after the CWC was opened for signature where he served in the Provisional Technical Secretariat (PTS) of the OPCW as a senior planning officer. His contribution to the US ratification of the convention in 1997 was essential, although not very visible.

Nelson was, perhaps, the last of the original core group of key personnel from the 1993-1997 Preparatory Commission (PrepCom). He participated in meetings to support a 2007 study on the establishment of the OPCW (co-edited by the former PTS Executive Secretary Ian Kenyon (d. 2008) and Daniel Feakes (currently with the OPCW Secretariat). Nelson also facilitated the transition between the current and previous Director-General in 2010 and was a regular participant in Pugwash meetings on chemical and biological weapons arms control.

Nelson was one of the best practitioners of (what ought to be) the fine art of consultation with delegations and the various sections of the Secretariat. Being aware of where (and how) most of the skeletons were buried, he could provide an authoritative background on the various administrative, legal and political challenges encountered by the CWC regime. His other strong point as the Director of Administration was his excellent knowledge of the treaty and understanding of the actual political and security dimensions of the various tasks performed by the OPCW.

He was thus effective in assisting the management to identify and mitigate a number of operational challenges.

Nelson was also widely read in art, literature, history and philosophy. A lifelong anglophile, who carried out part of his doctoral research in the UK, he was an expert on the subject of British peerages. He also had a particular fondness for the poetry of Keats and Shelley and visited numerous museums, including the Mauritshuis (the home of Vermeer's Girl with a Pearl Earring). In 2010 he had read with interest the work of the political philosopher John N. Gray (Gray's Anatomy, 2009). He also enjoyed visiting classical Greek and Roman archeological sites, such as Pompeii, Herculaneum and the Palace of Knossos.

Nelson was also a birding enthusiast who identified approximately 1500 birds worldwide. At the time of his stroke, he had in his luggage a copy of one of Roger Tory Peterson's bird guides. In 2008 Nelson completed the editing of the birding papers of the US author, historian and academic Herbert A. Krause. Nelson also enjoyed fine meals and good conversation and could distinguish dessert wines -- much to the chagrin of a pretentious waiter in Bath who tried to slip a lesser one by him. In the proper environment, his turn of phrase (something in the vein of a Noel Coward) was of a sort that one usually only encounters in the memoirs of bon vivants or members of European courts (and assorted hangers-on) in the 19th and early 20th centuries.

His extended relatives and friends came together in June in Sioux Falls for his memorial service. While he would have found his service rather embarrassing, he would also probably have thought that it had been done in reasonably acceptable good taste. He would also have been touched that friends and family had come together and had many pleasant and unusual tales to tell.

Elsa Reiner (1930 - 2011) **Outstanding Croatian Biochemist**

by Dr. Zrinka Kovarik

Institute for Medical Research and Occupational Health
Zagreb, Croatia

Dr Elsa Reiner, an outstanding scientist with many contributions to the understanding of esterases, peacefully passed away in Zagreb on July 5, 2011.

Elsa Reiner was born in Osijek (in 1930), graduated at the University of Zagreb (in 1953) and obtained her PhD degree in chemistry (1962) from the Faculty of Science, University of Zagreb. In 1954 she joined the Institute for Medical Research and Occupational Health, where she began her studies on mechanisms of cholinesterase catalysis and interactions of esterases with organophosphorus compounds. In 1967, she founded the Laboratory of Biochemistry and headed it almost until her retirement in

2000. Her research was primarily directed towards two groups of esterases: cholinesterases and paraoxonases. She studied the mechanisms of their interactions with substrates and inhibitors. Part of her interest was also directed towards monitoring and distribution of organochlorine compounds in humans and in the environment. These studies were supported by the Croatian Ministry of Science, WHO and the US Environmental Protection Agency (EPA). She had also been a member of the WHO Expert Panel on Vector Biology and Control for almost three decades.

During her long scientific career, Dr. Reiner was often a visiting scientist in institutes outside Croatia. At the beginning of her career, she spent one year as a fellow at the Medical School of the University of Ljubljana, and thereafter two years as a fellow at the University of Heidelberg, where she received a scholarship from the Alexander von Humboldt Foundation.



Elsa Reiner

Many years later, Dr. Elsa Reiner obtained the "Alexander von Humboldt Medaille" award from the same Foundation for her contribution to scientific and cultural collaboration between Croatia and Germany.

For almost seven years, Dr. Reiner worked with Norman Aldridge at the Medical Research Council Laboratories in Carshalton, UK. This stay resulted in a book "Enzyme Inhibitors as Substrates: Interaction of Esterases with Esters of Organophosphorus and Carbamic Acids" (North Holland Pub. Co. Amsterdam, 1972) with Norman Aldridge, which is still considered a standard textbook by many who study enzyme kinetics and interaction between cholinesterases and organophosphorus compounds, even many years after its publication.

Much of her time and effort was devoted towards the organisation of international meetings on cholinesterase and related enzymes; the first meeting being held in Split in 1975, and the latest which took place in Zibenik, 2009. At the previous one in Suzhou, China, Dr. Reiner obtained an award from the Hong Kong University of Science and Technology and Chinese Academy of Sciences for her contribution to research of cholinesterases.

Dr. Reiner was an associate member of the Croatian

Academy of Sciences and Arts and a member of the Croatian National Research Council. She promoted the development of biochemistry in Croatia and was a key in founding the Croatian Biochemical Society. Among her many awards, the Croatian Ministry of Science honored her with the "Rudjer Bošković Award for Natural Sciences" in 1973 and in 2001 the Croatian Parliament honoured her with the "Award for Life-Long Contributions to Science".

All of us who were fortunate to work with Dr. Elsa Reiner remember her as a brilliant scientist and uniquely caring, insightful and candid human being. Persistent and meticulous in science, she was supportive and encouraging outside the lab. She worked hard and remained scientifically active until her peaceful passing; she earned every bit of respect that she enjoyed worldwide. She was a true ambassador in science never hesitating to show love for her country that she represented so flawlessly for years. She was a happy person who loved and enjoyed fully the work she excelled in. We will remember and greatly miss her for her unstoppable enthusiasm, perfection and support.

Jiri Matousek (1930 - 2011)
Respected Czech Chemist and Toxicologist

by Pavel Castulik
External lecturer, Brno Research Centre for Toxic Compounds in Environment, Faculty of Science Masaryk University

It is with deep regret that I write the sad news that Professor Jiri Matousek, Dipl. Eng., PhD, DSc, internationally respected chemist, toxicologist and teacher, humanist and colleague, husband, father and grandfather passed away on April 12th, 2011. He left suddenly only a week after his 81st birthday, in the middle of his work at the Masaryk University in Brno, where, since 2001, he was a well-known expert in CBR defense and a professor of environmental chemistry and toxicology at the Research Centre for Toxic Compounds in the Environment at the Faculty of Science in Brno, Czech Republic. Professor Jiri Matousek was a scientist and citizen with a generous personality, sharing his extensive scientific knowledge with a wide breadth of views, culture, and deep humanity. His span of knowledge in science disciplines, philosophy and culture was enormous and he was respected by his colleagues, friends and loved by his students.

Born in Pribram, Czech Republic 4 April 1930, he was influenced by the history, music and scientific culture in the region. (The Curies used uranium ore from mines in Pribram and Antonin Dvorak lived and composed music at a nearby manor.) He graduated with a degree in chemistry from the Faculty of Chemical Technology of Czech University of Technology in Prague during 1949-1954. He

attended the Faculty of Chemistry at the Military Technical Academy in Brno where he obtained a degree Dipl.Eng. of Chemistry in 1954 and became a Candidate of Science (CSc/PhD) in 1958. He became an Associate Professor in 1966 and obtained a DSc in 1967. He became a full professor of organic chemistry at the Palacky University in Olomouc in 1983.

Prof Matousek served in the Czechoslovakian armed forces between 1950 and 1989, achieving the rank of Colonel in 1968, and was a member of R&D institutions and military, technical and medical universities. These include Assistant Professor (1954-1959), Faculty of Chemistry, Military Technical Academy (now University of Defense in Brno); Department Head (1959-63), Director for Research (1981-1989), Director (1963-1971) of Czechoslovak NBC-Defense R&D Establishment (now Military Technical Institute of Protection, Brno); Deputy Head (1971-1981), Deputy of Military Toxicology at Purkyne Medical Research Institute (now Faculty of Military Health Services, University of Defense in Hradec Kralove); Member of the Czechoslovak Delegation to the Conference on Disarmament in Geneva; Leading Research Fellow (1989-90) at the Institute for Peace and Disarmament Research of Czechoslovak Academy of Science in Prague; Visiting Professor (1990-1995) at the International Institute for Peace in Vienna; Director (1992-2000) of the Institute of Environmental Chemistry and Technology, Faculty of Chemistry at the Brno University of Technology; Member (2001-2007)

and Chairman (2003-2007) of Scientific Advisory Board at the Organization for the Prohibition of Chemical Weapons (OPCW) in The Hague.



Jiri Matousek

When retired from the Czechoslovak Army in 1989, Prof Matousek continued working as a leading scientist at the

Research Institute for Peace and Disarmament of the Czech Academy of Science in Prague. Simultaneously, he served as an expert on disarmament for the Federal Ministry of Foreign Affairs of the Czechoslovakia. He was a member of the Czechoslovak delegation at the Conference on Disarmament in Geneva and a delegate of many other peace meetings.

From 1990 he dedicated his efforts to education. He was a visiting professor at the International Institute for Peace, and an external professor of toxicology at the Faculty of

Science at the Masaryk University. Prof. Matousek helped to re-establish the Faculty of Chemistry of the Brno University of Technology, where he served as the Head of the Institute of Chemistry and Technology of the Environmental Protection until 2000. Since 2001 he was Professor of Environmental Chemistry and Toxicology at the Centre for Research of Toxic Compounds in the Environment (EU Research Centre of Excellence for Environmental Chemistry and Ecotoxicology), Faculty of Science at the Masaryk University, Brno.

Prof. Matousek's scientific work was dedicated to chemical toxicology, environmental chemistry and technology aimed mainly at chemistry and analysis of extremely toxic organic compounds involving synthesis, reactions, toxicology, trace analysis, detection, monitoring, decontamination, detoxification, protection, prevention and prophylactic problems. Over 30 realized outputs in production and use (in armed forces, civil protection, environmental protection and health services), such as fine and special chemicals for diagnostics, detoxification and therapy, analytical and diagnostic means and sets for the field analysis, chemical reconnaissance and on-site detection, personal protection, decontamination, first aid, detoxification and disinfection.

Prof. Matousek's had more than 550 papers in scientific and professional journals, many patents, books and reports and participate in 50 international projects. He was awarded with eleven state and military medals including Memorial Medal of the Brno University of Technology (1999); Gold Medal of the Faculty of Chemistry, Brno University of Technology (2002); Czech Golden Rescue Cross (2007) and several awards by NGOs.

On behalf of all his colleagues, fellows, friends, and students, we pay tribute to Prof. Jiri Matousek's professional life as scientist and teacher and acknowledge how he will be missed in his private life.

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Jonathan B. Tucker (1954 - 2011)
US CBW Expert

Federation of American Scientists
Washington DC, US

Jonathan B. Tucker recently joined the Federation of American Scientist and managed the Biosecurity Education Project developing educational modules for the Virtual Biosecurity Center. Tucker was the Founding Director of CBW Nonproliferation Program and Senior Fellow at the James Martin Center for Nonproliferation Studies in Washington, D.C. office of CNS, specializing in chemical and biological weapons issues. He was an eloquent commentator in English, French and German on policy issues as diverse as public health, bio-terrorism, the Chemical Weapons Convention, and dual use-export controls, and nonproliferation.

Tucker previously directed the Chemical and Biological Weapons Nonproliferation Program (CBWNP). Before join-

ing the CNS staff in March 1996, he served with the Department of State, the Congressional Office of Technology Assessment, and the US Arms Control & Disarmament Agency. In February 1995, he was a UN biological weapons inspector in Iraq. Dr. Tucker received a BS in biology from Yale University and a PhD (1990) in political science from the Massachusetts Institute of Technology, with a concentration in defense and arms control studies.

He was the editor of *Toxic Terror: Assessing Terrorist Use of Chemical and Biological Weapons* (MIT Press, 2000) and the author of *Scourge: The Once and Future Threat of Smallpox* (Grove/Atlantic, 2001) and *War of Nerves: Chemical Warfare from World War I to Al-Qaeda* (Pantheon, 2006).

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Otto Louis Wolthuis (1930 - 2011) Accomplished Pharmacological Chemist

Retired Chemist, TNO
Goese, Netherlands

Otto Louis Wolthuis was born May 7, 1930 in Indonesia to Dutch parents. He survived 2.5 years in a Japanese concentration camp during WW-II and was evacuated to the Netherlands. He received his MD from Leiden University, served in the Air Force, and then obtained his PhD from Leiden University. He started to work for the Medical Biological Laboratory at The Netherlands Organization, TNO, in Rijswijk where he became head of the department of pharmacology supervising the other scientists, but continuing his work primarily in cholinesterase poisoning by organophosphonates.

He had a long list of publications and several awards, including a "Commander Medal for Medical Excellence" from the USA for research done there and was nominated and decorated as an "Officier in de Orde van Oranje-Nassau." Although taking an early retirement in 1993, Dr. Wolthuis continued working in the lab and in an advisory role at least half-time.

ASA thanks Mrs. Willy Wothius for sending the information about her husband Otto.

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Dr. Martin Schütz (1964 - 2011) Head Biology Division, Spiez Laboratory, Switzerland

by Dr. Marc Cadisch, Director, Spiez Laboratory

Dr. Martin Schütz, an outstanding biologist with significant contributions to the field of biological protection, biosafety and arms control, passed away very unexpectedly at the age of 47 years on August 7th after a brief but grave illness. Martin succumbed to metastatic melanoma. Martin tried to fight the disease with all his good spirits, but the

treatment of these types of cancers is very difficult and turned out to be futile in Martin's case.

Spiez Laboratory has lost, not only a brilliant colleague but above all, a great friend and human being. Martin leaves behind a wife and three young children.

As one of the most senior collaborators in Spiez, Martin was the initiator and all around driving force behind the establishment and development of a viable biological protection system in Switzerland. He was principally responsible for bringing the state-of-the-art biosafety facilities to Spiez and was project manager of Switzerland's first and only, high-containment, Biological Safety Laboratory, BSL-4 suite laboratory, which will go operational in 2012.

Born and raised in the canton of Berne, Switzerland, Martin graduated with a degree in microbiology from the University of Berne. He then moved to the federal office of agriculture, specializing in microbiological aspects of oenology and writing a dissertation on the ecology of wine yeasts. After working in this field and honing his skills in microbiology, he joined Spiez Laboratory in 1995. Under his leadership, the Biology Department grew from two collaborators to now 15 scientists. Martin also served as a United Nations weapons inspector in Iraq and helped inspect laboratories there for pathogens and toxic substances.



Martin Schütz

All of us who were fortunate enough to come into contact with Martin, remember him as a brilliant colleague, fine scientist and gentleman. He possessed a scientist's probing mind and an even-tempered general manager's fluency on organizational issues. As a central figure in the Swiss biosafety-community, he

displayed great knowledge and clarity in a field prone to exaggeration and illusion.

Despite his premature passing, his work, achievements, and presence will live on through the reputation of the Spiez Biology Department, and the groundbreaking Biological Safety Laboratory project he was so deservedly proud to lead.

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Education and BTWC: Still an Ongoing Work

Prof Maria J. Espona
ArgIQ, Argentina Information Quality

The Second Review Conference of 1986 “notes the importance of inclusion in textbooks and in medical, scientific and military educational programmes of information dealing with the prohibition and believes that such measures which States might undertake ... would strengthen the effectiveness of the Convention.” [1] *Since then a little was done.*

During the intersessional process (ISP), education and codes of conduct grew in importance, but in developing countries, we are far away from being even appropriately informed about current thinking, and the rights and obligations under the BTWC. During the last decade, especially after 9/11 and the anthrax letters also in 2001, we witnessed how budgets with BW related issues (prevention, peaceful research, detection, etc.) constantly grew, as did the number of conferences (national and international) organized to study WMD and dual use problems. *Nothing said about the quality of the conferences.*

From our vantage point, it appears the governments' budgets and conferences go in parallel roads, with few, small points of contact, but for sure not enough! Contact between government, the entity responsible for the international treaties and agreements, including diplomats, custom experts, technical experts, etc., and life scientists, those who will be affected by the restrictions and those who can make a mistake publishing controversial research results, is critical.

Last year, we organized a meeting (see p.18) in Buenos

Seventh Review Conference of the Biological Weapons Convention

Supporting information for three background documents for the 7th Review Conference of the BTWC are due 31 August 2011.

1. Compliance by States Parties with all their obligations under the Convention,
2. New scientific and technological developments relevant to the Convention, based on information from States Parties and international organizations; and
3. Implementation of Article X, including information submitted pursuant to paragraph 54 of the Final Declaration of the Sixth Review Conference.

Submissions to the Implementation Support Unit (ISU), bwc@unog.ch. Short documents are encouraged because of the costs of translation for UN documents.

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Aires, with great results for us, but it was disappointing to see that we academics are filling a gap that should be covered by the government, even though they did participate in some activities.

Little new here, more by chance than any organized process.

But I remain optimistic and started to work with Malcolm Dando on two initiatives, one is the translation into Spanish of the Educational Module Resource (EMR) [2], and the second is a short course, using the EMR as starting point, especially designed for Argentina. We have finished the course content; now we are elaborating the details of the presentations and then we will make it public.

We know that the life scientists' community in Argentina is waiting for it, and we hope to deliver it by the beginning of next year. Our target audience will be the life scientists, but we will also invite governmental officials, as we did before, to make sure they know each other, to listen to each other: their problems, doubts, and expectations. If we can bring together representatives involved in BW and dual use control for a day course, we will succeed. But if we create a community of interested people, and if we manage to work together as a network, we will win the championship! We need to work together to reach the BTWC goals, to be prepared in case of an attack or an outbreak.

We are so close to the 7th Review Conference, 5 to 22 December 2011, we will not be able to present the course before this. But we in Argentina can say there that we are working hard on education programs for life scientists, and the best of all, we are doing something.

Bibliography

[1] Second Review Conference of the Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction (1986) Final Declaration, BWC/CONF.II/13.II. United Nations, Geneva, September.

[2] See <http://www.brad.ac.uk/bioethics/EducationalModuleResource/EnglishLanguageVersionofEMR/>

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The Journal of Medical, Chemical, Biological and Radiological Defense, JMedCBR, www.JMedCBR.org, is on PubMed. JMedCBR is the ONLY journal listed for chemical defense - or biological defense or radiological defense. editor@JMedCBR.org.

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Challenges to the Scientific and Technological Progress: Biological Nucleus

Prof Maria Jose Espona
ArgIQ, Argentina Information Quality

On 4 October 2010 in Buenos Aires, Argentina we held the first conference in a series about the challenge that scientific and technological progress poses to life sciences, veterinarian, medicine, defense, intelligence, and education. The objective of the meeting was to spread information, analyze and debate this issue, and create a local community network to examine this problem from an interdisciplinary perspective. This meeting was organized by Maria Jose Espona from International Studies of the Institute for Political and Social Studies.

Invited speakers included Malcolm Dando and Marie Chevrier, as well as representatives of the local community who participated as presenters: Dr. Adriana Bernacchi, Asociacion Argentina de Microbiologia, and Captain Guillermo Tajan from the MoD. The presentations are available on: www.dual-usebioethics.net.

1. Introduction to the Problem (Espona)
2. Control Strategies for Biological Weapons non-Proliferation (Bernacchi)
3. Analysis of the Scientific Progress in Life Sciences and its Relationship with the BWC (Dando)

4. Biosecurity Policy in United States (Chevrier)
5. Bioethics, a South American perspective (Tajan)
6. Education in Life Sciences (Dando)
7. Summary and closing remarks (Espona)

Due to the broad spectrum covered, people from many areas were invited, including governmental experts, which created an interdisciplinary environment for ideas exchange.

Members of the local scientific community were not fully aware of the different control strategies for biological agents, so we started with presentations about the current situation and explanations about the links between scientific and technological progress with arms development, and the core concept of dual use. Afterwards, they were prepared to understand the international debate on bioethics, biosecurity, biosafety and dual use. Life scientists and veterinarians, as well as some defense experts were surprised by the importance of ethics in science, and happy to take some time to reflect about it.

At the end of the meeting, most of the 60 participants asked for more information, to develop courses at their workplaces and to stay in touch in the future. This outcome was what we were looking for. We consider that establishing a network of concerned people will help us to improve our country situation in regards to biosecurity, biosafety, bioethics and dual use. **

INDUSTRY NOTE

Esdras Consulting Inc. (ECI)

ASA announces the retirement of Eric Stephen, from his position as Chem/Bio Medical Countermeasures R&D Coordinator at Defence R&D Canada (DRDC), capping a 34 year career of public service as a research scientist that also included tenure at the National Research Council of Canada and Health Canada. His service within the CBMCM portfolio included sitting as a member of the Canadian Delegation to the BTWC Intersessional Meetings, at the UN in Geneva, where he provided expert advice to the Delegation. Eric has authored or co-authored over 25 peer-reviewed publications, a wide range of conference proceedings and invited presentations.

Eric has been associated with CBMTS and ASA for many years. He has been a strong force at the CBMTS where, in addition to serving on the CBMTS International Organizing Committees and the International Science Review Committees, he initiated the CBMTS Sector on Dual Use and Emerging Issues and served as the Sector Chair.

Eric is an Associate Editor of the Journal of Medical Chemical, Biological, & Radiological Defense (JMedCBR), an international, peer-reviewed journal of original scientific research and clinical and doctrinal knowledge in CBR defense.

Eric holds a B.Sc in microbiology, a M.Sc. in molecular biology, and a Master's Certificate in Project Management. He continues to look for new opportunities to contribute locally, nationally and internationally through his new company Esdras Consulting Inc., (ECI) in Ottawa, Canada. Esdras is an independent, professional consulting company that supports clients in the public and private sectors, both nationally and internationally. Esdras can provide clients with the required skills and highly sought after subject matter expertise and problem solving skills to the health, security and governance domains, delivering results that surpass client needs and expectations. Eric understands client challenges and brings a personal and broad network of expertise to provide timely and thorough results as an independent or integrated member of the client team.

Contact Eric Stephen by phone (613) 825-1091 or by email: esdrasconsultinginc@gmail.com **

INDUSTRY NOTE

ARA Releases HAZMAT Evac App

ARA has released HAZMAT Evac for iPhone, iPad, and Android. With the Android app in July 2011, the HAZMAT Evac is available for more than 60 percent of the smart phone market.

HAZMAT Evac is a tool designed for the first-responder and emergency management communities to provide quick, simple, HAZMAT spill evacuation and response information. The application displays the Isolation and Protection Zones in accordance with the 2008 Emergency Response Guidebook (ERG).

The application:

- Displays isolation and protection zones overlaid on Google Maps
- Provides access to approximately 3,300 materials; by common chemical name and number
- Includes CW agents (eg., sarin, soman, VX, mustard) and radioactive materials
- Incorporates wind direction, user specified or weather services
- Gives incident location via address lookup, GPS location, coordinate input or through a map interface
- Automatically creates e-mail capturing incident details, map image and zone shapefiles and KML files for fast sharing with incident personnel
- Shapefile and KML files easily imported into other map applications, e.g., WebEOC or Google Earth
- Includes ERG reference information including all contacts listed in the 2008 ERG

For inquiries on HAZMAT Evac, please contact Dr. Carl Jerrett (cjerrett@ara.com, 919-582-3300).



FOCAL POINT NEWS

for and about ASA's professional associates in government, industry and academia

USAMRICD's John Petrali Receives Spirit of Service Recognition

Dr. John Petrali, a research anatomist at the US Army Medical Research Institute for Chemical Defense (USAMRICD), was one of 54 federal employees to be honored in the Spirit of Service ceremony and reception at the Pentagon. Dr. Petrali was recognized for 51 years of service to the federal government.



Dr. Petrali started in the military as a medical corpsman private he was stationed at Edgewood Arsenal in 1959 and began his federal civilian career in 1962, as a biologist in the Pathology Branch. Dr. Petrali trained in electron microscopy, immunology, and ultrastructural techniques. In 1969, he received his doctorate in anatomy and pathology from the Medical

Graduate Program of the University of Maryland School of Medicine. Dr. Petrali has worked to identify how chemical agents harm humans. He was one of the first researchers to show that the effects of nerve agents on the blood-brain barrier were dependent on convulsive activity and he was the first to define the sequential ultrastructural immunopathogenesis of blister formations in exposed skin and cornea resulting from exposure to sulfur mustard agent. These investigations are now considered benchmark studies for the fielding of anticonvulsants as first-line, immediate treatment of nerve agent casualties and for the development of noninvasive immunodiagnostic strategies to confirm mustard gas exposure.

Dr. Petrali is the author of, or co-author on, more than 140 peer-reviewed scholarly articles, book chapters, and technical reports, as well as presentations at innumerable scientific and professional meetings. **

www.opbw.org

Biological and Toxin Weapons Convention (BTWC) website, administered by the Department of Peace Studies of the University of Bradford. **

ON THE STREET

a. Alabama US. According to the Anniston news, 99.6 or 99.7% of the chemical weapons originally at Anniston Chemical Agent Disposal have been destroyed by incineration as of mid-July. The remainder is expected to be destroyed in September 2011.

b. Oregon US. Umatilla Chemical Depot will also be finishing incinerating the chemical weapons stored there this year.

c. UK. The UK's Project Cleansweep says that any residuals left from the CW program do not cause a risk to human health. 25 Jul 2011. Critics suggest that lack of validated documentation of weapons removal and subsequent testing of soils cannot confirm those statements. Many older weapons stores were destroyed before the CWC.

d. Reverse bioterrorism? The CIA sponsored a vaccination program to try to collect DNA from Osama bin Laden's family members.

e. Fraunhofer USA's Center for Molecular Biotechnology, based in Newark, Delaware, recently received a \$1.51 million federal contract to support its ongoing research for the US DTRA's chemical and biological support.

f. CFATS. The Chemical Facility Anti-Terrorism Standards Program has been in effect for four years, passed the Senate and will likely be extended another three. The program sets up risk-based performance standards to reduce potential vulnerabilities, including perimeter security, access control, theft, internal sabotage and cyber security.

g. DTRA. In April, TASC won a five year \$600 million contract with DTRA to counter CBRNE and promote nonproliferation for the DTRA's R&D Enterprise. The TASC team will support research, design, integration, test and evaluation of counters to WMD and technologies for nonproliferation.

h. UK. A BBC reporter died from effects of 1984 exposure to mustard during Iran-Iraq war. Mr. Benford was part of a team reporting on collection samples of chemical weapons for the UN. The coroner noted that complications from mustard exposure could take 20 to 40 years they appear and the patent also suffered from heart disease.

i. Maryland US. DoD, as part of its nerve agent medical countermeasures program, awarded Pharmathene a \$5.7 million contract for the evaluation of a mammalian cell culture to produce a recombinant form of butyrylcholinesterase. 1997, Dr. D. Lenz and Dr. BP. Doctor described the research using butyrylcholinesterase in a special CBMTS in the Czech Republic. www.asanltr.com/ASANews-97/

[pmma_cbmts.html](#)

j. UK. Smiths Detection, one of the larger companies in the CBRN detection business, has been having mixed fortunes this year. On March 10, 2011, the very large detection equipment contract for the 2012 Olympics was given to Rapiscan, Smiths' major rival in the x-ray machine business. This contract was widely considered an "easy win" for Smiths as they are UK based and was considered "low risk" internally. This contract, worth in excess of \$40M, would leave a large hole in any company's sales forecast. This event was followed on March 23 by the release of Smiths Detection's financial figures for the first half of their financial year 2011, showing that sales were down 9% and operating profits down 11%. This was not good news and Smiths Group share prices have suffered. In addition to the large Olympic contract, several large orders that were optimistically forecast to come onto the books in Smith's FY 2011 have not appeared or have been delayed.

There was good news on April 21, 2011, when Smiths Detection was awarded the prestigious Queen's Award for Enterprise for its LCD series of chemical agent detectors. But on May 3 there was the surprising news that Stephen Phipson, President of Smiths Detection, had been forced to resign. Smiths Group plc, Smiths Detection's parent corporation reiterated their March statement "Trading in Smiths Detection in the second half of its financial year has fallen short of the Board's expectations as a result of continued delays to orders." It is no secret in the CBRN industry that there has been an exodus of sales personnel from Smiths Detection, with little or no replacement. For example, the EMEA CBRN sales team is down to only three sales managers from its 2008 level of eight. While no public announcement has yet been made, lay-offs have commenced at Smiths Detection facilities in July. Clearly, something is not going according to plan at Smiths Detection.

In July Smiths won the contract for lightweight chemical detector for the Swedish Forces and the contract to provide Lufthansa Cargo with X-ray inspection and trace detection units for security screening. And in August the US DHS Domestic Nuclear Detection Office approved production and deployment of Smiths' Radseeker, handheld radiation detector. Delivery contracts should be coming out soon.

Information sources:

http://www.smiths.com/press_release_details.aspx?releaseID=418

http://www.rapiscansystems.com/en/news/article/rapiscan_named_official_security_equipment_and_systems_supplier_for_london

<http://www.smiths.com/results.aspx> - Briefing to press and stockholders in March 2011

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(Dumped - from p.1)

surveys carried out for marine archeological purposes, surveys to identify shipwrecks for recreational diving, and surveys ensuring the safety of pipeline and cable laying projects. [1]

In November 2010 the United Nations (UN) General Assembly passed a resolution on dumped chemical weapons that begins a process of consultation that may lead to expanded international efforts to remediate dumped munitions that are deemed to pose a particular risk.[2] The resolution was originally tabled in the UN First Committee, which deals with issues affecting international peace and security. However, the principal sponsors and facilitators subsequently moved the proposal to the Second Committee, which deals with economic and financial affairs, including environmental issues. This was done in order to avoid some of the political and legal sensitivities associated with international security measures and regimes so as to allow a better focus on the technical and scientific aspects of environmental and human health. The resolution, which was endorsed by Brazil, the EU, Russia and the US, notes the importance of raising awareness of the environmental effects originating from dumped chemical weapons. It invites the UN member states and international and regional organizations to monitor such environmental effects. It also requests the UN Secretary-General to seek the views of the member states and relevant regional and international organizations on this topic and to report to the 68th session of the UN General Assembly in 2013.[3]

In mid-2010 the Helsinki Commission (HELCOM) ministerial meeting, held in Moscow, established an ad hoc expert group (HELCOM MUNI) to update and review the existing information on dumped chemical weapons.[4] It builds on the work of the former Ad Hoc Working Group on Dumped Chemical Munitions (HELCOM CHEMU) of the early 1990s.[5] In addition to reviewing information on dumped chemical weapons, HELCOM MUNI is evaluating information on phosphorus munitions in the Baltic Sea and at a dumping site off the coast of Sweden. More specifically, HELCOM MUNI is tasked to compile further information on dumping activities especially after World War II, to check whether the general conclusions of the CHEMU report remain valid, to determine whether all recommendations of the CHEMU report have been implemented in a proper manner (including with a view towards determining the existence of possible gaps in national reporting by HELCOM members), to identify obstacles that may have led to 'unsatisfactory fulfillment' of CHEMU recommendations, and to develop relevant recommendations (including for further research). The expert group held its first meeting in November in Germany and met again in April 2011 in Poland -- just prior to the Third International Dialogue on Underwater Munitions.[6]

Also in 2010 the incoming Director-General of the Organ-

isation for the Prohibition of Chemical Weapons (OPCW), the body that implements the 1993 Chemical Weapons Convention (CWC), created a temporary advisory group chaired by Ambassador Rolf Ekeus of Sweden and tasked it to help to develop a strategic vision of the future focus and balance of resources of the OPCW following the end of the destruction of chemical weapon stockpiles. In July 2011 the group submitted its findings to the DG (which are currently being shared with the parties) which states that the OPCW should not ignore the issue of sea-dumped chemical weapons, and that it can, for example, facilitate or promote risk assessments within the framework of Article XI (Economic and Technological Development) activities.

The parties to the CWC are not required to declare any dumping at sea that occurred prior to 1 January 1985. They have been reluctant to declare the recovery or disposal of any sea-dumped chemical weapons. Potential costs associated with various legal obligations remain uncertain. Some in the public and among NGOs are inclined to wish to see remediation efforts as the default option. Some sections in some governments are reluctant to prompt a more general public discussion regarding the scope and relevance of multiple legal regimes to the remediation of sea dumped chemical weapons. Although this does sometimes occur, such consideration tends to be outside the international security context. Many munitions experts believe that attempting to remediate dump sites and shipwrecks may cause greater short-term environmental damage and casualties than allowing for ongoing longer term degradation and the progressive deposition of objects into the seabed. According to this view, the main recommendations of CHEMU remain operative. Salvage companies and defense contractors are nevertheless continuing to develop remediation technologies and see this as an area for possible increased future activity. In the wider international context, there is broad general support, including in the scientific research community, to further analyze the known or potential environmental and human health effects of dumped munitions. In the Baltic Sea, some of this research is funded by the European Commission (DG Environment).

Isolated instances of the recovery of dumped chemical weapons are generally outside the formal routine operation of the CWC regime (such munitions have typically been inadvertently recovered by fishermen or have washed ashore. HELCOM has long established reporting mechanisms for such recoveries as well. It should be noted that a legal distinction is drawn under the CWC between international waters versus territorial and inland waters. Notably, Japan informs the OPCW of ongoing operations at Kanda Port for the recovery and destruction of chemical munitions. Some chemical munitions that were dumped in water in Tianjin metro area by Japanese forces during World War II will also be subject to OPCW verification.[7]

Limited numbers of sea-dumped chemical weapons have

nevertheless been recovered and been destroyed outside the routine declaration and verification procedures of the OPCW organization. For example, if a chemical munition is deemed to pose a clear and present hazard, it can be destroyed without delay. Some technical consultations on CWC requirements and consultations among munitions experts regarding the disposal of a limited number of recovered dumped chemical munitions have also occurred.

Conventional munitions, including torpedos, lying in the vicinity of pipelines have also been rendered harmless in recent years. Instances have occurred where some shipwrecks are emptied of their fuel. In some cases this has entailed divers cutting into the hull, entering the ship and connecting hoses with heat exchangers to ensure sufficient fuel viscosity. For example, in 2002 a salvage crew removed approximately 120,000 gallons of fuel oil (and emulsified oil in water) from the SS Luckenbach off the coast of California. The operation included 1-10 meter diver penetrations. Wrecks collapse and embed into the bottom at different rates. Some munitions were encased in concrete prior to disposal. Others were placed in storage holds and other open spaces in an ad hoc manner. Over time such interventions will therefore probably be less feasible. Conversely sub-bottom profiling technologies have greatly improved in recent years allowing for greater understanding of the structural integrity of metal objects and compelling three dimensional imaging. In addition, the design and specification of data structures originally compiled for different purposes and within different legal and political contexts implies an increased scope in future for achieving a better understanding of the environmental and human health effects of dumped munitions.

Any remediation of dumped (including chemical) munitions should take into account the variety and type of conventional explosives and their relation to the principles of eco-toxicology. The latter can be conceptualized as the responses at different levels in a chain that begins when a pollutant is introduced to the environment. It then causes biochemical changes, physiological changes, whole organism responses, population changes, community composition effects and, finally, ecosystem effects. With each step, it becomes increasingly difficult to link a change to a given pollutant. Nor should the distinction between acute and chronic toxic effects be overlooked.

It remains unclear what support and advice the UN Secretary-General will utilize to support the implementation of the 2010 UN General Assembly resolution. The consideration of how to achieve appropriate transparency and accountability in science and technology may be structured according to a variety of principles. Difficulties associated with producing such advice include the fact that some organizations may act as 'research cartels' in that they monopolize the underlying data, as well as a wide

range of conflicts of interest (some visible, some less so). In addition, the UN possesses its own distinctive organizational dynamic and focus. UN officials often do not have scientific backgrounds, but not infrequently interact with those who do. They tend to be highly sensitive to the cross linkage of political and technical issues (actual or potential) and the sending and receiving of political signals. Data must be collected in a usable manner to allow for meaningful action and decisions. The legal and political sensitivities of one or more legal regimes should not hinder achieving a better picture of the scientific and technical understanding of the potential threats posed by dumped munitions to environmental and human health. Such a picture and how it was developed should be evident to interested parties. The 2010 UN General Assembly resolution offers such an opportunity.

Notes

[1] For example, in 2009 the Norwegian Defence Research Establishment (FFI) conducted a mapping activity of sea dumped chemical weapons in the Skagerrak Straits. Lagstad, P., Kartlegging av Vrak med HUGIN HUS i Dumpefelt for Kjemisk Ammunisjon i Skagerrak (FFI: 30 Dec. 2009) (unclassified).

[2] United Nations, General Assembly, Cooperative measures to assess and increase awareness of environmental effects related to waste originating from chemical munitions dumped at sea, A/C.2/65/L.32/Rev.1, 24 Nov. 2010. This resolution was perhaps the first instance in which the EU Common Foreign and Security Policy had the unanimous support of all the EU members under the Treaty of Lisbon which entered into force in December 2009.

[3] United Nations (note 2).

[4] Pyhala, M., Activities of the Helsinki Commission with regards to chemical munitions dumped in the Baltic Sea, Slide presentation at the conference MIREMAR: Minimizing Risks for the Environment in Marine Ammunition Removal in the Baltic and North Sea, Neumeunster, 16-18 Nov. 2010, <<http://schleswig-holstein.nabu.de/themen/meeresschutz/miremar/>>. The ad hoc Working Group on Dumped Chemical Munitions (HELCOM CHEMU) operated in 1992-95.

[5] HELCOM, Final Report of the ad hoc Working Group on Dumped Chemical Munition[s] (HELCOM CHEMU) to the 16th Meeting of the Helsinki Commission (March 1995), Mar. 1995, <http://www.helcom.fi/environment2/hazsubs/en_GB/chemu/>.

[6] See, for e.g., Germany's national report. Ad Hoc Expert Group to Update and Review the Existing Information on Dumped Chemical Munitions in the Baltic Sea, National Report Concerning the Dumping of Chemical Munitions within German Territorial Waters and the German EEZ in the Baltic Sea, HELCOM MUNI, 12-13 Apr. 2011, Sopot, Poland.

[7] A summary of old and abandoned chemical weapons left in China during World War II by Japan is provided in Hart, J. and Clevestig, P., Reducing Security Threats from Chemical and Biological Materials, SIPRI Yearbook 2011: Armaments, Disarmament and International Security (Oxford University Press: Oxford, 2011), pp. 400-401.

Note: The Director General released Report of the Advisory Panel on Future Priorities of the Organisation for the Prohibition of Chemical Weapons, OPCW document S/951/2011, 25 July 2011.

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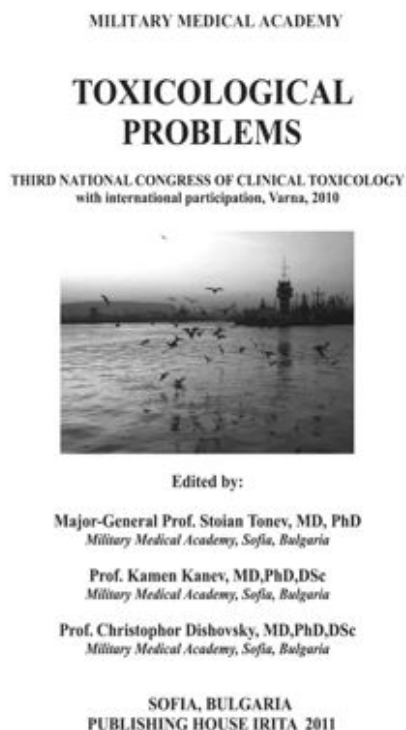
Bulgarian Military Medical Academy Publication

Prof. Christopher Dishovsky

The Bulgarian Military Medical Academy has published the papers from its Third National Congress of Clinical Toxicology, with International Participation, held in the Fall of 2010 in Varna, Bulgaria.

The book is divided into six parts, History of Clinical and Military Toxicology; Toxicological Emergency, Management, Terroristic Acts and Military Missions; Drug Toxicity; Chemical Toxicity; Aquatic and Mushroom Toxicity; and Prevention, Assessment and Treatment of Poisoning Victims. There is a chapter on the special characteristics of toxicological management of the Bulgarian military contingent in peacekeeping mission in Iraq and several chapters discussing the possible effects from use of toxic chemicals by terrorists and treatment planning.

The editors are well-known professionals in the field. ISBN: 978-954-2935-04-9. Please contact Prof. Dishovsky at christophord@yahoo.com for information to purchase.



Preparing for the Seventh Review Conference to the 1972 Biological and Toxin Weapons Convention

John Hart (SIPRI)

On 5-22 December of this year the Seventh Review Conference to the 1972 Biological and Toxin Weapons Convention (BTWC) will take place in Geneva. The BTWC, which has 164 members (Mozambique is the most recent to join), is the principal international legal instrument against biological warfare. As of July 2011, a total of 18 states have neither signed nor ratified the Convention, while 13 states have signed but not ratified the agreement. [1] The treaty has no permanent implementing body, nor does it possess a legally binding data submission mechanism. Such measures were placed on the back burner following the Fifth Review Conference, partly out of concern that they would be ineffective against a state that was determined to cheat, and that they would put at risk confidential business information and sensitive information from national protective programs.

Nevertheless, politically binding agreed annual exchanges of information have been in place since the 1990s. These are meant to act as confidence-building measures (CBMs) to help strengthen the treaty regime and have served as a basis for informal clarification and consultation among states. However, not all of the parties submit them, while many of those who do turn them in at irregular intervals. In recent years the number, consistency and quality of CBM submissions have nevertheless improved. Much of the analysis of those submissions available to the public has been carried out by Hamburg University's Research Group for Biological and Arms Control.

In addition, two intersessional processes have been carried out that consist of annual meetings of experts and parties (between the Fifth and Sixth, and the Sixth and Seventh Review Conferences, respectively). Information on possible offensive biological weapon activities is generally ambiguous and has varied (at least in public) over the years. In general, a party that has information that suggests non-compliance finds it difficult to share such information in multilateral regimes partly because of the need to protect intelligence and law enforcement sources and methods. Some prior verification concerns were overly diffuse and ambiguous to fundamentally resolve. Furthermore, participants in multilateral arms control and disarmament regimes have a highly-developed sense of protocol which emphasizes equal obligations and responsibilities by the members to fully implement all of the treaty's provisions. As such, the parties are presumed to be in good standing of their treaty obligations unless there is compelling evidence to the contrary. Conversely, national intelligence estimates may be incorrect and, over the

longer term, a multilateral approach can carry greater authority among states in general, provided the clarification process is done in a technically proficient and sufficiently transparent manner -- as was done by the Organisation for the Prohibition of Chemical Weapons (OPCW) and the International Atomic Energy Agency (IAEA) in Libya starting in 2003-2004.

The most important objective for the BTWC regime (and the Seventh Review Conference) is to maintain and strengthen the international norm against biological warfare. Another fundamental objective is to maintain and strengthen a framework through which the parties can inform themselves of political and technical developments that could affect the full implementation of all the Convention's various provisions, including those involving economic cooperation and assistance (Article X), and the implications of relevant scientific and technological (S&T) developments. It has periodically been suggested that a working body or similar arrangement be put in place to allow for the joint consideration of S&T developments affecting the BTWC and the 1993 Chemical Weapons Convention, including with the involvement of the OPCW's Scientific Advisory Board (SAB).

It is important for the parties to periodically familiarize themselves with the range of BTWC implementation issues both in terms of process and in terms of addressing potential specific compliance concerns. The Seventh Review Conference presents such an opportunity. All implementation issues could, in principle, be conceptualized according to (a) effective implementation, (b) universality and (c) S&T developments. In the broadest sense, S&T can be categorized as (a) life sciences, (b) chemistry, (c) technology and engineering, and (d) information technology.

In Berlin in June 2011, the Implementation Support Unit (ISU) to the BTWC tabled a possible intersessional process structure based on three working groups: (a) WG1: Implementation and compliance, (b) WG2: Science and outreach and (c) WG3: Cooperation, assistance and capacity-building. The five-day meeting of experts would devote one day to each of the working groups, while the fourth day would be on a 'special topic' that varies each year. The fifth day of the expert working group would be devoted to 'other matters' and the drafting of the final expert group report. The ISU is also currently preparing eight background papers for the Review Conference.[2]

It should perhaps be noted that a fairly legalistic and 'politically correct' approach is generally encountered in the writings concerning the regime (e.g., BTWC provisions and the activities of the parties). This will be reflected in the various documents tabled at the Seventh Review Conference and may obscure to the broader public the background thinking of the participants. It is also probable

that many (or most) of the delegates, as well as the supporting desk officers in capitals, represent a generation shift. As such, they may be less concerned with political and personality differences of the past and may exhibit a distinctive set of priorities. It is also likely that delegations will cross link BTWC implementation issues. Such cross linkages may also be made with non-biological arms control issues outside the regime. Finally, it is probable that the parties will agree to a third intersessional process that partly considers S&T developments and methodologies for assessing such developments.

References

[1] See <http://www.unog.ch/80256EE600585943/%28httpPages%29/7BE6CBBEA0477B52C12571860035FD5C?OpenDocument>

[2] The papers are essentially: (a) the history and operation of CBMs, (b) compliance by the member states with their treaty obligations, (c) S&T developments that are relevant to the treaty, (d) developments since the Sixth Review Conference in other international organizations that may be relevant to the treaty, (e) additional understanding and agreements reached by previous review conferences relating to each article of the treaty, (f) common understandings reached by the Meetings of States Parties during the 2007-2010 inter-sessional process, (g) status of universalization of the treaty and (h) the implementation of article X. Report of the Preparatory Committee, BWC/CONF.VII/PC/2, 26 Apr. 2011, pp. 4-5.

Since the early 1990s, Dr. Fedorov has been documenting how the Former Soviet Union and now Russia developed chemical weapons and the environmental effects of careless handling of these munitions. The book he describes is his effort to document the attitudes and environmental effects in Russia. According to Dr. Fedorov, he has published the book in Russian and has been working to publish in English. The final book is 500 pages and includes documentation that is not available outside Russia. An earlier version of the first 6 chapters is available in JMedCBR, starting with the Introduction http://www.jmedcbr.org/issue_0701/Fedorov/Fedorov_08_09.html

Chemical armament: a country's war against its own people (Russia's tragic experience)

Lev A. Fedorov
Moscow

Preface

Once Russia completes liquidation of the Soviet chemical weapons stocks, one of the most barbarous types of weapons of a mass destruction, the world should feel less anxious, especially the citizens of Russia. Russian and Former Soviet Union citizens only learned about the existence of chemical weapons in their country in 1987. The presence of both chemical and biological weapons was concealed for 70 years, and thus the authorities never recognized the Soviet

Union's huge and irresponsible military-chemical complex devoted to organizing offensive chemical warfare.

The information the Former Soviet Union released concerning the chemical weapons in the 1980s and 1990s is not reliable. Because of secrecy the official information at hand was misleading, half true or even deliberately false. The information of intelligence services of the West was also incorrect. The country's authorities actively rejected the alternative points of view. The 1925 Geneva Protocol and the 1993 Chemical Weapons Convention make the secrecy surrounding the history of these weapons senseless. We have been compelled to document the "real picture" of the long-term and expensive preparation Soviet military-chemical complex devoted to offensive chemical warfare. The extensive serious environmental consequences of this hazardous activity can only be understood if production, storage and projected use of these chemicals are documented.

Soviet chemical warfare proponents had carefully avoided the spotlight, however there is enough information to reconstruct the history of how the Soviet Union prepared for offensive chemical warfare. There are thousands of archival documents relating to all aspects of Soviet chemical armament history between the two World Wars. These documents can be used for many purposes:

- for research that fosters understanding of the military-chemical affairs as a whole; for the creation of an integrated system of chemical attack;
- for the establishment and development of military-chemical infrastructure that includes military-chemical services, chemical troops, laboratories, institutes and testing grounds;
- for the creation and testing of different kinds of chemical warfare agents and the standards for their use as weapons; and,
- for the evaluation of public health and environmental consequences of that industry.

Documents are also available on the Soviet military-chemical collaboration with various countries and on the state intelligence and counter-intelligence efforts during the period of preparation for the chemical warfare.

The goal of this book is to set forth a detailed picture of that senseless history, using the available documents. Unfortunately, the large-scale preparations for offensive chemical warfare proved ruinous for the country, which was not as rich as it seemed. This became evident with the passing of time. However, it is also important to draw attention to another aspect of this unnecessary war: its consequences for the people and the nature of our country.

Editor's Note. Part of text of the Preface has been edited for the ASA Newsletter, but I encourage interested readers to go to the original text to appreciate the emotion Dr. Fedorov puts into the writing. **

RSDecon Eyes Future Growth with New Global License

**Terry Bromley
Senior Director, Marketing
Bracco-Healthcare Protective Products Division**

RSDecon, a business unit of Bracco Diagnostics Inc., announces a global agreement in the field of "Topical Skin Protectants" with the U.S. Army Medical Command Office of Research and Technology. The new agreement applies to the technology Skin Exposure Reduction Paste Against Chemical Warfare Agents (SERPACWA), previously used in conjunction with MOPP gear to reduce or delay the absorption of chemical warfare agents through the skin when applied prior to exposure.

The technology agreement applies to the use of a skin protectant based on the combination of two key components; Polymist and Fomblin. In combination, the formula provides a thin protective barrier while allowing the release of water vapor. The formulation may provide a physical barrier that may reduce or delay exposure of skin to CWA.

"Although we are in early stages of development, I am encouraged by the benefits this technology may bring as a barrier to CWA's," said Virginia Streusand Goldman Ph.D., Senior Director of Product Development, Bracco-Healthcare Protective Products Division.

At the CBMTS Industry VIII symposium in Dubrovnik, Croatia, Professor Robert Chilcott from the University of Hertfordshire, UK presented "History and Future of Skin Protection." He summarized, "[The] Development of an effective barrier cream could have substantial implications for policy on operational use of PPE and provide a cost-effective enhancement to existing levels of protection."

RSDecon will continue to offer its Reactive Skin Decontamination Lotion (RSDL®), a proven, safe, fast acting and easy to use form of protection against all Chemical Warfare Agents (CWA). The addition of this promising new technology will support the business unit's mission "To protect the human skin from external threats" and complement its growing global acceptance of the RSDL® product.

RSDL® is a broad-spectrum liquid chemical warfare agent decontaminant that removes or neutralizes chemical warfare agents and T2 toxins from the skin within two minutes. It is carried as standard equipment by head-of-state protection agencies in the U.S. and abroad, and by police and fire departments including the New York City Fire Department (FDNY). It has been formally tested and proven effective by the Department of Defense (DoD) and multiple NATO military organizations, and is carried by U.S. troops in Iraq and Afghanistan. RSDL® has proven itself to be safe and effective as a skin decontaminant and is cleared by the U.S. Food and Drug Administration (FDA). **



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* U.S. Army Medical Research Institute of Chemical Defense (USAMRIID); E.H. Braue Jr, et. al.; (2008); Efficacy Comparison of RSDL, M291 SDK, 0.5% Bleach and 1% Soapy Water Challenged with Soman, Cyclosarin, VX, and Russian VX (VR)

Additional information is available at:
www.RSDDecon.com

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Bioscope '11

by Dr. Barbara Price

Select Select Agents

The US's Federal Experts Security Advisory Panel (FESAP) led by the US Department of Health and Human Services and US Department of Agriculture and involving 15 US government agencices, released its report at the end of June 2011. Actually they have a November 2010 report date and added the forward on June 13, 2011 and released the report. There is only a Tier 1 (no Tier 2, 3, or 4, etc.) list and there are only ten agents on it, so Tier 1 list is shorter than the old select agent list.

Bacillus anthracis [anthrax], Burkholderia mallei [glanders], Burkholderia pseudomallei [melioidosis], Ebola virus [Ebola hemorrhagic fever], Foot-and-mouth disease virus, Francisella tularensis [tularemia], Marburg virus [Marburg hemorrhagic fever], Variola major virus [smallpox], Variola minor virus [a less severe smallpox], and Yersinia pestis [plague].

The US CDC still has Categories A, B and C agents in their lists of bioterrorism agents/diseases. Botulinum neurotoxin and Clostridium botulinum are still to be evaluated for inclusion on the Tier 1 list. Some news articles incorrectly referred to botulinum toxin as Bt. There is a difference between Bt, bacillus thuringiensis, prevalent in agriculture and BT/A, BT-A, BTX, Botox, all of which are abbreviations for botulinum toxin (type A for the example) and prevalent in cosmetics and food poisoning.

Chapter 3, addressing reliability was the biggest chapter. Using the uncertain case again Bruce Ivins as the unspoken rationale behind many of the recommendations for personnel suitability, it appears the FESAP recommends evaluating how mentally stable, honest, trustworthy and debt-free a person is before and during the time they work with Tier

1 select agents. Will they stay that way after working under these conditions? I wonder if the FESAP could apply those conditions to politicians and lawyers, too so they are not involved in setting up the criteria for assessing personnel reliability. Perhaps, as they work to refine these criteria and "potential behavioral assessment tools," the FESAP participants will apply it to themselves. Once the final criteria and assessments are published, their results could be posted on the FESAP website.

The work is not yet over. FESAP is chartered through 2014. A working group from the Department of Homeland Security is making recommendations to improve the physical security of laboratories working with the select agents. This would be an excellent budget cut for 2011 through 2014. Otherwise, in addition to spending lots of money on vaccines for a non-contagious disease, we will be paying for security and ambiguous personnel assessments that limit who can work in facilities that may have Tier 1 agents in them. This is a great way to squelch biotechnology research, training and business in general.

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