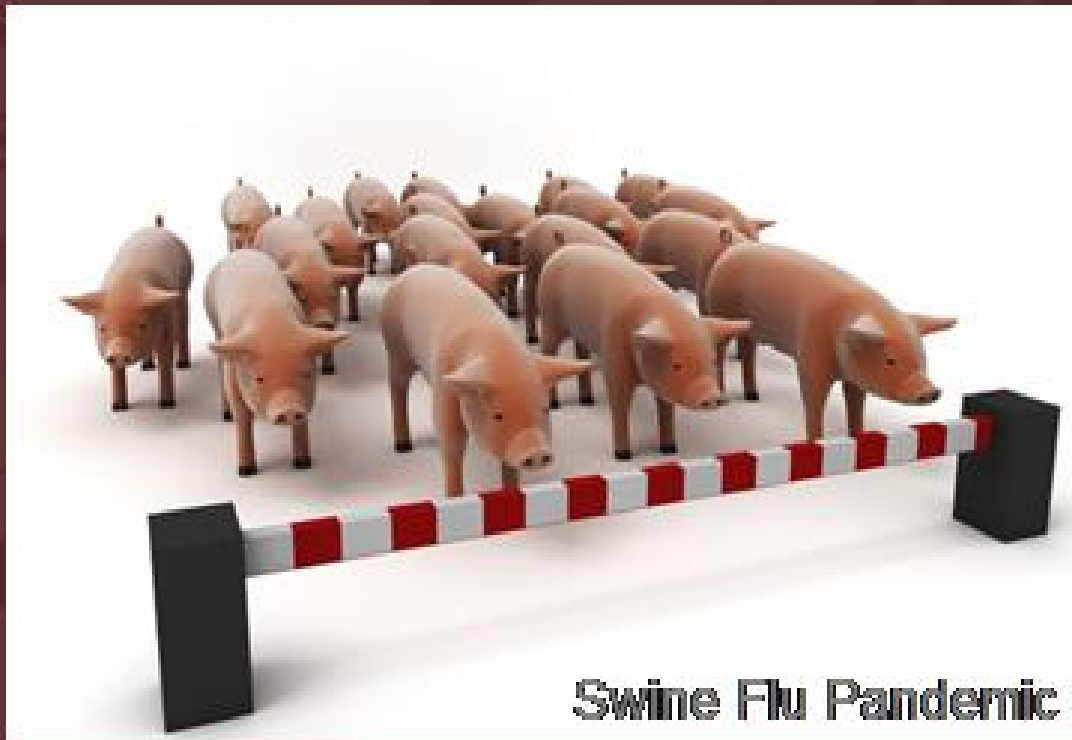


Δελτία CBRNE
ΧΒΡΠΠΕ Terrorism
Τρομοκρατίας Newsletter



Swine Flu Pandemic

Τεύχος 37 Volume

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ΠΑΝΔΗΜΙΑ ΓΡΙΠΗΣ

Από τις 11 Ιουνίου 2009 η υφήλιος βιώνει την πανδημία γρίπης. Το ίδιο και η Ελλάδα η οποία, όπως κάθε χώρα, προετοιμάζεται να αντιμετωπίσει τις επιπτώσεις της νέας γρίπης. Το σχόλιο αφορά τη λέξη «προετοιμάζεται».

Για να προετοιμαστεί κανείς πρέπει να έχει τις κατάλληλες πληροφορίες ώστε να σχεδιάσει ανάλογα. Οι πληροφορίες είναι διαθέσιμες σε διάφορους κύκλους και η ικανότητα σύνθεσης και ανάλυσης είναι εκείνη που μπορεί να κάνει τη διαφορά. Η «πανδημία» δεν είναι «νόσος» για να αντιμετωπιστεί αποκλειστικά από τους ιατρούς. Απαιτεί συνεργασία ΟΛΩΝ των εμπλεκόμενων φορέων και οργανισμών προκειμένου να σχηματιστεί ένα σχέδιο δράσης που θα βασίζεται στο «χειρότερο σενάριο» αποβάλλοντας τελείως τη θεώρηση ότι «αμάν, στο τέλος-τέλος δεν πρόκειται και για πόλεμο». Κάθε πανδημία προσομοιάζει με ένα σενάριο βιολογικού πολέμου – και έτσι θα πρέπει να αντιμετωπιστεί. Εάν η τελική έκβαση είναι καλή, τόσο το καλύτερο για τον πληθυσμό. Όμως, όλοι τα πρέπει να καταλάβουν – το σύντομο δυνατό – πρόβλημα που αφορά μόνον τις αρχές και τους υπεύθυνους. Απλά οι νόμο τελευταίοι, θα πρέπει να περιβάλλονται από



ειδικούς με γνώση και κρίση ανάλογη των περιστάσεων. Επανειλημμένες εξαγγελίες για εμβολιασμό τον Σεπτέμβριο 2009. Αυτό σημαίνει ότι εντός του Αυγούστου τα εμβόλια θα είναι στις κρατικές αποθήκες. Όμως τα πράγματα δεν είναι ακριβώς έτσι. Η διεθνής ειδησεογραφία είναι σαφής: το νέο εμβόλιο θα είναι έτοιμο στο τέλος του 2009 ή στο πρώτο δίμηνο του 2010. Πληροφορία που είναι κρίσιμης σημασίας για τον σχεδιασμό. Άρα πρέπει να πάρουμε μέτρα για την περίοδο μέχρι το εμβόλιο να είναι πραγματικά στα χέρια μας. Γιατί πρέπει να ανακοινώνουμε ανακριβείς; Ενδιαφέρει μόνον το «τα πάντα είναι υπό έλεγχο;» Βασική παράμετρος στον σχεδιασμό είναι η ενημέρωση του κοινού. Από υπεύθυνες υγειονομικές αρχές και ειδικούς. Σε κρίσεις αυτού του είδους, ο εκάστοτε υπουργός δεν γίνεται πιστευτός από το κοινό. Ο εγνωσμένου κύρους καθηγητής-ιατρός γίνεται – παρουσία του Υπουργού που προσδίδει το απαραίτητο περιβάλλον κύρους. Γιατί πιστεύουν ότι ο κόσμος θα πανικοβληθεί εάν μάθει την πραγματικότητα; Δεν τους περνάει από το μυαλό ότι μόνον ο σωστά ενημερωμένος πολίτης μπορεί να συμβάλλει θετικά στον σχεδιασμό τους; **Στα πολύ σοβαρά γεγονότα, η μόνη πολιτική είναι η καθαρή αλήθεια!**

Περνάμε στο υγειονομικό σκέλος: πλανώνται εάν νομίζουν ότι τα υφιστάμενα σχέδια είναι γνωστά και εφαρμόσιμα. Πολύ καλά κείμενα, αλλά όχι επιχειρησιακά και το πιο σημαντικό όχι δοκιμασμένα μέσα από ασκήσεις. Η άσκηση σε σχέδια υποδοχής μαζικών απωλειών υγείας (κάθε είδους) είναι όνειρο θερινής νυκτός για τα νοσοκομεία μας. Στο Ισραήλ, υπάρχει ειδικός στρατιωτικός-ιατρός που ένα πρωί εμφανίζεται απροειδοποίητα στο ΤΕΠ του νοσοκομείου. Ο υπεύθυνος βάρδιας απλά τον ρωτάει: χημικό, βιολογικό ή ραδιολογικό; Ανάλογα με την απάντηση, το νοσοκομείο μπαίνει αυτόματα στις διαδικασίες της άσκησης που διαρκεί μέχρι το μεσημέρι. Κάντε τις συγκρίσεις για υγειονομικές ασκήσεις που όλοι γνωρίζουν το είδος του επεισοδίου μήνες πριν... και τη συγκεκριμένα ημέρα κάνουν ότι ενεργούν όπως κάθε άλλη ημέρα. Δεν θα αναφερθώ σε επί μέρους προβλήματα του

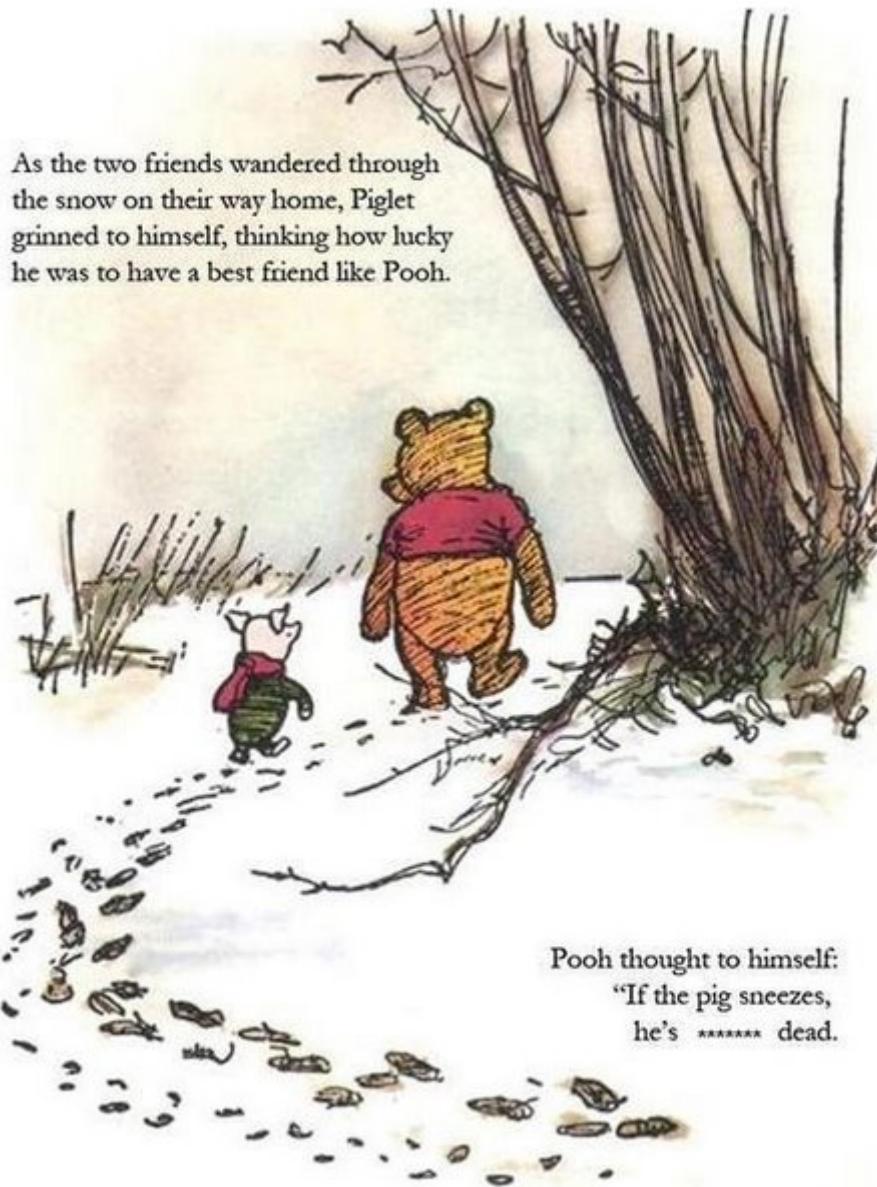
υγειονομικού σχεδιασμού, ούτε στους εκατοντάδες ασθενείς που θα συρρέουν στα νοσοκομεία. Τα βλέπουμε κάθε χειμώνα με την κατάσταση που επικρατεί στα νοσοκομεία παιδών μόλις ξεσπάσει καμιά μικρο-επιδημία εποχικής γρίπης. Εκατοντάδες γονείς με τα παιδιά στις αγκαλιές τους κατακλύζουν τα νοσοκομεία και περιμένουν με τις ώρες να τους δει κάποιος από τους συγκριτικά ελάχιστους ιατρούς που εφημερεύουν. Γιατί τότε δεν μπορούν να αντιμετωπίσουν ικανοποιητικά το πρόβλημα και θα μπορέσουν τώρα που το κύμα της νέας γρίπης είναι εκ των προτέρων γνωστό ότι είναι προ των πυλών; Γιατί τον χειμώνα θα είναι έτοιμες οι μονάδες εντατικής θεραπείας που σήμερα είναι προβληματικές (κλειστές κλίνες, έλλειψη νοσηλευτικού προσωπικού) και αναγκάζουν τη διακομιδή ασθενών από τη Θεσσαλονίκη στο Ηράκλειο; Και τι γίνεται με τα κρίσιμα υλικά (πχ για τους αναπνευστήρες) που θα απαιτηθούν σε μεγάλους – ίσως και πρωτόγνωρους – αριθμούς; Υπάρχει πρόβλεψη για την ηθική παράμετρο (medical ethics) της χρήσης κρίσιμων υλικών – δηλ ποιος θα μπει σε αναπνευστήρα και από ποιόν θα αφαιρεθεί για να τοποθετηθεί σε κάποιον άλλο με μεγαλύτερες πιθανότητες επιβίωσης;



Τι θα γίνει με τα σχολεία, τα νηπιαγωγεία και τους βρεφονηπιακούς σταθμούς; Τι θα γίνει με τους οίκους ευγηρίας; Τι θα γίνει με τα άτομα με ειδικές ανάγκες; Με τους λαθρομετανάστες; Έχουν οι κρατικοί οργανισμοί σχέδιο λειτουργίας με μειωμένο προσωπικό (έως και 40%); Οι μεγάλες πολυεθνικές και οι τράπεζες; Πως θα επηρεάσει η νέα γρίπη το αξιόμαχο των ενόπλων δυνάμεων; Τι θα γίνει με τις ανά τρίμηνο κατατάξεις στις ένοπλες δυνάμεις; Θα προκαλέσει κοινωνική αναταραχή η εφαρμογή καραντίνας σε μονάδες των ενόπλων δυνάμεων; Ποιες θα είναι οι οικονομικές επιπτώσεις για τη χώρα σε περίοδο παγκόσμιας οικονομικής ύφεσης;

Θα μπορούσα να γράψω σελίδες με ερωτήματα μόνο για να καταδείξω το «πολύ-επίπεδο» του προβλήματος και όχι για να απευθύνω κατηγορίες ή μομφές για ελλιπή προετοιμασία και σχεδιασμό. Η ασφαλής – κατά το δυνατόν – διέλευση μέσω της πανδημίας απαιτεί συμμετοχικές διαδικασίες και ευρύτητα πνεύματος που δυστυχώς αποδεδειγμένα απουσιάζει από την καθημερινότητα μας σε όλους σχεδόν τους τομείς ενδιαφέροντος. Πάντα σχεδιάζουμε με ορίζοντα το αύριο και στην καλύτερη περίπτωση το μεθαύριο. Όμως η πανδημία έχει ορίζοντα 12-15 μηνών – ίσως και 2 ετών. Κατά συνέπεια απαιτείται «φαντασία» στον σχεδιασμό όχι όμως από «φαντασμένους» υπεύθυνους που ανησυχούν μόνον μήπως τους προσάψει κάποιος λάθη. Μα τα «λάθη» αποτελούν μέρος του σχεδιασμού και είναι χρήσιμα για την περαιτέρω εξέλιξη του υπό την προϋπόθεση ότι αναγνωρίζονται (lessons identified) και αποκαθίστανται (lessons learned). Εάν μονίμως ασκούμε κριτική αλλά δεν προχωρούμε σε λύσεις τότε έχουμε πρόβλημα – και το πρόβλημα δεν αφορά μόνον την πανδημία γρίπης αλλά την ίδια την ύπαρξη μας. Διαβάστε, ενημερωθείτε, σχεδιάστε σε ατομικό επίπεδο με βάση την κοινή λογική, εκπληρώστε το δικό σας κομμάτι στον σχεδιασμό ακόμη και χωρίς καθοδήγηση και οδηγίες, ώστε να μπορέσει ο σχεδιασμός της πολιτείας να είναι αποτελεσματικός. Μην ξεχνάτε ότι «η ενημέρωση είναι η δύναμη μας!»

Μπορεί η περιπέτεια στην οποία μπαίνουμε να έχει και θετικές επιπτώσεις στον τρόπο που θα σκέπτονται οι αρμόδιοι/υπεύθυνοι στο μέλλον. Εάν τρόπο, που εάν «μεταλλαχθεί» προς το καλύτερο, θα είναι επωφελής για όλους μας.



Ταχεία δοκιμασία για τη διάγνωση της γρίπης των πτηνών

Σημαντική εξέλιξη στη διαγνωστική της γρίπης των πτηνών – που εξακολουθεί να αποτελεί απειλή ή μήπως την ξεχάσαμε; - σε χρόνο λιγότερο της μιας ώρας από την εταιρεία Arbor Vusta Corp. Η δοκιμασία έλαβε πρόσφατα έγκριση από την αμερικανική FDA.

U.S. regulator approves rapid test for bird flu

The U.S. Food and Drug Administration recently said it had approved a fast test for H5N1 bird flu that can show in less than an hour if people are infected. The test, made by Sunnyvale, California-based Arbor Vita Corporation, should greatly speed up diagnosis and treatment of people infected with avian influenza, the FDA said. Most current tests take hours. "This test is an important tool to help quickly identify emerging influenza A/H5N1 infections and reduce exposure to large populations," said Dr. Daniel Schultz, director of the FDA's Center for Devices and Radiological Health. "The clearance of this test represents a major step toward protecting the public from the threat of pandemic flu." H5N1 mostly affects birds, but it occasionally infects people and is deadly when it does. The World Health Organization says 413 people have been infected and 256 have died in 15 countries since 2003. Quick treatment with Roche AG (ROG.VX) and Gilead Sciences Inc's (GILD.O) drug Tamiflu can help save lives but usually people are not diagnosed right away. "The test, called AVantage A/H5N1 Flu Test, detects influenza A/H5N1 in throat or nose swabs collected from patients who have flu-like symptoms," the FDA said in a statement. "The test identifies in less than 40 minutes a specific protein (NS1) that indicates the presence of the influenza A/H5N1 virus subtype. Previous tests cleared by the FDA to detect this influenza A virus subtype can take three or four hours to produce results." Experts fear H5N1 could mutate into a form that spreads easily from person to person. If it did, it would cause a pandemic that could kill millions and devastate economies. Governments are trying to prepare for such an epidemic by stockpiling drugs, vaccines and diagnostic tests. (Reporting by Maggie Fox; editing by Chris Wilson)

Συνεργασία ΗΠΑ-Ευρώπης για πυρηνικά BAME

Αμερικανοί και Ευρωπαίοι ογκολόγοι συζήτησαν πρόσφατα θέματα προπαρασκευής για την αντιμετώπιση πυρηνικού ατυχήματος. Το θετικό στη συνάντηση αυτή ήταν ότι διαπιστώθηκε στροφή στον τρόπο σκέψης των ειδικών στο θέμα της αντιμετώπισης των μαζικών απωλειών υγείας που εκτέθηκαν σε ραδιενεργό διασπορά.

US/European Consensus on Preparedness for Large Scale Nuclear Accidents or Terrorist Activity Discussed

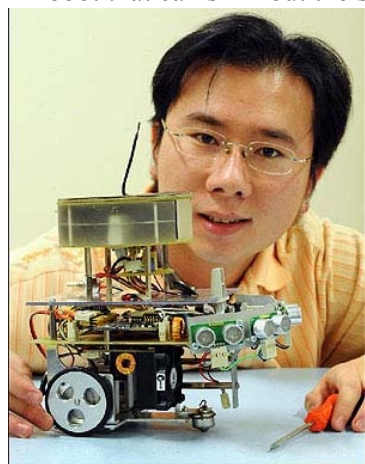
Eminent European and American Oncologists gathered today to discuss the state of EU/US preparedness in the case of a nuclear incident. Prof. Ray Powles chaired the meeting organized by the Nuclear Accident Committee (NAC) of the European Group for Blood and Marrow Transplantation (EBMT). He raised the alarm that the threat of a nuclear-related incident is real and terrorist activity from disaffected groups is broadening. Participants questioned whether the medical community was ready. With extensive experience in the field of Bone Marrow Transplantation and of the use of high levels of radiation for treating patients, the EBMT has shown great commitment in their work to prepare Europe for this type of threat. EBMT has funded research, organised extensive training programmes to build a prepared medical taskforce, and strived to harmonize guidelines at a European level to ensure a unified response in the case of such an incident occurring. The EBMT Board established the NAC in response to the 9/11 disaster to oversee this important work. However, aligned practices at a European level are not enough and Ray Powles, Professor of Haemato-Oncology at Parkside Oncology Clinic in London, stressed the importance of international cooperation in terms of research, training and treatment. He stated, "Research and expertise across the Atlantic have focused on different scenarios and can therefore be complementary to European approaches. We have a lot to gain by exchanging knowledge and practices. Building a strong alliance would be essential in the case of a nuclear accident." During the first US/European Consultation Workshop on transatlantic cooperation in the medical management of radiation accident victims, held at Ulm University in Germany, participants

insisted on the need to compare approaches to assess the extent of damage after exposure to ionizing radiation, commonly called "clinical triage". Dr Bhawna Sirohi, Consultant Medical Oncologist at Addenbrooke's Hospital in Cambridge, explained that in case of a large scale accident, the "triage" process is crucial in order to give optimal treatment to casualties. She stressed that more research needs to be done in order to develop more accurate tools to measure the amount of ionizing radiation dose received by a patient. "We would need to save time and be able to detect very rapidly the victims in need of acute care". Dr Sirohi went on to underline that diagnosis guidelines are different across the Atlantic: "The EBMT has developed METREPOL, a clinical assessment tool while in the US there is a greater emphasis on using laboratory methods to determine the dose received by individuals." METREPOL was most recently discussed at a WHO conference in Geneva (March 16-18, 2009) where further efforts were made to harmonize diagnosis and therapy of acute radiation syndrome worldwide. Prof. Ted Fliedner, Director, Radiation Medicine Research Group in Ulm, Germany, raised the importance of training medical staff and assistance professions in diagnostic and therapeutic needs after accidental whole body radiation exposure. The concept of extending some basic education as provided by RITN (Radiation Injury Treatment Network) with the availability of just-in-time up-to-date information for medical staff was favourably received. "Too few medical workers in Europe are properly trained today" pointed out Prof. Fliedner. As far as research is concerned, there was a strong consensus to consider the formation of research networks not only with laboratories from the United States and from Europe but from the worldwide scientific community. This network would include accident registries and databases of patient case histories as a basis for further clinical and preclinical research. The progression of work in this field has created a paradigm shift in thinking; where as we once believed if a massive irradiation incident occurred, there is nothing we could do, and today, informed clinicians and scientists now agree hundreds, maybe thousands of lives could be saved by careful selection of the right people to receive relatively standard curative treatment that is given routinely to patients with Leukemia. The challenge is a rapid, logistic organization of trained individuals in a well rehearsed pan-European network. This is what the EBMT is geared to deliver.

Ρομποτική και επικίνδυνες ουσίες

Μηχανικοί του Πανεπιστημίου της Αδελαΐδας ανέπτυξαν ένα ρομπότ που μπορεί να εντοπίσει την πηγή καπνού ή τοξικών αερίων και βασίζεται στις ίδιες αρχές που η μέλισσα αναζητά το νέκταρ στα λουλούδια.

New robot smells like a winner



A robot that can sniff out the source of smoke or toxic gas and track down a chemical weapon before it explodes, is being developed by engineers at the University of Adelaide. The simple, compact robot is programmed to act like a bee in search of a flower. It is not distracted by wind or natural disturbances and can negotiate its way around obstacles. The next step is to get a group of robots working together, creator and PhD student Zhenzhang Liu said. "The final scenario is we develop several mobile robots like this and we just stow them away somewhere in the city," he said. "Once they detect something dangerous, they automatically locate that dangerous source. If nothing is detected we can't see them, they just wait." The robot team could take direction from a command centre. This is the first time robots have been able to detect and trace odours in a natural environment with obstacles and variable air flow.

Επιπτώσεις συγκαλυμμένης επίθεσης με άνθρακα

Μια νέα στατιστική μέθοδος από το Imperial College of London συμβάλλει στον υπολογισμό της φύσης και του χρόνου απελευθέρωσης βακτηρίων άνθρακα μετά την ανίχνευση των πρώτων περιστατικών εκδήλωσης της νόσου. Η μέθοδος έχει ιδιαίτερη σημαντικότητα καθώς είναι γνωστό ότι στα θύματα πρέπει να χορηγηθεί φαρμακευτική αγωγή εντός των πρώτων 48 ετών προκειμένου να επιβιώσουν.

Novel method predicts impact of a covert anthrax release

A new statistical method that can estimate the origin and time of an aerosolized release of the pathogen causing anthrax, following detection of the first few cases has been developed by researchers from the Medical Research Council (MRC) Centre for Outbreak Analysis and Modelling at Imperial College London in collaboration with the Health Protection Agency's Microbial Risk Assessment group. The method, described in an article published April 10 in the open-access journal *PLoS Computational Biology*, predicts where the most critically affected areas will be following the release of this highly pathogenic agent, which may enable preventative treatment of individuals at risk and protection from the disease. Previously published methods can estimate the date and scale of anthrax release but not the source location or geographic extent of human exposure. The new method uses information about the first people infected, including when they started to experience symptoms of infection and where they live and work, combined with recent weather information, such as wind direction. Dr Judith Legrand, lead author of the study from the MRC Centre for Outbreak Analysis and Modelling, said: "We have devised a new way to forecast the future course of a potential outbreak and the people and geographic areas likely to be worst affected." Anthrax has the potential to cause a large number of deaths in the event of a covert, open air release. If such a release were to occur, it is critical for public health decision makers to evaluate its extent and the potential impact on the population and then to identify the people most at risk of infection as soon as possible. Dr Judith Legrand added: "It is critical to treat people as soon as possible after exposure to anthrax. While forecasts based on small numbers of early cases are less reliable than those obtained later in an outbreak, we show that treating individuals based on early estimates is still likely to save lives overall."

Ταχεία και ευαίσθητη μέθοδος ανίχνευσης ρικίνης

Επιστήμονες από το Albert Einstein College of Medicine του Yeshiva University ανέπτυξαν μια απλή, ακριβή και εξαιρετικά ευαίσθητη μέθοδο ανίχνευσης και ποσοτικοποίησης της ρικίνης (0.5mg της οποίας μπορεί να προκαλέσει τον θάνατο σε ανθρώπους). Η νέα μέθοδος ουσιαστικά βασίζεται στην ανίχνευση αδερίνης που απελευθερώνεται από το RNA των ριβοσωματίων των κυττάρων που έρχονται σε επαφή με την τοξίνη.

Fast and Sensitive Way To Detect Ricin

Scientists at Albert Einstein College of Medicine of Yeshiva University have developed a simple, accurate, and highly sensitive test to detect and quantify ricin, an extremely potent toxin with potential use as a bioterrorism agent. Vern Schramm, Ph.D. Ricin, a protein extracted from castor beans, can be in the form of a powder, mist, pellet or solution. When injected or inhaled, as little as one-half milligram of ricin is lethal to humans. No antidote is available. The most infamous ricin attack occurred in London in 1978, when Bulgarian dissident Georgi Markov died after being stabbed with an umbrella that injected a ricin-coated pellet into his leg. The ricin assay described in the journal article was developed in the laboratory of Vern Schramm, Ph.D., professor and Ruth Merns Chair of Biochemistry at Einstein and corresponding author. The assay detects small amounts of ricin more accurately and faster than ever before. Users of the assay would place samples of potentially adulterated food, or swabs used to wipe potentially contaminated surfaces, into a few drops of a mixture

of reagents; the mixture will emit light if ricin is present, with higher luminescence indicating greater concentrations of the toxin. Dr. Schramm believes the assay's most immediate application is for discovering drugs that could serve as antidotes for ricin poisoning. "Previously we had to rely on laborious, multi-step methods to see if a compound was preventing ricin from working, which is probably why no antidote to ricin has yet been discovered," explained Dr. Schramm. After ricin enters cells, it kills them by interfering with their ability to make proteins—a basic cellular function. Ricin does this by disrupting ribosomal RNA (the key component of ribosomes, the cell's protein manufacturing "machines"). The ricin attack causes ribosomal RNA to release a molecule of adenine. Dr. Schramm's assay detects and quantifies ricin by measuring the amount of adenine released by cells. "Our lab's expertise is in enzymes," says Dr. Schramm. "One day I realized we could use a specific enzyme to convert the adenine released by ricin into ATP—a molecule whose presence can be easily detected by an already-available assay based on the light-emitting gene from fireflies. In retrospect, like many scientific advances, it's such a simple idea that I'm surprised it wasn't thought of earlier." Ricin has also been used as an anticancer agent by linking it to antibodies that home to tumors and deliver the ricin 'warhead' to kill cancer cells. Einstein scientists indicate that detection of ricin in cancer trials may be an early use of this technology. While the researchers emphasize that the ricin detection method is now laboratory-based, they also predict that relatively minor changes will be needed to make detection of ricin by light practical for field and clinical applications. Albert Einstein College of Medicine has filed a patent application on the ricin detection method and is interested in licensing the technology to a company or organization that would develop it further for drug discovery and public health applications.

Μια σταγόνα αίμα – 100 εργαστηριακές δοκιμασίες

Η νέα εξαιρετικά φορητή συσκευή της Beacon Biotechnology έχει τη δυνατότητα με μια σταγόνα αίματος να διεκπεραιώνει πάνω από 100 διαφορετικές εξετάσεις σε 10 μόλις λεπτά. Η εξέταση μπορεί να γίνει και με ούρα ή σάλιο.

One-Stop-Shop For Detecting Disease

The days of waiting hours or even days to get results from blood tests at your doctor's office may soon be over. A local biotech company is developing a revolutionary device that has the ability to perform more than 100 tests from a single drop of blood, with quick results. Call it one-stop-shopping for the detection of disease. "It has the ability to change the way health



care is delivered," said Fred Mitchell, CEO of Beacon Biotechnology. Based in Aurora, Beacon Biotechnology is developing the BrightSPOT Reader, a small diagnostic testing device that can provide doctors with more than 100 test results in just 10 minutes. "The goal is to enable health care to be performed in real-time. To allow the physician to have the tools right there on the spot with the patient to be able to make diagnosis and treatment decisions right then and right there," said Mitchell.

Here's how it works: A drop of blood, urine or saliva is placed on a tiny chip at the center of the BrightSPOT Reader. The chip contains 112 microscopic sensors which are programmed to detect viruses, bacteria, proteins and amino acids associated with disease. A positive result generates light at that sensor, using bioluminescent molecules from the deep ocean. A PDA device is used to translate the results, making the system extremely portable, and the applications nearly limitless, according to Mitchell. Beacon is planning specialized readers for respiratory, allergy, and even biological warfare uses among others. "They brought together some really good technologies in a novel unique way to try to increase the ability to do testing in a rapid manner," said Dr. Ted Palen, a

physician researcher for Colorado Kaiser Permanente. "But there's also a downside, the more testing you do, the more data you have, the more interpretation. What do you do with this data?" Palen believes that Beacon Biotech's challenge will be educating physicians on how to interpret the results, but he's excited at the possibilities. "That's where a lot of futurists are seeing these type of advancements going," said Palen. And that future is not so far away. After clinical trials, the BrightSPOT reader should be available in 2012. "Our process is to enable real-time health care anywhere," said Mitchell. Beacon Biotechnology said that the BrightSPOT reader will reduce the costs of many of the tests it performs. The one-time use cartridges are expected to cost less than \$100 and the PDA reader about \$500.

Δεν αναμένονται εκπλήξεις στον τομέα των εκρηκτικών

Σύμφωνα με τα συμπεράσματα της 237th National Meeting της American Chemical Society στο Salt Lake City (Utah) δεν αναμένονται εκπλήξεις στον τομέα των εκρηκτικών (κατηγορίας TATP) που χρησιμοποιούν οι τρομοκράτες. Η κυκλοφορία φημών στο διαδίκτυο σχετικά με ένα νέο εκρηκτικό με την ονομασία TeATeP χαρακτηρίστηκε ως «μύθος»

New Form Of Destructive Terrorist Material Unlikely, Chemists Report

Concerns that terrorists could produce a new and particularly dangerous form of the explosive responsible for airport security screening of passengers' shoes and restrictions on liquids in carryon baggage are unfounded, scientists reported March 24. Speaking at the 237th National Meeting of the American Chemical Society in Salt Lake City, Utah, Gerard Harbison, Ph.D., and colleagues described using computer simulations to analyze a variety of potential



peroxide-based explosives in the same chemical class as triacetone triperoxide (TATP). That powerful, easy-to-make explosive was used by the "shoe bomber," Richard Reid, in his failed attempt to blow up a transatlantic airline flight in 2001. TATP has also been used by suicide bombers in the Palestinian Intifada. Harbison's team became intrigued by "Internet lore," reports circulating on the Web claiming creation of another explosive — tetracetone tetraperoxide (TeATeP) — which is reputedly a more lethal relative to

TATP. Initially working on detection methods of peroxide explosives for the Defense Advanced Research Projects Agency, the group instead began to investigate the structure of TeATeP to evaluate likelihood of its use as a terrorist's weapon. "Our analysis indicates that potentially new and destructive terrorist materials, which would tax our detection capabilities, may be too unstable for a practical synthesis," said Harbison, a chemist at the University of Nebraska-Lincoln. "We consider it unlikely that any of the previous syntheses were actually successful, and the Internet myths about TeATeP are nothing more than that. So the good news is basically this is something we don't have to worry about." The group investigated 20 molecular structures of various acetone peroxide compounds and found that all substances larger than TATP are likely too sensitive to be used as weapons. "The energies we're seeing in the analysis are extreme enough," Harbison said, adding that a review of previous TeATeP synthesis reports raised many questions. "If you look at the actual literature on people who claim to have made TeATeP, it's very ambiguous. We think probably what happened when people thought they were making TeATeP was that they were actually making TATP." This synthesis error is common and often fatal, Harbison said. When trying to make TATP, a less stable relative, diacetone diperoxide, often is created. "The nice thing about doing this on the

computer is first it's safe, and our results are so close to what's been experimentally measured that we have a great deal of confidence with what we're doing," Harbison said. "We're really at the stage where we can evaluate threats — potential molecules that might be dangerous — and we can really make some sort of judgment about whether those molecules are going to present a hazard in the future. We can test things with computers at a level of reliability that's comparable to personally doing the synthesis and evaluating material yourself." There's a lot of research that deals with known threats, Harbison said. But his groups' research focuses on the idea that emerging threats will always exist. "Presumably you'd like to anticipate the threats before they come along. We're now pushing it a little further and discussing potential threats. "Using computational chemistry, we can narrow down the domain of potential hazards, things that aren't going to be on the horizon. I think we now know so much more about not just what works for improvised-explosive-device detection but also what doesn't work, and we don't have to try it out (experimentally). We did five years ago."

Νέο όπλο στην καταπολέμηση της βιοτρομοκρατίας

Η εταιρεία NanoLogix παρουσίασε μια νέα τεχνολογία (BNP™) που επιτρέπει την ανάπτυξη καλλιεργείων άνθρακα και πανώλης εντός 6 ωρών (αντί των απαιτούμενων 24).

New Weapon in BioDefense Research: NanoLogix Kit Speeds Rapid Diagnostics of Anthrax and Bubonic Plague

An independent study has found that NanoLogix's BNP(TM) Ultra-Fast Identification Technology allows the viewing of anthrax cultures four times faster than conventional methods. The study, by one of the foremost bio-defense and biomedical research centers in the U.S., appears in the current online issue of Letters in Applied Microbiology. The authors found that NanoLogix's BNP(TM) technology displayed colonies of anthrax in six hours, as contrasted with the fastest traditional methods, which typically take 24 hours. The study also found that the NanoLogix BNP(TM) technology allowed viewing of cultures of bubonic plague, known historically as the "Black Death", twice as fast as traditional Petri plate methods. The study, by an independent lab under strict protocols, confirms the value of NanoLogix's breakthrough technology when time is a crucial factor. The BNP(TM) method has proven to be much faster than any other method in the broad field of Petri dish testing. The authors of the study concluded that the NanoLogix technology could lead to a more rapid assessment of surface sampling and decontamination measures, and could aid in the evaluation of medical countermeasures and treatments. The study appears in the current online issue of Letters in Applied Microbiology.

Τα 10 πλέον τρομακτικά βιολογικά όπλα

Ενδιαφέρουσα συλλογή με τα δέκα πλέον τρομακτικά βιολογικά στην ιστορία του κόσμου. Από την ευλογία (No10) μέχρι τους ιούς «χίμαιρα» (No1)

10 Scariest Bioweapons

Introduction to 10 Scariest Bioweapons

At one time or another, humans have turned to just about every viable option on the planet for new means of destroying one another. We've leveled forests, plundered the elements and diverted religion, philosophy, science and art to fuel humanity's desire for bloodshed. Along the way, we've even weaponized some of nature's most formidable viral, bacterial and fungal foes. The world is home to a number of deadly viruses, bacteria and fungi. Biological warfare involves the human use of these agents to destroy one another. The use of **biological weapons**, or **bioweapons**, dates back to the ancient world. As early as 1,500 B.C. the Hittites

of Asia Minor recognized the power of **contagions** and sent plague victims into enemy lands. Armies, too, have long understood the power of bioweapons, catapulting diseased corpses



into besieged fortresses and poisoning enemy wells. Some historians even argue that the 10 biblical plagues Moses called down against the Egyptians may have been more of a concentrated campaign of biological warfare rather than the acts of a vengeful god. Since those early days, advances in medical science have led to a vastly improved understanding of harmful pathogens and the way our immune systems deal with them. But while

these advancements have led to vaccinations and cures, they have also led to the further weaponization of some of the most destructive biological agents on the planet.

The first half of the 20th century saw the use of the biological weapon anthrax by both the Germans and Japanese, as well as the subsequent development of biological weapons programs in nations such as the United States, the United Kingdom and Russia. Today, biological weapons are outlawed under 1972's **Biological Weapons Convention** and the **Geneva Protocol**. But while a number of nations have long destroyed their stockpiles of bioweapons and ceased research into their proliferation, the threat remains. In this article, we'll examine some of the leading bioweapon threats, as well as what the future of biological warfare may have in store for us all.

Bioweapon 10: Smallpox

The term "biological weapon" typically summons mental images of sterile government labs, hazmat suits and test tubes full of brightly colored liquid apocalypse. Historically, however, biological weapons have often taken much more mundane forms: a wandering exile, paper bags full of plague-infested fleas or even, during the 1763 French and Indian War, a simple blanket. At the orders of Cmdr. Sir Jeffrey Amherst, British forces infamously distributed



smallpox-infected blankets to Native American tribes in Ottawa. The native inhabitants of the Americas were particularly susceptible to the illness since, unlike their European invaders, they hadn't encountered smallpox before and lacked any degree of immunity to it. The disease cut through the tribes like wildfire. **Smallpox** is caused by the **variola virus**. The most common form of the disease has a 30 percent **mortality rate**. Signs of smallpox include high fevers, body aches, and a rash that develops from fluid-filled bumps and scabs to permanent, pitted scars. The disease predominantly spreads through direct contact with an infected person's skin or bodily fluids, but also can be spread through the air in close, confined environments. In 1967, the **World Health Organization (WHO)** spearheaded an effort to eradicate smallpox through mass vaccinations. As a result, 1977 marked the last naturally occurring case of smallpox. The

disease was effectively eliminated from the natural world, but laboratory copies of smallpox still exist. Both Russia and the United States possess WHO-approved stores, but as smallpox

played a role in several nations' bioweapons programs, it's unknown how many secret stockpiles still exist.

Category A Biological Weapons

The U.S. Centers for Disease Control and Prevention classifies a Category A biological weapon as any easily spread microorganism or toxin that has a high potential for casualties, might cause public panic and requires special public-health preparedness. Only six biological agents currently meet these criteria, all of which we thought deserved to be named scary bioweapons. The CDC classifies smallpox as a Category A biological weapon due to its high mortality rate and the fact that it can be transmitted through the air. While a smallpox vaccine exists, typically only medical and military personnel undergo vaccination -- meaning the rest of the population is very much at risk if smallpox were unleashed as a weapon. How might the virus be released? Probably in aerosol form or even in the old-fashioned way: by sending an infected individual directly into the target area. The method for unleashing a biological weapon doesn't have to be flashy, however. Consider how much press our next bioweapon received, all with a few postage stamps.

Bioweapon 9: Anthrax

During the fall of 2001, letters containing a curious white powder began turning up at U.S. Senate offices and media outlets. When word spread that the envelopes contained the spores of the deadly bacteria *Bacillus anthracis*, panic ensued. The anthrax letter attacks infected 22 people and killed five. Seven years later, the FBI finally narrowed down its investigation



to government anthrax scientist Bruce Ivans, who committed suicide before the case could be closed. Thanks to its high mortality rate and environmental stability, the anthrax bacteria is also classified as a Category A biological weapon. The bacteria live in the soil, where grazing animals typically come into contact with spores while rooting around

for food. People, however, may become infected with anthrax by touching the spores, inhaling them or ingesting them. Most cases of anthrax are **cutaneous**, transmitted through skin contact with the spores. The most deadly form is **inhalation anthrax**, when the spores travel to the lungs and then the immune cells carry them to the lymph nodes. Here, the spores multiply and release toxins that result in such symptoms as fever, respiratory problems, fatigue, muscle aches, enlarged lymph nodes, nausea, vomiting, diarrhea and black ulcers. Inhalation anthrax carries the highest mortality rate of the three (100 percent, 75 percent with medical treatment), and unfortunately, that was the form contracted by all five casualties from the 2001 anthrax letters. The disease isn't easy to catch under normal situations, and it can't be transmitted from person to person. Still, health workers, veterinarians and military personnel normally undergo vaccinations. The rest of us, however, remain at risk if someone were bent on another anthrax attack. Along with the lack of widespread vaccination -- a common theme among our scary bioweapon nominees -- longevity is another point in anthrax's favor. Many harmful biological agents can only survive a short while under certain conditions. But hardy

B. anthracis can sit on the shelf for 40 years or more and still pose a lethal threat. These attributes helped to establish anthrax as a favorite among bioweapons programs throughout the world. Japanese scientists conducted human experiments with aerosolized anthrax in the late 1930s in their infamous Unit 731 biological warfare facility in occupied Manchuria. British forces experimented with anthrax bombs in 1942, managing to so thoroughly contaminate test site Gruinard Island that, 44 years later, 280 tons of formaldehyde were required to decontaminate it. In 1979, the Soviet Union accidentally released airborne anthrax, killing 66 people in the process. Today, *B. anthracis* remains one of the most well-known and feared bioweapons. Numerous biological warfare programs have worked to produce anthrax over the years and while a vaccine exists, mass vaccination would only become viable if mass exposure occurred. We don't even have a vaccine for some bioweapons. The only way to avoid our next entry is to avoid exposure.

Bioweapon 8: Ebola Hemorrhagic Fever

Another well-documented killer exists in the form of the Ebola virus, one of more than a dozen different **viral hemorrhagic fevers**, nasty illnesses sometimes marked by copious bleeding. Ebola began to make headlines in the late 1970s as it spread through Zaire and Sudan, killing hundreds. In the decades that followed, the virus maintained its lethal reputation in outbreaks across Africa and proved a volatile organism even in controlled settings. Since its initial discovery, no fewer than seven outbreaks have occurred at hospitals and laboratories in Africa, Europe and the United States. Named for the region of the Congo in which it was first discovered, scientists suspect the Ebola virus normally resides within a native, African animal host, but the exact origin and natural habitat of the disease remain a mystery. As such, we have only encountered the virus after it has successfully infected humans or nonhuman primates. Once present in a host, the virus infects others through direct contact with blood or other bodily secretions. In Africa, the virus has proved itself particularly adept at spreading through hospitals and clinics. An infected individual can expect to start experiencing symptoms in between 2 and 21 days. Typical symptoms may include headache, muscle ache, sore throat and weakness, followed by diarrhea and vomiting. Some patients also suffer internal and external bleeding. Between 60 and 90 percent of infections end in death after 7 to 16 days. Doctors don't know why some patients are better able to recover than others. Nor do they how to treat it. And, as noted earlier, there's no Ebola vaccine. In fact, we only process a vaccine for one form of hemorrhagic fever: yellow fever. While many medical professionals labored to better treat and prevent outbreaks of Ebola, a team of Soviet scientists set out to turn the virus into a weapon. They initially encountered difficulties cultivating Ebola in the laboratory, enjoying more success with the development of Marburg hemorrhagic fever. By the early 1990s, however, they had solved the problem. While the virus normally spreads through physical contact with bodily secretions, researchers have observed it spread through the air under laboratory conditions. The possibility of a weaponized, aerosol form of the virus only further cements Ebola and related viral hemorrhagic fevers as permanent placeholders on the list of Category A agents. The word "Ebola" is already synonymous with terror and death, despite having only become news in the last few decades. Our next entry, however, has been plaguing humans for centuries.

Bioweapon 7: Plague

The Black Death decimated half the population of Europe in the 14th century -- a horror that continues to resonate through the world even today. Dubbed "the great dying," the mere prospect of a return to such times is enough to put a population on edge. Today, some researchers speculate that the world's first pandemic may have actually been a hemorrhagic fever, but the term "plague" continues to cling to another long-standing suspect and current Category A biological weapon: the *Yersinia pestis* bacterium. Plague exists in two main

strains: bubonic and pneumonic. **Bubonic plague** typically spreads by bites from infected fleas, but also can be transmitted from person to person through contact with infected bodily



fluids. This strain is named for the swollen glands, or **buboes**, around the groin, armpit and neck. This swelling is accompanied by fever, chills, headache and exhaustion. Symptoms occur within two or three days and typically last between one and six days. Unless treated within the first 24 hours of infection, 70 percent of those infected die. **Pneumonic plague** is less common and spreads through the air by coughs, sneezes and face-to-face contact. Its symptoms include high fever,

cough, bloody mucus and difficulty breathing.

Plague Hoarders

Among the countries known or suspected to have pursued plague as a biological weapon are Canada, Egypt, Germany, Japan, North Korea, Russia and the United States. Plague victims themselves -- both dead and alive -- have historically served as effective delivery vehicles for this biological weapon. A 1940 plague epidemic occurred in China following a Japanese attack that involved dropping sacks of infected fleas out of airplanes. Today, experts predict that plague would likely be weaponized in the form of an aerosol, resulting in an outbreak of pneumonic plague. However, low-tech, vermin-based attacks are still possible. Several countries have explored the use of plague as a bioweapon and, as the disease still occurs naturally throughout the world, copies of the bacterium are relatively easy to come by. With appropriate treatment, plague's mortality rate can dip as low as 5 percent. There is no vaccine. A bioweapon doesn't have to boast a high mortality rate to be successful, though. Consider our next entry.

Bioweapon 6: Tularemia

While **tularemia** only claims an overall 5 percent mortality rate, the microorganism that causes it is one of the most infectious bacteria on Earth. In 1941, the Soviet Union reported 10,000 cases of the illness. Then, during the German siege of Stalingrad the following year,



this number skyrocketed to 100,000.

Most of these cases occurred on the German side of the conflict. Former Soviet bioweapons researcher Ken Alibek argued that this surge in infections was no accident, but the result of biological warfare. Alibek would go on to help develop a strain of vaccine-resistant tularemia for the Soviets, before defecting to the United States in 1992.

Francisella tularensis occurs naturally in no more than 50 organisms and is especially prevalent in rodents, rabbits

and hares. Humans typically acquire the disease through contact with infected animals, infected insect bites, the consumption of contaminated foods or the inhalation of the bacteria in aerosol form. Symptoms typically appear within 3 to 5 days and vary depending on the method of infection. Patients may experience fever, chills, headache, diarrhea, muscle aches, joint pain, dry cough and progressive weakness. Pneumonia-like symptoms can also develop. If untreated, respiratory failure, shock and death can follow. The illness typically lasts less

than two weeks, but during that time, the infected people are basically bedridden. Tularemia



doesn't transfer between human hosts and can be easily treated with antibiotics or prevented with a vaccine. It does, however, spread very rapidly between animal hosts and humans or when used in aerosol form. It is this factor, not its mortality rate, that earned *F. tularensis* a Category A biological weapon ranking. It is especially virile in

aerosol form. Due to these factors, the United States, Britain, Canada and the Soviet Union all worked to create weaponized tularemia after the close of World War II. If the idea of discovering bioweapons in cute little rabbits sound scary, just consider our next entry. It's all around you and you can't even see it.

Bioweapon 5: Botulinum Toxin

Take a deep breath. If the air you just inhaled contained **botulinum toxin**, you'd have no way of knowing. In weaponized airborne form, the deadly bacteria would be completely colorless and odorless. Between 12 and 36 hours later, however, the first signs of **botulism** would



begin to take hold: blurred vision, vomiting and difficulty swallowing. At this point, your only hope would be a botulism antitoxin -- and only if you could get your hands on it before symptoms advanced much further. If untreated, paralysis begins to take hold, seizing up your muscles and finally your respiratory system. Without respiratory support, *Clostridium botulinum* can kill in 24 to 72 hours. For this reason, the organism's deadly toxin rounds out the list of six Category A biological weapons. With ventilators to work your lungs, the mortality rate plummets from 70 percent to 6 percent, but recovery takes time. This is because the toxin binds to the point where nerve endings and muscles meet, effectively cutting off the signal from the brain. To recover fully from a case of botulism, the patient actually has to grow new nerve endings -- a process that takes several months. And while a vaccine exists, concerns over effectiveness and side effects have plagued its development, so it's not widely used. As if the symptoms weren't scary enough, *C.*

botulinum occurs all over the world, especially in soil and marine sediments. The spores often pop up on fruits, vegetables and seafood. In this state, they're harmless. It's only as they begin to grow that they produce their deadly toxin. Humans primarily encounter the toxin through the consumption of tainted foods, as the temperatures and chemicals in improperly stored foods often provide the perfect conditions for the spores to grow and develop. Deep wounds and infant intestinal tracks also present similar conditions. Its power, availability and limited treatability have made botulinum toxin a favorite among several countries' bioweapons programs. Luckily, effectively using such a weapon can still provide challenges. In 1990, members of the Japanese cult Aum Shinrikyo released an aerosol of the toxin against several

political targets, but were unable to cause the mass deaths they desired. When the cult switched to the chemical agent sarin gas in the 1995 attack, however, they killed a dozen people and injured thousands.



The Healing Power of Botulism

It may have an untreated mortality rate of 70 percent, but as it turns out, botulism isn't all bad. By using small amounts of purified botulinum toxin, doctors are able to harness the bacteria's paralytic power to help soothe neurologic diseases, facial ticks and even

smooth away wrinkles. You probably know it better by its brand name: **Botox**. But bioweapons don't have to focus on hurting the enemy directly. As our next two entries illustrate, they can dramatically affect the food supply.

Bioweapon 4: Rice Blast

A number of bacteria, viruses and toxins pose a significant threat to human beings, but plenty of the world's biological agents prefer different prey: cultivated food crops. Cutting off an enemy's food supply is a time-tested military strategy, whether you're defending your homeland against an invading force or besieging a walled city. Without food, populations weaken, panic, riot and eventually die. Several countries, especially the United States and Russia, have devoted a great deal of research to diseases and even insects that target key food crops. The fact that modern agriculture typically focuses on the large-scale production of a single crop only sweetens the deal for the architects of blight and famine. One such bioweapon is **rice blast**, a crop disease caused by the fungus *Pyricularia oryzae* (also known as *Magnaporthe grisea*). The leaves of affected plants soon develop grayish lesions composed of thousands of fungal spores. These spores quickly multiply and spread from plant to plant, sapping the plants and leading to much lower crop production. While breeding resistant plants is a good defensive measure against some crop disease, rice blast presents a problem because you wouldn't have to breed resistance to one strain of fungus, but 219 different strains. Such a bioweapon wouldn't be as sure of a killer as the likes of smallpox and botulism. It could however lead to severe starvation in poorer countries, as well as financial losses and other huge problems. A number of countries have pursued rice blast as a biological weapon, including the United States. By the time the U.S. dismantled its anti-crop program, it had amassed nearly a ton of the harmful fungus for a potential attack on Asia. What's that? You prefer a nice hamburger to a rice dish? Well, our next entry proves that you meat eaters aren't safe either.

Bioweapon 3: Rinderpest

When Genghis Khan invaded Europe in the 13th century, he inadvertently unleashed a fearsome biological weapon in the wake of his conquest. The gray steppe cattle used by his supply trains introduced a deadly cattle plague, known throughout the world today by its German name, **rinderpest**. Rinderpest is caused by a virus closely related to measles, and it

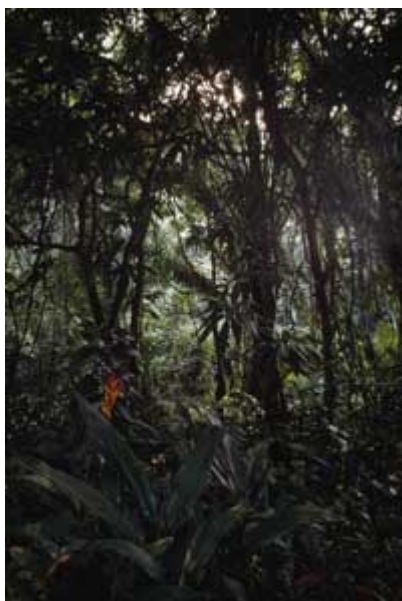


affects cattle and other ruminant animals such as goats, bison and giraffes. The condition is highly contagious, causing fever, loss of appetite, dysentery and inflammation of the mucus membranes. The condition drags on for six to 10 days, when the animal typically succumbs to dehydration. Over the centuries, humans have introduced rinderpest-infected animals to

various corners of the globe, often resulting in millions of dead cattle, along with other livestock and wild animals. At times, outbreaks in Africa have been so severe as to turn starving lions into man-eaters and lead ruined herdsmen to commit suicide. Thanks to extensive quarantine and vaccination programs, rinderpest has been brought under control in much of the world. While Genghis Khan wielded rinderpest as a weapon by accident, many modern countries aren't as innocent. Canada and the United States have both researched use of the virus as an anti-livestock bioweapon. Many of the scariest bioweapons out there have their roots in the ancient world. A few, however, are terrifyingly new.

Bioweapon 2: Nipah Virus

Viruses adapt and evolve over time. New strains emerge and, occasionally, close contact



between humans and animals allow life-threatening diseases to leap to the top of the food chain. As human populations continue to swell, the emergence of new diseases is inevitable. And every time a new outbreak makes the headlines, you can be sure someone is considering how to turn it into a weapon. **Nipah virus** is just such a disease, having only risen to the attention of world health agencies in 1999. The outbreak occurred in the Nipah region of Malaysia, infecting 265 and killing 105. While 90 percent of those infected handled pigs for a living, health workers suspect the virus naturally occurs in fruit bats. The exact nature of transference is uncertain, but experts think that the virus may spread through close physical contact or contaminated body fluids. Human-to-human transmission hasn't been reported yet. The illness typically lasts 6 to 10 days, inducing symptoms that range from mild, flulike conditions such as fever and muscle pains to **encephalitis**, or inflammation of the brain. In

these more severe cases, patients experienced drowsiness, disorientation, convulsions and ultimately coma. The virus carries a mortality rate of 50 percent, and there currently are no standard treatments or vaccinations. Nipah virus, along with a number of other emerging

pathogens, is classified as a Category C biological weapon. While no country is known to have researched its weaponization, its potential for widespread use and 50 percent mortality rate make it a bioweapon to watch for. Is nature constantly coming up with new ways for us to destroy each other? Well, it's not working hard enough for some people. With our last entry, we'll look at how some scientists hope to improve on nature's existing deadly designs.

Bioweapon 1: Chimera Viruses

Plague, smallpox, anthrax -- the world's deadliest biological agents aren't out to get you. Any harmful properties they possess are simply byproducts of their evolution. But what happens when scientists tinker with the genetic makeup of these organisms? What kind of horrors may



come to life when we add the human desire to wage war to their natural design? Unfortunately, the creation of such life forms isn't just a page from a science fiction novel -- it's already happening. In Greek and Roman mythology, the **chimera** combined elements of lion, goat and serpent into one monstrous form. Artists in the late medieval age often used the creature as a symbol to illustrate

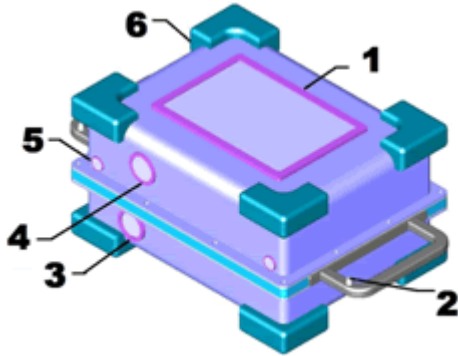
the complex nature of evil. In modern genetic science, a **chimeric organism** is a life form that contains genes from a foreign species. Given its namesake, you might expect all chimeric organisms to be awful examples of man twisting nature for nefarious ends. Fortunately, our increased understanding of genetic science has led to some beneficial creations. One such chimera, which combines the common cold with polio, may help cure brain cancer. But as the war continues its forward momentum through human history, the abuse of such science is inevitable. Geneticists have already discovered the means to increase the lethality of such bioweapons as smallpox and anthrax by tweaking their genetic structure. By combining genes, however, scientists could theoretically create a virus that triggered two diseases at once. During the late 1980s, the Soviet Union's Chimera Project studied the feasibility of combining smallpox and Ebola into one super virus. Other potential nightmare scenarios involve strains of viruses that require certain triggers. A **stealth virus** would remain dormant for an extended period until triggered by predetermined stimuli. Other possible chimeric bioweapons might require two components to become effective. Imagine a strain of botulinum toxin that, when combined with the botulinum toxin antidote, only becomes more lethal. Such a biological attack would not only result in a higher mortality rate, but might erode public trust in health initiatives, aid workers and government response to the outbreak. From splitting the atom to cracking life's genomic riddles, the last century of scientific research has brought about tremendous potential for humans to build a better world -- or destroy the one they have.

Διαστημική τεχνολογία και διαλογή απωλειών υγείας

To US Department of Homeland Security μελετά μια νέα τεχνολογία (Standoff Patient Triage Tool – SPTT) στον τομέα της διαλογής απωλειών υγείας που επιτρέπει μέσω τεχνολογίας Laser Doppler Vibrometry και με τη βοήθεια ειδικής κάμερας να δίνει ακριβεί εικόνα της εσωτερικής κατάστασης του ανθρώπινου σώματος.

To Boldly Go Where No Medical Response Has Gone Before

A drawing of the proposed 15 inch by 8.5 inch x 6 inch Standoff Patient Triage Tool (SPTT) with the following features. 1) 4 x 6 display window; 2) Control button; 3) Infrared camera window; 4) Visible camera window; 5) Ranging sub-assembly window; 6) Shock bumpers.



At the U.S. Department of Homeland Security, triage technology comes with a Star Trek twist. Even with today's fancy gizmos, figuring out who needs medical care at the scene of a disaster is still pretty

old-fashioned. It's tiring, physical work: an emergency responder bent over a victim, checking body temperature, heart rate, and muscle movement. Up close and personal, the entire process can take 3-5 minutes per person. Because time is the most precious resource in a crisis, every second shaved can be a life-saver. With this in mind, the Science and Technology Directorate (S&T) is trying to make a revolutionary leap forward in triage. Why not 30 seconds per person? And why not from far away? "We thought, 'Boy, wouldn't it be nice if a responder, fully clothed in an emergency suit, could have a technology to take vital signs quickly from 5 to 40 feet away?'" said Greg Price, Director of S&T's Tech Solutions, whose office is managing the project. In partnership with the Technical Support Working Group (TSWG), Boeing and Washington University's School of Medicine, Tech Solutions is developing the Standoff Patient Triage Tool (SPTT), a device that classic Star Trek fans will recognize for its resemblance to the medical diagnostic tool known as the tricorder. Like the tricorder, SPTT takes key physiological readings necessary to any diagnosis—pulse, body temperature, respiration—from an injured person at a far distance. It's triage at twenty paces. The magic behind SPTT is a technology known as Laser Doppler Vibrometry, which has been used in aircraft and automotive components, acoustic speakers, radar technology, and landmine detection. When connected to a camera, the vibrometer can measure the velocity and displacement of vibrating objects. An algorithm then converts those data points into measurements emergency medical responders can use in their rapid assessment of a patient's critical medical conditions. The goal is to develop a handheld unit about the size of a legal notebook and as thick as a ream of paper. Achieving this will require further testing of optical stabilization technology to make sure the unit can function despite a responder's arm and hand movements. Besides providing accurate data, the SPTT can help overcome common human biases at an accident scene. "Human nature is to pay attention to the person who is screaming and bleeding, but someone else with a less obvious internal injury may need to be the first priority," said Price. "In the case of large-scale triage, it is not always the squeaky wheel that needs the grease. The SPTT may someday help first responders hear a lot more from their patients, and much more quickly." With the help of Washington University, researchers have found that best place to capture strong readings vital signs is on the carotid artery, although strong signals have been obtained from the head, chest, abdomen, even a foot. Researchers are also testing whether readings could be taken when someone is lying in an awkward position, or wearing multiple layers of clothing. So far, the results are encouraging. Despite its promise, the SPTT is not quite as sophisticated as the tricorder. For instance, the

tricorder was able to comprehensively diagnose obscure diseases. The standoff patient triage tool is a quantum leap forward for medical response, but science fiction remains on the big screen for the moment. At S&T, there are high hopes for the technology, whose price tag remains undetermined. Said Price: "In a large triage situation, it could become a lifesaver." The final frontier for the SPTT, of course, is the first responders themselves. Tech Solutions wants to put working prototypes in the hands of medical teams this fall for extensive field tests. From there, everyone is hoping for warp speed ahead.

Νέο εμβόλιο υπέρτερο υφιστάμενου BioThrax

Η δεύτερη φάση των κλινικών δοκιμών έδειξε ότι το δευτέρας γενεάς εμβόλιο κατά του άνθρακα SparVax της PharmaAthene Inc υπερτερεί του υφιστάμενου BioThrax και προκαλεί λιγότερες τοπικές ανεπιθύμητες ενέργειες ενώ είναι καλύτερα ανεκτό

New Anthrax Vaccine Candidate May Be Superior to BioThrax

PharmAthene, Inc., a biodefense company developing medical countermeasures against biological and chemical threats, announced that results from a second Phase 2 study of SparVax were presented at the 12th Annual Conference on Vaccine Research, held in Baltimore, MD on April 27-29, 2009. The conference was sponsored by the National Foundation of Infectious Diseases. David P. Wright, President and Chief Executive Officer of PharmAthene commented, "We are very pleased to have had the opportunity to present these latest data for SparVax at Annual Conference on Vaccine Research. The study, which compared our vaccine to the currently licensed anthrax vaccine, BioThrax, provides further confirmation that SparVax is immunogenic and promotes good immunological recall following antigenic challenge. In addition, a lower incidence of injection site reactions observed with SparVax may suggest that it is better tolerated than BioThrax, a very important finding for this product candidate. Presentation of these data to attendees at this conference allows PharmAthene to continue to increase awareness of the progress we are making developing improved products using modern vaccine technologies to protect our nation's citizens and military." SparVax is a novel second generation recombinant protective antigen (rPA) anthrax vaccine that is being developed for pre and post exposure protection against anthrax infection.

Ευρήματα στην al Tuwaitha

Ενδιαφέρουσα αναφορά σχετικά με τα ευρήματα της πλήρους διερεύνησης του πρώην ιρακινού κέντρου πυρηνικών όπλων al Tuwaitha

What we found at Al Tuwaitha

Article Highlights

- A U.S.-led research team has fully investigated Al Tuwaitha, the center of Iraq's former nuclear weapons complex, to chronicle the history of radioactive contamination there.
- The largest release was caused by civilians looting yellowcake in 2003, which was dumped out of barrels both at the site and in neighboring civilian villages.
- It's vital that the Iraqi government and international community be prepared for the long-term financial and time commitment needed to fully cleanup the site.

For the last four years, we, a research team from Texas Tech University, have studied the degree of radioactive contamination at the Al Tuwaitha Nuclear Research Center in Iraq,

which was the center of Saddam Hussein's nuclear weapons program. The site is in many ways historically unique: It has been used in the development of nuclear weapons; it has been bombed in repeated military campaigns; and it has been looted by civilians who in 2003 inadvertently dispersed radioactive material at and around the research site and in their own homes and villages. Reports of contamination at the site and in the surrounding villages of Ishtar, Al Riyadh, and Al Wardia have been a cause of alarm for residents, the Iraqi government, and the international community since 1991, when Iraq reportedly was 18-30 months from having enough enriched uranium for a Bomb and the facilities were destroyed by Coalition forces. Through the years unsubstantiated press reports have claimed that the bombing and looting had resulted in "frightening" levels of radiation at the site and in the adjacent villages. In an attempt to determine the degree of contamination at the site, we recorded the dispersion of radioactive materials, identified the likely sources of this contamination, and provided a basis for gauging potential ongoing hazards to cleanup crews at the site and inhabitants of the nearby villages. Such data also is useful because it creates a scientifically valid accounting of Al Tuwaitha's history that fills in the record on Saddam's nuclear program during the period that Western observers didn't have access to the site. Our surveys confirm that most of the environmental contamination can be attributed to events that occurred during or immediately following operations Desert Storm (1991) and Iraqi Freedom (2003). There were some isolated areas within the inner perimeter of the site that appear to be contaminated by substandard transfers of radioactive waste during normal operations of the facility as well. Natural uranium--unenriched and thus not useful for weapons--was the most common contaminant encountered at the site and in nearby areas. None of the environmental samples taken at Al Tuwaitha showed evidence of enriched uranium. The most significant dispersal of radioactive material occurred when barrels containing yellowcake were looted from the research center by local residents in 2003 (in the chaos after Saddam's ouster) and carried into the villages of Ishtar and Al Riyadh less than three kilometers away. Yellowcake also was dispersed when civilians washed out the barrels and scattered it both near the storage facility and along the roadside between Al Tuwaitha and Ishtar and Al Riyadh. Civilians used these barrels to store food and other household items. Several radioactive sources (e.g., cesium 137 and cobalt 60) also were looted but were recovered by Coalition forces and Iraqi hazmat personnel prior to June 2003. Due to the constraints in our physical sampling, it's likely that there are still unidentified areas of yellowcake contamination. All known radioactive sources were recovered, since their high gamma radioactivity made them relatively easy to locate. Cesium 137 was detected at Al Tuwaitha, both isolated and mixed with uranium and in combination with cobalt 60, strontium 90, americium 241, and barium 133. These latter samples are interpreted to be the remnants of radioactive wastes generated by the first steps of the PUREX method of fuel reprocessing--a process intended to separate uranium from spent reactor fuel. More than 400 of the samples (about 6 percent overall) that we took included elevated levels of radionuclides would merit cleanup actions to meet U.S. industrial land-use guidelines. The Iraqi government is presently revising its own regulatory requirements, so rules governing the remediation of contamination at the site aren't yet available. We, along with Iraqi specialists, now are evaluating rubble, scrap, discarded equipment, and the interior spaces of buildings at the Al Tuwaitha facility for radioactive contamination. Our scoping surveys have identified substantial amounts of such material in several structures, yet many technical challenges remain for the Iraqi teams before they can completely dismantle the most contaminated buildings. Presently, Iraq has insufficient numbers of trained personnel and lacks the proper equipment to conduct exhaustive laboratory and field analyses to complete these characterizations. Iraq must act quickly to equip a functional radiation analysis facility, train a sufficient technical staff, and meet the standards of recognized international laboratories to fulfill the challenges ahead to clean up the site. Unfortunately, additional money hasn't yet been made available for this effort, and the funding to continue our work is uncertain as well. Yet matters aren't completely dire. A co-author of this piece has been invited to meet with Iraqi teams in Vienna to design a laboratory, devise training programs, and identify equipment so that Iraq will have proper radio-analytical capabilities in the future. Still, this is only part of the greater effort necessary

to reconstruct a peaceful and thriving Iraqi science and technology sector. Such reconstruction requires the active involvement and collaboration of the international scientific community in the training of the next generation of Iraqi scientists in peaceful research and proper cleanup of the country's nuclear weapons sites. Cleaning up the sites will take time, however. It's estimated that removing all the structures of concern and disposing of wastes at Al Tuwaitha will take at least 15 years. Our piece of this project, in collaboration with Iraqi scientists, is only one part of that long-term and vital mission, which also seeks to convince the citizens of Iraq that the Saddam era is truly over and that the elected Iraqi government is worthy of their trust.

Υπέρυθρες ίνες κατά της χημικής τρομοκρατίας

Ισραηλινός επιστήμονας ανακοίνωσε ότι ανέπτυξε ένα νέο σύστημα παρακολούθησης της ασφάλειας των κτιρίων και του κοινοτικού νερού, σε πραγματικό χρόνο μέσω τροποποίησης ειδικών ινών που ανιχνεύουν «χρώματα» στο υπέρυθρο φάσμα καθιστώντας έτσι διακριτή την πιθανότητα μόλυνσης του πόσιμου νερού.

Special Infrared Fibers Can Defend America's Water From Chemoterrorism

Although most Americans take the safety of their drinking water for granted, that ordinary tap water could become deadly within minutes, says Prof. Abraham Katzir of Tel Aviv University's School of Physics and Astronomy. To combat the threat of contamination due to industrial spillage, natural disaster or sabotage, the physicist has developed a new system to monitor the safety of a building or community's water supply in real time. Modifying special fibers developed in his Tel Aviv University lab, Prof. Katzir can detect "colors" in the infrared spectrum which distinguish between pure and contaminated water. Not visible to the naked eye, this spectrum is normally only seen by certain animals, like snakes or vampire bats, to track down prey. Connected to a commercial infrared spectrometer, the fibers serve as sensors that can detect and notify authorities immediately if a contaminant has entered a water reservoir, system, building or pipeline. In the lab, the fiberoptic system detected poisons such as pesticides in amounts well below the World Health Organization safety threshold. Preliminary field experiments have already been done at several European sites, and the results were reported recently in the *Journal of Applied Spectroscopy*.

The Colors of Danger

Once in use, the sensor system would be one of the first real-time water monitors in the United States to provide protection from chemoterrorism attacks - a threat to which U.S. water supplies are particularly susceptible. "It's unlikely that someone will poison the water supply in Afghanistan," says Prof. Katzir, "but America is in grave danger and needs to arm itself against chemical threats to its drinking water. "With our naked eyes we can't distinguish between pure water and water that contains a small amount of alcohol or acetone. They're all clear. We can't do it even with a spectrophotometer, which measures visible colors," explains Prof. Katzir. "But we can clearly distinguish between liquids using an infrared spectrometer which can distinguish between 'colors' in the invisible infrared spectrum." Such an instrument can be used to detect hazardous chemicals, pollutants and threats in the water, "seeing" water in the same way as a snake does. The special fiber sensors make it possible to monitor the quality of water in a remote location, such as a lake, a river, or a pipeline, and detect trace amounts of contaminants in real time, adds Prof. Katzir. Water management executives in Florida's Everglades and officials in Germany are among those who have expressed an interest in using the technology.

Skyscrapers in New York City a Likely Point of Attack

"Toxic materials are readily available as pesticides or herbicides in the agriculture industry, and can be harmful if consumed even in concentrations as low as few parts per million," says Prof. Katzir. Cities like New York are especially susceptible to a chemoterrorist threat. With many skyscrapers holding water reserves on the top of the building, a terrorist only needs to introduce poison into a tank to wreak havoc. "A terrorist wouldn't have to kill tens of thousands of people. Only 50 deaths - as horrible as that would be - would cause nationwide panic." Currently, water authorities in America test water reservoirs usually once every day or two, with no system in place to detect chemical threats instantaneously. "This new system can cut millions of dollars from the cost of testing water manually." The fiber sensors developed by Prof. Katzir are made of insoluble, non-toxic, and biocompatible materials. "You can eat them and nothing will happen to you," he notes. Prof. Katzir's determination to fight terrorism through science has a personal side as well. His father, world-renowned scientist Prof. Aharon Katzir, was assassinated by the Japanese Red Army in a terror attack in 1972. "I am trying to walk in his footsteps by doing applied research that can be a practical tool in an important battle. This system can be ready for use in less than a year."

Αλκοολισμός και ναρκωτικά για τους επιζήσαντες τρομοκρατικών επιθέσεων
Σχεδόν ένας στους 12 ανθρώπους που εκτέθηκαν και επέζησαν τρομοκρατικών επιθέσεων αντιμετωπίζει προβλήματα κατάχρησης αλκοόλ και/ή ναρκωτικών. Η μελέτη που δημοσιεύθηκε πρόσφατα στο έγκριτο *Addiction* βασίζεται σε δεδομένα 31 μελετών που αναφέρονται σε μεγάλες τρομοκρατικές ενέργειες του πρόσφατου παρελθόντος

Surge In Alcohol And Drug Use Following Terrorist Attacks

Nearly one in 12 people exposed to terrorism report increased use and misuse of alcohol, according to researchers at Columbia University Mailman School of Public Health and the University of Michigan. In a study published in the June issue of the journal *Addiction*, investigators combined data from 31 studies conducted in the aftermath of such incidents as the terrorist attacks of September 11, 2001, the Oklahoma City Bombings of 1995, and the Intifada uprisings in Israel. The researchers used this data to look at the prevalence of addictive behavior after terrorist incidents and to assess the likelihood of an increase of addictive behavior in the general population following a terrorist attack. Initial results indicated that nearly 10% of the general population surveyed in those settings reported more or problematic alcohol consumption. After adjusting for the type of terrorist attack, the type of population surveyed (survivors, responders, or the general population), and the time following the incident when the survey was conducted, the estimate of the isolated effect of terrorism dropped to 7.3%. However, by using certain research methodologies, investigators were able to estimate that there was a one-in-four chance that the rate could be double that figure. The study found similar reported rates of increased drug and cigarette use. Most of the studies the authors analyzed were conducted in the aftermath of the terrorist attacks of 11 September 2001 (77%), looked at alcohol use and misuse as an endpoint (68%), and were based on general population estimates (55%). Although not statistically significant, reports of increased substance use and misuse declined over time and the effects were stronger for studies that looked at survivors and first responders than they were for general population samples. The authors note their results are consistent with research that indicates persons who experience trauma may use substances to cope with stress and self-medicate for anxiety-related symptoms. Investigators caution that there was much variability in their findings, but according to Charles DiMaggio, PhD, assistant clinical professor of Epidemiology at the Mailman School of Public Health and lead author, "These kinds of numbers indicate the potentially pervasive behavioral health effects of man-made disasters like terrorism. We hope our results can help direct interventions following terrorist incidents." The study was funded

by the United States Centers for Disease Control and Prevention, the National Institute on Drug Abuse and the National Institute on Alcohol Abuse and Alcoholism.

Παρενέργειες εμβολίου ευλογιάς

Περιγραφή μιας περίπτωσης παρενέργειας ευλογιάς (progressive vaccinia) σε 20χρονο στρατιώτη του αμερικανικού στρατού.

Progressive Vaccinia in a Military Smallpox Vaccinee --- United States, 2009

Progressive vaccinia (PV), previously known as vaccinia necrosum, vaccinia gangrenosum, or disseminated vaccinia, is a rare, often fatal adverse event after vaccination with smallpox vaccine, which is made from live vaccinia virus. During recent vaccination programs potential cases of PV were investigated, but none met standard case definitions. PV has not been confirmed to have occurred in the United States since 1987. On March 2, 2009, a U.S. Navy Hospital contacted the Poxvirus Program at CDC to report a possible case of PV in a male military smallpox vaccinee. The service member had been newly diagnosed with acute myelogenous leukemia M0 (AML M0). During evaluation for a chemotherapy-induced neutropenic fever, he was found to have an expanding and nonhealing painless vaccination site 6.5 weeks after receipt of smallpox vaccine. Clinical and laboratory investigation confirmed that the vaccinee met the Brighton Collaboration and CDC adverse event surveillance guideline case definition for PV. This report summarizes the patient's protracted clinical course and the military and civilian interagency governmental, academic, and industry public health contributions to his complex medical management. The quantities of investigational and licensed therapeutics and diagnostics used were greater than anticipated based on existing smallpox preparedness plans. To support future public health needs adequately, the estimated national supply of therapeutics and diagnostic resources required to care for smallpox vaccine adverse events should be reevaluated.

Case Description

On January 13, 2009, a healthy service member aged 20 years received a primary smallpox vaccination (ACAM2000 [Acambis, Inc., Cambridge, Massachusetts]) in accordance with the U.S. Department of Defense smallpox vaccination policy*; no other vaccinations were administered that day. Twelve days later, the patient visited a local hospital with fever and headache of 1 day's duration and was admitted for workup of leukopenia after his white blood cell count was found to be 1,400 cells/mm³. On January 28, after transfer to a U.S. Navy tertiary-care facility, he was diagnosed with AML M0. On January 30 and February 13, the patient underwent two successive rounds of induction chemotherapy with cytarabine, idarubicin, and dexamethasone. Before initial chemotherapy, the vaccination site pustule had a central crust and measured approximately 1 cm in diameter with minimal surrounding erythema. During the patient's hospital stay from the end of January to the beginning of March, his vaccination site dressing was changed daily.

On March 2, during the evaluation of neutropenic fever, the failure of the patient's vaccination site to heal was described. An annular lesion with a deep bulla, raised violaceous leading edge, and a central crust that bled with pressure was noted. The size of the lesion had progressed to approximately 4 x 4 cm with minimal surrounding erythema or induration (Figure). The patient described no pain at the site, although he reported occasional pruritus. A swab of the lesion and serum were sent to CDC for viral and serologic analysis. Viral analysis of the swab by multiple real-time polymerase chain reaction (PCR) assays for orthopoxvirus and vaccinia yielded evidence of viral DNA; viral culture was positive for orthopoxvirus. Serum showed equivocal to absent levels of anti-orthopoxvirus immunoglobulin G (IgG) and immunoglobulin M (IgM) by enzyme-linked immunosorbent assay. The results of the diagnostic testing combined with the patient's medical history met the PV level 1 case

definition as defined by the Brighton Collaboration and the confirmed case definition as described by CDC surveillance guidelines. The criteria met by both case definitions were 1) a documented clinical diagnosis of a disease that is known to be associated with cell-mediated immunodeficiency (in this case AML M0), 2) the primary vaccination site's failure to resolve (in this case >6 weeks post vaccination), and 3) the laboratory confirmation of vaccinia virus as the causative agent.

On March 3, imiquimod was applied directly to the lesion. Within 24 hours of confirmation of PV on March 4, the patient received licensed Vaccinia Immune Globulin Intravenous (Human) (VIGIV) (Cangene Corporation, Winnipeg, Canada). On March 5 and March 6, oral and topical ST-246 (SIGA Technologies, Corvallis, Oregon) were administered under an Emergency Investigational New Drug (E-IND) application. The patient remained stable until the evening of March 7, when he became septic with *Pseudomonas aeruginosa*, likely from a perirectal abscess. He required intubation, maximal vasopressor support, multiple antibiotics, and stress dose corticosteroids. He then developed multiorgan failure and began continuous venovenous hemodialysis. During the next 12 days, the patient slowly stabilized. As a consequence of the duration and amount of vasopressor support, the patient required a bilateral trans-tibial amputation because of dry gangrene of his feet.

During March 6--19, the patient received additional oral and topical ST-246 and VIGIV; his ST-246 levels were noted to be lower than those achieved both in healthy subjects in phase I clinical trials and in successful treatment of nonhuman primates with systemic orthopoxvirus disease. The lesion size remained unchanged, but the central crust of the vaccination site sloughed off, followed by most of the outer "ring" flattening, leaving a shallow ulcer with healthy-appearing granulation tissue. During his steroid taper, additional satellite lesions surrounding the vaccination site appeared on March 18, and viral DNA was detected again in the blood. These lesions became vesicular in nature, and on March 26, after a second E-IND was issued, CMX001 (Chimerix, Inc., Research Triangle Park, North Carolina), a lipid conjugate of cidofovir, was administered.

From March 24 onward, the satellite and main vaccination site lesions continued to crust, the scabs separated, and underlying tissue epithelialized. Blood viral DNA levels cleared on March 29. On April 10, the borders of lesions again appeared raised; a shave biopsy grew methicillin-resistant *Staphylococcus aureus*, which responded to antibiotic therapy. The patient received intermittent granulocyte colony-stimulating factor, and his absolute neutrophil and lymphocyte count increased over time. By May 1, significant portions of the scabs/eschars had fallen off or were removed manually, revealing healthy epidermis. Numerous therapeutics with different biologic mechanisms were used to treat PV in this patient (Table).

Treatment*	Formulation	Dosage	Application	Administration dates
ST-246	Oral	400 mg	Once daily	March 5--19
		800 mg	Once daily	March 20--24
		1200 mg	Once daily	March 25 to present
ST-246	Topical	1%, 0.5 mL	Once daily	March 6; April 21--May 12
		1%, 0.5	Twice daily	March 7--April 20

		mL		
CMX001	Oral	200 mg	Once per date	March 26
		100 mg	Once per date	April 1, 7, 13, 20, 27
Imiquimod	Topical	5%, 12.5 mg	Once daily	March 24--May 12
VIGIV ^{∆§∆¶**}	Intravenous	6,000 U/kg	Once per date	March 4, 11, 20; April 1, 3, 6, 8, 18
		18,000 U/kg	Once per date	April 9
		24,000 U/kg	Once per date	March 24; April 14, 23, 28; May 8
<p>* In summary, the patient's dose of oral ST-246 was increased twice to obtain more optimal drug levels, CMX001 was begun, topical ST-246 and imiquimod continued, as well as periodic infusions of VIGIV at varying doses.</p> <p>∆€ As of May 18, 2009.</p> <p>∆§ Vaccinia Immune Globulin Intravenous (Human).</p> <p>∆¶ VIGIV is supplied as a 15 mL single dose vial containing >50,000 U/vial.</p> <p>** Patient received a total of 16,740,000 U of VIGIV during March 4--May 8.</p>				

From February 21 onward, the patient had remained in contact isolation, first for a *Clostridium difficile* infection and then for his progressive vaccinia infection. On May 5, contact precautions were discontinued because of the lack of viable virus in lesion specimens from the previous 4 weeks. No cases of contact vaccinia were identified among this patient's health-care workers or close contacts.

During March 3--May 18, nearly 200 clinical specimens (lesion and satellite swabs/crusts, ethylenediaminetetraacetic acid [EDTA] blood, bone marrow, and serum) were collected and submitted to CDC to evaluate disease progression and guide therapeutic interventions. After April 23, swabs from satellite lesions or the main vaccination site showed significantly reduced or absent levels of viral DNA, and no viable virus was detected after April 2. Oropharyngeal sampling and bone marrow biopsies from early and late March, respectively, were negative for vaccinia virus. Orthopoxvirus DNA was detected in EDTA blood at intermittent times during the course of the patient's infection; however, no viable virus was cultured from blood. As of May 12, the patient had no demonstrable IgM response to orthopoxvirus; IgG levels appeared fully reliant on VIGIV infusion.

During March 3--May 18, a total of 20 conference calls to discuss patient status and treatment options were held between the Vaccine Healthcare Centers Network, Military Vaccine Agency (MILVAX), Bureau of Medicine and Surgery of the Navy, CDC, Food and Drug Administration (FDA), National Institutes of Health (NIH), SIGA Technologies, Chimerix, Inc., and academic and health-care professionals. As of May 18, MILVAX provided 22 and the Strategic National Stockpile (SNS) provided 254 vials of VIGIV used in treatment of this case.

Κινδυνεύει η Μ Βρετανία από θαλάσσια επίθεση ;

Άρθρο που καταδεικνύει τους κινδύνους που ελλοχεύουν σε κάθε χώρα (και στη δική μας) με τεράστια και δύσκολα φυλασσόμενη ακτογραμμή – 7.000 μίλια για τη Βρετανία.

UK 'at risk of sea-borne attack'

Just nine Royal Navy ships along with a "motley collection" of police and coastguard boats guard a shoreline more than 7,000 miles long. The Commons defence committee suggests developing a "deterrent capability" to ward off sea-borne attacks. The Ministry of Defence has insisted clear procedures are in place. Concerns over the UK's preparations for dealing with a maritime terrorist threat were raised by the committee.

Reactive forces

Its statement said: "We are concerned at the level of action being taken to address threats to aspects of national infrastructure such as ports. "What assets are available for maritime security tend to be reactive forces." The statement continued: "There is a strong case for developing a deterrent capability in relation to threats to civilian maritime targets. "We are not satisfied that an intelligence-led approach is sufficient." At present the Royal Navy has six warships, two patrol vessels and a support tanker protecting UK waters. They are backed up by 120 police boats, five coastguard patrol boats and five UK Border Agency vessels. But the Conservatives have called for a full review of the defensive capability. They say the November 2008



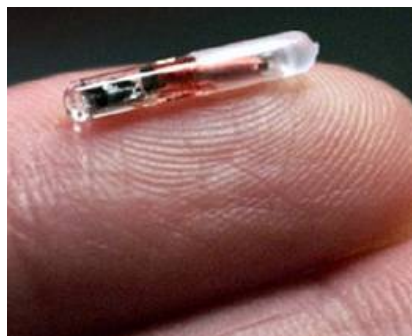
Mumbai attacks - during which gunmen arriving by boat killed more than 170 people - could be replicated in the UK.

Lack of clarity

Shadow defence secretary Liam Fox said: "It is clear from this report the government has not given sufficient attention to the role of the armed forces in its domestic security policy. " The lack of clarity about the role of the MoD in terms of maritime security needs to be addressed. "This is why we need a Strategic Defence Review to identify the roles the armed forces will be needed for." The committee also called for the role of the Army during natural emergencies such as floods to be clarified and the Territorial Army to be used more regularly. But an MoD spokesman said: "There are clear procedures in place for the armed forces to provide military assistance to other government departments both in times of national crises. "Work is under way to provide other government departments with guidelines on how to request military assistance in areas such as counter terrorism. "We regularly take part in counter terrorism exercises."

Όταν ο Όργανελ επιβεβαιώνεται...

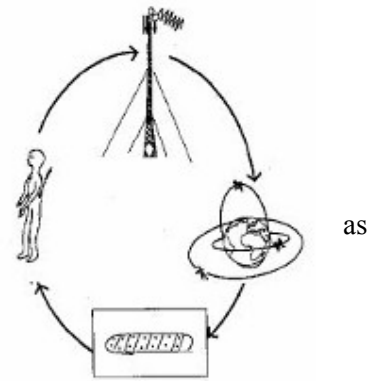
Ένας ημιαγωγός (chip) θα μπορούσε να εμφυτευτεί στο σώμα ώστε οι αρχές ασφαλείας μιας χώρας να μπορούν να παρακολουθούν ανά πάσα στιγμή που βρίσκεται ο φορέας του chip! Και όχι μόνον αυτό: το chip θα μπορεί να απελευθερώνει ποσότητα δηλητηρίου – και όποιος κατάλαβε, κατάλαβε!



'Killer Chip' tracks humans, releases poison

You can run, but you cannot hide ... and if you try, one push of a button will cause a lethal poison to immediately begin flowing through your body. That's the Orwellian future a Saudi inventor was seeking to bring to Germany until that nation's patent office announced last week it was rejecting his request to patent what has been dubbed the "Killer Chip." The tiny semiconductor device is intended to be surgically implanted or injected into the body, according to the

patent application, for the purpose of tracking visitors from other nations by global-positioning satellites and preventing them from overstaying their visas. A German Patent and Trademark Office spokeswoman told Deutsche Presse Agentur the inventor's application, titled "Implantation of electronic chips in the human body for the purposes of determining its geographical location," was submitted in October 2007 and published 18 months later, required by law, in a patents database. Under Germany's patent law, inventions that are unethical or a danger to the public are not recognized. "In recent times the number of people sought by security forces has increased," the Jeddah-based inventor wrote in his application. The device would emit encrypted radio waves that would be picked up by satellites and "used to track fugitives from justice, terrorists, illegal immigrants, criminals, political opponents, defectors, domestic help, and Saudi Arabians who don't return home from pilgrimages," Sweden's The Local reported. The application included a request to patent a model B of the device that could release poison to "eliminate" the individual if he or she became a security risk. "I apply for these reasons and for reasons of state security and the security of citizens," the statement reads. German law allows foreigners to apply for patents in the country through a local representative. In the case of the "Killer Chip," a Munich law firm was used. "Most people apply for a patent in several countries, and this inventor probably did too," Stephanie Krüger of the Patent Office said. That leaves open the possibility the Saudi inventor will find success in another country.



Είναι τα πυρηνικά του Πακιστάν σε επικίνδυνα χέρια ;

Οι επιχειρήσεις των Taliban στο ΝΔ Πακιστάν κρύβουν πάντα τον κίνδυνο να περάσουν τα πυρηνικά της χώρας σε χέρια τρομοκρατών. Και όχι απλών τρομοκρατών αλλά ομάδων που είναι φίλα προσκείμενες προς την al Qaeda. Σύμφωνα με πληροφορίες του Ιουλ 09, κατά την προηγούμενη διετία οι Taliban είχαν επιχειρήσει τρεις φορές να επιτεθούν σε εγκαταστάσεις πυρηνικών όπλων χωρίς ευτυχώς να το επιτύχουν. Όμως ο στόχος διαγράφεται σαφής και το ενδεχόμενο ορατό παρά τις προσπάθειες σύγχρονης φύλαξης που καταβάλλουν οι πακιστανικές δυνάμεις ασφαλείας.

India thinks Pak N-sites already in radical hands

India's Prime Minister Manmohan Singh has told President Obama that nuclear sites in Pakistan's restive frontier province are "already partly" in the hands of Islamic extremists, an Israeli journal has said, amid considerable anxiety among US pundits here over Washington's confidence in the security of the troubled nation's nuclear arsenal. Claims about the high-level exchange between New Delhi and Washington were made in the Debka, a journal said to have close ties with Israeli intelligence, under the headline "Singh warns Obama: Pakistan is lost." The brief story said the Indian prime minister had named Pakistani nuclear sites in the areas which were Taliban-Qaida strongholds and said the sites are already partly in the hands of "Muslim extremists." A sub-head to the story said "India gets ready for a Taliban-ruled nuclear neighbor." There was no official word from either Washington or New Delhi about the exchanges, with India in the throes of an election and US winding down for the weekend. But US experts have been greatly perturbed in recent days about what they say is Washington's misplaced confidence in, and lackadaisical approach towards, Pakistan's nuclear assets. The disquiet comes amid reports that Pakistan is ramping up its nuclear arsenal even as the rest of the world is scaling it down. "It is quite disturbing that the administration is allowing Pakistan to quantitatively and qualitatively step up production of fissile material without as much as a public reproach," Robert Windrem, a visiting scholar with the Center for Law and Security in New York University and an expert on South Asia nuclear issues told

ToI in an interview on Thursday. "Iraq and Iran did not get a similar concessions... and Pakistan has a much worse record of proliferation and security breaches than any other country in the world." Windrem, a former producer with NBC whose book "Critical Mass" was among the first to red flag Islamabad's proliferation record going back to the 1980s, referred to recent reports and satellite images showing Pakistan building two large new plutonium production reactors in Khushab, which experts say could lead to improvements in the quantity and quality of the country's nuclear arsenal. The reactors had nothing to do with power-production' they are weapons-specific, and are being built with resources who diversion is enabled by the billions of dollars the US is giving to Pakistan as aid, he said. Windrem also pointed out that Khushab's former director, Sultan Bashiruddin Mahmood met with Osama bin Laden and his deputy, Ayman al-Zawahiri, and offered a nuclear weapons tutorial around an Afghanistan campfire, as attested by the former CIA Director George Tenet in his memoir "At the Center of the Storm." Yet successive US administrations had adopted an attitude of benign neglect towards Pakistan's nuclear program and its expansion at a time the country was in growing ferment and under siege within from Islamic extremists. US officials, going up to the President himself, have repeatedly said in public that they have confidence the Pakistani nuclear arsenal will not fall into the hands of Islamic extremists, and they have Islamabad's assurances to this effect. But scholars like Windrem fear Pakistan's nuclear program may already be infected with the virus of radicalism from within, as demonstrated by the Sultan Bashiruddin incident.

Σενάρια τρομοκρατίας

Από την πρώτη κιόλας εβδομάδα που η νέα γρίπη έδειξε το δόντια της στην περιοχή του Μεξικού και ιδιαίτερα όταν πέρασε τα σύνορα προς τις ΗΠΑ, το διαδίκτυο κατακλύσθηκε από θεωρίες συνομοσιολογίας σχετικά με την προέλευση του νέου ιού. Γεγονός είναι ότι η πολυπλοκότητα του νέου ιού γεννά ερωτηματικά. Η φύση δεν μας έχει συνηθίσει σε τόσο πολύπλοκες ανταλλαγές γενετικού υλικού σε τόσο σύντομο χρονικό διάστημα. Η ευρύτητα πνεύματος και η απαλλαγή από δογματισμούς και στεγανά αποτελεί την καλύτερη λύση για την προσέγγιση του θέματος.

Australian scientist suggests Swine flu an accident in the lab

The suggestion, which grew into a rumour, was circulated by news outlets worldwide and was made by Dr. Adrian Gibbs, a virologist and a member of the team which developed the antiviral drug Tamiflu. He has reportedly appeared on television in the United States suggesting that swine flu might have been created using eggs to grow viruses and make new vaccines, and could have been accidentally leaked to the general public. Dr. Fukuda says Dr. Gibbs remarks were taken very seriously, but the evidence suggests that this is a naturally occurring virus, rather than a laboratory-derived virus. Dr. Gibbs is a retired plant virologist from the Australian National University, who previously published work in the journal Science which questioned the now accepted idea, that the 1918 pandemic started as a bird flu. It seems Dr. Gibbs studied the gene sequences of the swine flu virus posted on public data banks and he suggests that it was grown in eggs, the medium used in vaccine laboratories, because the new virus was not closely related to known ones and because it had more of the amino acid lysine and more mutations than typical strains of swine flu. His theory apparently evoked scepticism and derision from scientists at the Centers for Disease Control and Prevention (CDC) but was given a fair amount of media coverage which ran with the story and true to form embellished and magnified the suggestion and added speculation about bioterrorism. But many feel just bringing the idea of laboratory security to the public's attention is important and it is worth remembering that the epidemic of Foot and Mouth disease in Britain in 2001 was eventually traced back to a missing vial from a research laboratory but in the meantime more than 6 million animals were culled to stop the spread of the outbreak. Experts say that event resulted in lab security and regulations being tightened and improved and while Dr. Gibb's theory is technically plausible, it is very unlikely to have

occurred. According to Dr. Fukuda a WHO panel of experts concluded that "the hypothesis does not bear scrutiny because the lysine residues and mutation rates were typical and many swine flu appear unrelated because not enough pigs are tested each year". Dr. Fukuda says he doubts that the rumour would prove to be damaging and he would not want genetic sequences kept off public databases - however persistent false rumours such as linking childhood immunisation shots to autism, can have devastating effects on controlling diseases. While scientists have yet to accurately pinpoint the exact origin of the new swine flu the earliest cases in Mexico were found to contain genes from flu viruses that normally circulate in pigs in Europe and Asia, as well as avian and human genes. The H1N1 influenza virus is expected to dominate the WHO's annual 9 day conference in Geneva but will also shorten it so that the 193 health delegates can return home to deal with the looming pandemic. According to the WHO to date the virus has spread to 33 countries, 6,497 cases have been reported and 65 people have died - 4,300 confirmed and probable cases, with 3 deaths, were reported in the United States.

Πως η ευλογία αποδιοργανώνει το ανθρώπινο ανοσιακό σύστημα

Ερευνητές από το University of Florida προσέθεσαν νέες πληροφορίες σχετικά με τον τρόπο που η ευλογία επιτίθεται στο αμυντικό σύστημα του ανθρώπου. Οι νέες πληροφορίες αφορούν την αλληλεπίδραση δύο πρωτεϊνών: της G1R του ιού και του ανθρώπινου πυρηνικού παράγοντα κ-B1 που σχετίζονται με την επιβίωση και τον πολλαπλασιασμό του ιού στον ξενιστή.

How Smallpox May Derail Human Immune System

University of Florida researchers have learned more about how smallpox conducts its deadly business — discoveries that may reveal as much about the human immune system as they do about one of the world's most feared pathogens. In findings to be published this week in the online early edition of the *Proceedings of the National Academy of Sciences*, scientists describe how they looked at all of the proteins produced by the smallpox virus in concert with human proteins, and discovered one particular interaction that disables one of the body's first responders to injury — inflammation. "This virus that has killed more humans than any other contains secrets about how the human immune system works," said Grant McFadden, Ph.D., a professor of molecular genetics and microbiology at the College of Medicine and a member of the UF Genetics Institute. "I'm always amazed at how sophisticated these pathogens are, and every time we look, they have something new to teach us about the human immune system." With researchers from the University of Alberta, the Centers for Disease Control and Prevention and a private company called Myriad Genetics, UF researchers for the first time systematically screened the smallpox proteome — the entire complement of new proteins produced by the virus — during interactions with proteins from human DNA. These protein-on-protein interactions resulted in a particularly devastating pairing between a viral protein called G1R and a human protein called human nuclear factor kappa-B1, which is believed to play a role in the growth and survival of both healthy cells and cancer cells by activating genes involved in immune responses and inflammation. "One of the strategies of the virus is to inhibit inflammation pathways, and this interaction is an inhibitor of human inflammation such that we have never seen before," McFadden said. "This helps explain some of the mechanisms that contribute to smallpox pathogenesis. But another side of this is that inflammation can sometimes be harmful or deadly to people, and we may learn a way to inhibit more dangerous inflammation from this virus." Smallpox is blamed for an estimated 300 million deaths in the 20th century alone, and outbreaks have occurred almost continuously for thousands of years. The disease was eradicated by a worldwide vaccination campaign, and the last case of smallpox in the United States was in 1949, according to the CDC. The last naturally occurring case in the world was in Somalia in 1977. With the exception of stores of the virus held in high-containment facilities in the United States and Russia, smallpox no longer exists on the planet. Since it was no longer necessary for

prevention, and because the vaccines themselves were risky, routine vaccination against smallpox was stopped. However, public health concerns regarding the possible re-emergence of the virus through bioterrorism have led to renewed interest in the development of treatments for the disease and safer vaccines.

Τι έμαθαν οι βρετανοί από τη σφαγή του Μονάχου ;

Μετά τη δραματική εξέλιξη της ομηρίας των ισραηλινών αθλητών στους Ολυμπιακούς Αγώνες του Μονάχου (1972), οι βρετανικές αρχές ασφαλείας τροποποίησαν τους κανόνες εμπλοκής των ειδικών μονάδων τους (SAS) σε περίπτωση που τρομοκράτες επιχειρούσαν να θέσουν υπό τον έλεγχο τους πυρηνικά όπλα ή υλικά σε εγκαταστάσεις ή κατά τη διαδικασία μεταφορά τους. Η νέα οδηγία απλή: **Shoot to Kill!**

Shoot to kill, Britain's answer to massacre at Munich

West German policemen take positions in the Olympic Village in Munich in 1972 in a bid to release Israeli hostages being held by Arab terrorists. The incident prompted a swift review of British counterterrorism measures. In the wake of the 1972 Munich Olympics massacre, military commanders gave soldiers carte blanche to shoot hostages should nuclear weapons be the target of terrorists. The murder of Israeli athletes at the Games sent a wave of panic through Western governments at the bloody arrival of a new breed of terrorism. In Britain, the atrocity struck such fear into the hearts of military chiefs that they believed their nuclear weapons could be the next target. A top-secret document obtained by The Independent under the Freedom of Information Act details how the Ministry of Defence made preparations for an attempt by terrorist groups including the IRA and Black September, the Palestinian extremists behind the Munich killings, to ambush military convoys carrying nuclear bombs and set off a "dirty-bomb" explosion. The file shows that after the attack at the Olympics, which ended in the murder of 11 Israelis by their Palestinian captors after a bungled rescue attempt by



German police, the MoD drew up new guidelines based on the knowledge that a well-trained terrorist group would be capable of arming a stolen nuclear weapon "within a small number of hours", and cleared a "recapture force", led by the SAS, to open fire on hijackers and any hostages to regain or destroy the bomb. The rules of engagement, which were later extended to American forces based in Britain, stated that the potential devastation caused by the detonation of a stolen nuclear weapon meant that

hostages were "lower-value pawns" whose safety should not "deter the taking of decisive, prompt and effective action" against terrorists. A memo from a senior MoD official, written in March 1973, marked "Secret UK Eyes A", said: "When something as sensitive as a nuclear device is involved, time is of the essence, and hostages do assume a lower value as pawns in the game where the stakes are so high." The heavily weeded document makes it clear that defence officials took seriously the threat of a terrorist incursion on a British or American airbase, or an attack on one of the convoys used to shuttle missile components and warheads between storage bases and active units. An internal MoD report, entitled Security of Nuclear Weapons and dated 24 November 1972, less than three months after Munich, said: "There [is] a potential risk of hijackers from such extremist organisations as the Black September Movement, PFLP or the IRA manning a determined and well-planned attack using a group of the equivalent strength of the Munich Olympic attack and employing automatic weapons, grenades and possibly other devices. "Because of the political consequences and potential danger of a successful hijacking, it would be imprudent and irresponsible not to have

adequate counter measures." The file refers to the formation of a special SAS unit, codenamed Pagoda, which was set up in the aftermath of Munich to deal with terrorist hijackings and hostage situations, as a response team to retrieve a missing bomb. Members of Pagoda were used to end the Iranian embassy siege in 1980. Officials outlined two "catastrophic" scenarios, the overcoming of "electro-mechanical arming devices" by terrorists to produce a "nuclear yield" or explosion and the use of conventional explosives to blow up the plutonium core of a bomb. The document warned: "If a stolen weapon were blown up by terrorists in the UK, there would be widespread radioactive contamination leading to death and serious illness among many people exposed to the contaminant and also entailing the evacuation and cleansing of many acres, with costs running into hundreds of millions of pounds. It would be a disaster on a unique scale and completely unlike that of the most serious terrorist incident to date." In the face of such consequences, officials declared that a shoot-to-kill policy was permitted against a retreating terrorist "even though this may endanger the lives of hostages or others". The rules of engagement stated: "Although the safety of hostages and other innocent persons which such action may place directly at risk will be given due consideration, it will not, given the potentially very grave consequences of a successful theft, deter the taking of prompt and effective action."

Προσπάθεια να ριχτεί φως στη δομή του νέου ιού της γρίπης H1N1

Ενδιαφέρουσα ιστορική αναδρομή που προσπαθεί να καταδείξει πως ο χρόνος και οι συνεχείς μεταλλάξεις κατασκεύασαν την νέα απειλή για την ανθρωπότητα. Ίσως τελικά η φύση είναι πολύ καλύτερος γενετικός μηχανικών από τους ανθρώπους που την πληγώνουν...

How Time and Mutations Engineered the New H1N1 Strain

Once Upon a Time there was a little flu virus. It was probably born in Kansas in late 1917 or 1918, although nobody is really sure. Its name was H1N1. It grew up to be very wicked. The story of the new strain of swine influenza now circling the world actually starts a lot farther back than the 20th century, but the year the "Spanish influenza" appeared is a good place to start. From the second week in March 1918, when soldiers at an Army camp in Kansas began to get ill, until the final mini-waves of 1920, the Spanish flu infected about 97 percent of the people on Earth and killed at least 50 million of them. The virus probably came from waterfowl, which carry dozens of different flu viruses. At some point, either before or after it got into human beings, the virus got into pigs, a species that can be infected by avian and human strains. It has stayed in swines ever since, and in people for almost as long. The swine-origin influenza A (H1N1) virus circulating in Mexico, the United States and Canada, and present in two dozen other countries, is a descendant of the Spanish flu H1N1 virus. In the past 90 years, though, a lot of new blood -- metaphorically speaking -- has entered its lineage. It does not look or act much like its notorious ancestor. This might be a good place to address this A and H and N business. Influenza virus is part of a family called Orthomyxoviridae. There are four sub-classifications -- influenza virus A, influenza virus B, influenza virus C and togotoviruses. It's like citrus fruit, which encompass oranges, lemons, limes, grapefruit, etc. Influenza A and B cause illness in people; the others almost never do. There are many, many types of influenza A but only one influenza B. The diversity of influenza A arises from variations in the two proteins on its surface, called hemagglutinin (abbreviated H or HA) and neuraminidase (N or NA). Together, the proteins make up the face that a flu virus presents to the immune system of a bird, a pig or a human being. In this setting, the face's appearance is no small matter. The immune system's ability to recognize a virus is one of the first steps in stopping it. One strategy involves antibodies. They attack only if they are tailor-made for the virus, which requires the immune system to get a good look at the surface proteins. The immune system can offer the best protection if it has seen the pathogen before and has the right antibodies ready. Think of H as hair and N as nose, two features for learning and remembering the identity of a virus. In the world of influenza A, there are 15 subtypes of H (straight blond, wavy red, short black, kinky black, etc.) and nine subtypes of N (Roman, ski

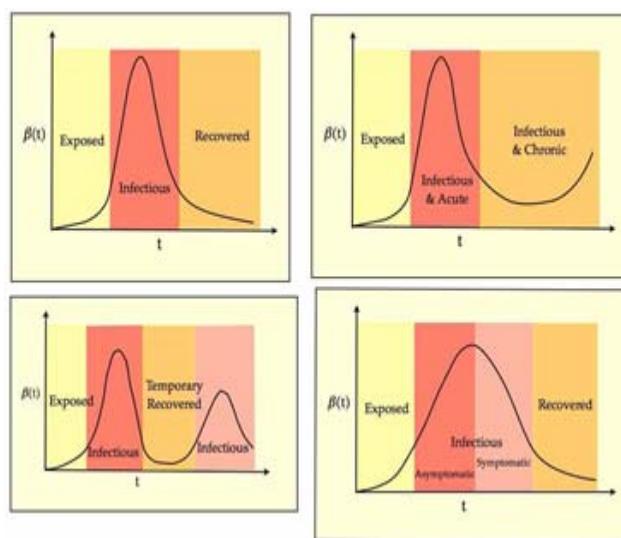
jump, flared, long, etc.). Each subtype is numbered -- H1N1, H3N2, H9N2 and so forth. H1N1 is simply one combination of two of these subtypes that give the virus an appearance recognizable to the immune system -- say, short black hair and a long nose. Within these subtypes, however, there are subtle -- and sometimes not so subtle -- variations. They arise from mutations in the genes governing the H and N proteins. Over time, an H1N1 influenza A virus can change its appearance significantly through random mutation. It can streak its short black hair and put a gold stud in its long nose one year, and shave its hair into a Mohawk and add a diamond stud in the other nostril the next. Pile up enough of these, and pretty soon the immune system no longer recognizes it as the virus with the short black hair and the long nose it once knew -- *even though it still fits that description*. That is why the Spanish flu virus, the new swine flu virus and some of the human flu viruses circulating in recent winters can all be H1N1 viruses and yet look and behave so differently. Research in the past few years on the Spanish flu virus -- which has been reconstructed from fragments extracted from lung-tissue samples from people who died in 1918 -- has revealed that much but not all of its killing potential resided in the H protein. One of the reassuring things about the new swine flu strain is that it does not have those same "virulence factors," even though it shares the same broad H1N1 features. Studies done in the past two weeks suggest that people who have received flu shots in the past few years -- shots that protect against the most common human H1N1 strain in circulation -- are not protected against this swine flu strain, even though it also is H1N1. Why? Because it looks so different to the immune system that the virus-killing antibodies do not react. Such is the importance of looks, immunologically speaking. The human H1N1 flu virus -- and it's "human" only because it is in us -- that circulates each winter changes a little bit year to year in a phenomenon called "antigenic drift" as mutations creep into the H and N genes. But it can also change much more rapidly through something called "antigenic shift," which happens when entire H or N proteins (or both) are swapped out wholesale for new versions. This is possible because influenza's genes are on eight separate strands, or "gene segments." One or two or more can be replaced, like cards in draw poker. That's a rare event, however, and requires that two flu strains invade a single cell, replicate and then get their products mixed up in the packaging. The result is a virus dramatically different in immunological appearance, and sometimes in disease-causing capability, from either parent. One way or another, a new influenza virus with the identity of H2N2 appeared in 1957. Because it was a new combination, nobody had immunity. It was called "Asian flu," and it spread everywhere, outcompeting H1N1 strains, which disappeared in people but remained in pigs. In 1968, another strain, an H3N2 combination, appeared on the scene. Nobody had immunity to it either. It had a world's worth of susceptible victims and caused the "Hong Kong flu" pandemic that year and the next. In 1977, a strange thing happened. The H1N1 virus, absent for years in people, reappeared. Curiously, it was almost exactly like the last strains in the 1950s. It was so close, in fact, that many people suspect it was released into the world by mistake from 1950s samples kept in a lab freezer. Whatever the source, it spread widely as the "Russian flu," infecting lots of people born after the disappearance of H1N1 two decades earlier. Since then, H1N1 and H3N2 strains have been circulating, mutating in small ways, and infecting new victims year to year. At the moment, the dominant H1N1 strain is one called A/Brisbane/59/2007. By chance, the dominant H3N2 strain was also found in Brisbane, Australia, in 2007 and is named A/Brisbane/10/2007. Influenza B, which has caused about one-third of infections in the United States this flu season, is dominated by a strain called B/Florida/04/2006. But now comes a whole new H1N1 virus. It is formally labelled A/California/04/2009 (see graphic), and it was taken from a 10-year-old boy in San Diego who came down with the flu on March 30. It has an H from an H1N2 virus circulating in American pigs and an N from an H1N1 virus found mostly in Eurasian ones. Our immune systems, familiar with other H's and N's, do not know what to make of it. We have no antibodies against the combination, so we have no protection against it. And we will generate antibodies only if we get infected by the virus or vaccinated with a killed version of it; either way will teach the immune system what it looks like. This is the swine flu or, as the federal government likes to call it, confusingly but inoffensively, the H1N1 strain. It's coming soon to a neighbourhood near you. But we don't yet know how this tale will end.

Πρόβλεψη πανδημιών

Επίκαιρο θέμα των ημερών μας καθώς από τις 11 Ιουν 09 η παγκόσμια κοινότητα τελεί σε καθεστώς πανδημίας εξαιτίας του νέου ιού A(H1N1). Η ομάδα του Bahman Davoudi από το British Columbia Centre for Disease Control του Canada προσπαθεί να προσδιορίσει τον αριθμό αναπαραγωγής (R_0) που αποτελεί κεφαλαιώδη παράμετρο για την πρόβλεψη της εξέλιξης μιας πανδημίας.

How to Predict Pandemics

A new technique could dramatically improve our ability to determine whether a pandemic is likely at the beginning of an infectious outbreak. In the last couple of weeks, mathematical epidemiologists around the world have been racing to determine how swine flu will spread. The puzzle centres on a quantity known as the reproduction number (R_0) which is a



fundamental property of any infectious disease. It is defined as the expected number of new infections caused by a typical individual during the whole period of his or her infection, in a totally susceptible population. R_0 is important because epidemiologists can use it to determine the final size of an outbreak. But estimating R_0 in the early stages of an outbreak, when it is most useful, is hugely difficult. Today, Bahman Davoudi from the British Columbia Centre for Disease Control in Canada and a few friends propose a way to estimate R_0 far earlier in an outbreak than has been possible before. And that may have important

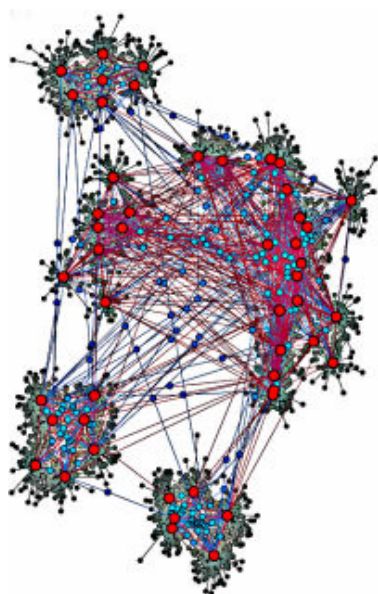
implications for the way governments control the spread of new diseases in future. The new method determines R_0 using three quantities that can be measured early in an outbreak. The first is the infection rate probability which, for viral diseases, is related to the viral load of infectious individuals and can be calculated from their blood serum. The second is the removal rate probability: how quickly individuals are removed from the scenario through factors such as death, quarantine and other means to reduce social contact. This is also relatively straightforward to measure early on. The final factor is the rate at which new cases appear which again can be measured early in an outbreak. What's interesting about this method is that Davoudi and co then use this information to see how the disease spreads using our existing knowledge of social networks--for example, how often people meet and where. That's what makes the approach so powerful. They've tested the model in various simulations and say it gives them an accurate value for R_0 right at the start of an outbreak. What's more, it's possible to calculate R_0 in real time as the outbreak begins. That could make this a hugely valuable tool for determining how common diseases spread such as less virulent forms of flu and also for planning a response to the next outbreak on the local, national and even the global scale.

Υπολογισμός της ταχύτητας διάδοσης μιας νόσου

Στο ίδιο μήκος κύματος με το παραπάνω άρθρο, επιστήμονες από τα Πανεπιστήμια του Liverpool και Warwick προσπαθούν να υπολογίσουν με μαθηματικά/υπολογιστικά μοντέλα την ταχύτητα διάδοσης μιας νόσου.

Scientists to calculate the speed with which disease can spread

The speed with which killer diseases such as the swine flu in Mexico could spread through the British population is being investigated by scientists at universities in Liverpool and



Warwick. In light of the outbreak in Mexico and the threat of a pandemic, it's essential that Government and UK health authorities understand the speed with which these diseases could spread in the UK. Britain leads the world in research into infectious diseases and two of the world's leading authorities are carrying out the survey, which involves answering a questionnaire on the Internet. Also, 100,000 printed questionnaires are being posted in the next few days to schools and the public. Recipients are asked how many people they came into contact with on a specific day – and how many of those they actually touched, giving details about when and where the contacts occurred. Leading figures such as Professor Stephen Hawking, record-breaking runner David Moorcroft and television historian and writer Adam Hart-Davis are appealing for as many people as possible to complete the survey – and for as many days as possible. The project is being funded by the Medical Research Council and spearheaded by Professor Matthew

Keeling, a government advisor and mathematical biologist at the University of Warwick who is a specialist in human and livestock diseases, and Dr Jonathan Read from the University of Liverpool, who is researching the transmission and evolution of infectious diseases. "We need to know the patterns of social interactions to enable us to better predict and control the spread of infections – such as pandemic flu," said Professor Keeling. "There's a lot known about people's sexual contacts – but there's little or no data about routine social or physical contact with others. No other country is carrying out this research in this much detail. "There are understandable growing concerns about the current situation and a possible pandemic; we need to find out as much as possible about social contacts," he said. Dr Read, who has just returned from a project studying the spread of flu in China, said that the UK led the world in this field of research. "We will be sharing our findings with scientific communities around the globe," said Dr Read. The questionnaire is easy to complete and asks participants to list all the people they met on a particular day, detailing for how long, whether at home, in the workplace or socially, how often they met and, most importantly, how many of those people they actually touched. "From the results we will have a much better idea of how quickly an epidemic could spread, and the measures that would be needed to control it," said Dr Read.

Νικοτίνη και βιοτρομοκρατία

Επιστημονική ομάδα από το University of Brighton ανακάλυψε ότι η νικοτίνη μπλοκάρει τις καταστρεπτικές, για τους ιστούς, δράσεις της τοξίνης ρικίνης. Το εύρημα αυτό μπορεί να οδηγήσει στην κατασκευή ειδικών αντιδότην που θα επιτρέψουν την αποτελεσματικότερη αντιμετώπιση των θανατηφόρων περιστατικών.

Nicotine may prevent bioterrorism damage

British scientists say they've determined nicotine can delay the effects of ricin used during a bioterrorism attack. Jon Mabley and his colleagues at the University of Brighton found nicotine works to block the tissue-destroying effects of ricin -- a highly toxic compound derived from castor beans. The study was conducted in laboratory models, but the scientists said nicotine agonists could potentially be used in patients exposed to ricin as a stopgap measure before other treatments take effect. The British investigators studied the effect of nicotine on animals exposed to ricin and found it reduced death and organ failure. "The

protective effect of nicotine appears to be associated with its anti-inflammatory effect, suggesting a possible therapeutic strategy of activating the cholinergic anti-inflammatory pathway following ricin exposure to protect against multiple organ failure," the scientists said. "The overall effect of nicotine on maintaining liver and kidney function, while reducing systemic inflammation, may account for the reduced mortality observed with ricin exposure." Activation of the anti-inflammatory cholinergic pathway is now undergoing testing to reduce inflammation in a wide range of diseases. The study appears in the journal *Molecular Medicine*.

Στον βωμό της ελευθερίας του λόγου...

Το γνωστό και ιδιαίτερα ενημερωτικό τηλεοπτικό κανάλι al Jazeera έδωσε τον λόγο σε καθηγητή από του Κουβέιτ που υποστήριξε ότι οι τρομοκράτες πρέπει να κάνουν χρήση βιολογικών πολεμικών ουσιών κατά των ΗΠΑ προκειμένου να προκαλέσουν τον θάνατο εκατοντάδων χιλιάδων πολιτών. Ο φόβος χρήσης XBP όπλων από τους τρομοκράτες είναι πάντα υπαρκτός. Όλοι όμως αυτοί οι εκφραστές της αντιπαράθεσης των πολιτισμών δεν έχουν σκεφτεί ποτέ ότι μπορεί τα πράγματα κάποια στιγμή να αντιστραφούν; Ότι οι «σταυροφόροι» όπως ονομάζουν οι ισλαμιστές τρομοκράτες συλλήβδην του Δυτικού διαθέτουν ήδη το οπλοστάσιο που οι ίδιοι διακαώς επιθυμούν και επιδιώκουν...;

Al-Jazeera Airs Call for Biological Attack

Al-Jazeera recently aired footage of Kuwaiti professor Abdallah al-Nafisi. In the video, translated by the Middle East Media Research Institute (MEMRI), Nafisi expresses ardent support for terrorism, and suggests that terrorists use biological warfare against the United States in order to kill hundreds of thousands of civilians. Nafisi also suggests that Muslims pray for the success of white supremacist groups that seek to carry out attacks within the U.S. In addition, Nafisi attacks those in the Arab world who he perceives as traitors, to laughter and applause from his audience. Among those in the Arab world who should be silenced using "any means possible" are journalists who oppose terrorism, anyone who supports dialogue with Jews, and senior Palestinian Authority officials Saeb Erekat and Mahmoud Dahlan, Nafisi says. One group that has won Nafisi's support is Hamas. According to Nafisi, Hamas' virtue is made clear by the fact that its politicians are personally involved in attacking Israel. Another group Nafisi praises is Hizbullah, which he claims has advanced weapons laboratories and even exports weapons to eastern Europe.

eBay: Οντως μπορείτε να αγοράσετε ότι φαντάζεστε!

Κάποιος αγόρασε έναν μεταχειρισμένο οδηγό δισκετών από το διαδικτυακό eBay. Φανταστείτε την έκπληξη του όταν μέσα στη συσκευή βρήκε μια δισκέτα που περιείχε εξαιρετικά απόρρητες πληροφορίες για το αμερικανικό πυραυλικό σύστημα όπως λεπτομέρειες για το πυραυλικό σύστημα που χρησιμοποιήθηκε για την κατάρριψη των πυραύλων Scud στο Ιράκ καθώς και σχέδια των εγκαταστάσεων της τεχνολογικής εταιρείας Lockheed Martin που κατασκεύασε το σύστημα!!!

U.S. missile defence system

Highly sensitive details of a US military missile air defence system were found on a second-hand hard drive bought on eBay. The test launch procedures were found on a hard disk for the THAAD (Terminal High Altitude Area Defence) ground to air missile defence system, used to shoot down Scud missiles in Iraq. The disk also contained security policies, blueprints of facilities and personal information on employees including social security numbers, belonging to technology company Lockheed Martin - who designed and built the system. A missile launch in California: Details of the ground-to-air defence system were found on a computer

hard drive. British researchers found the data while studying more than 300 hard disks bought at computer auctions, computer fairs and eBay. The experts also uncovered other sensitive information including bank account details, medical records, confidential business plans, financial company data, personal id numbers, and job descriptions. The drives were bought



from the UK, America, Germany, France and Australia by BT's Security Research Centre in collaboration with the University of Glamorgan in Wales, Edith Cowan University in Australia and Longwood University in the US. A spokesman for BT said they found 34 per cent of the hard disks scrutinised contained 'information of either personal data that could be identified to an individual or commercial data identifying a company or organisation.' And researchers said a 'surprisingly large range and quantity of information that could have a potentially commercially damaging impact or pose a threat to the identity and privacy of the individuals

involved was recovered as a result of the survey.' Two disks appear to have been formerly used by Lanarkshire NHS Trust to hold information from the Monklands and Hairmyres hospitals including patient medical records, images of x-rays, medical staff shifts and sensitive and confidential staff letters. In Australia, one disk came from a nursing home and contained pictures of patients and their wounds. Confidential material including network data and security logs from the German Embassy in Paris were also discovered on a disk from France. And the trading performances and budgets of a UK-based fashion company, corporate data from a major motor manufacturing company were discovered along with details of a proposed 50 billion currency exchange through Spain involving a US-based consultant. Dr Andy Jones, head of information security research at BT, who led the survey, said: 'This is the fourth time we have carried out this research and it is clear that a majority of organisations and private individuals still have no idea about the potential volume and type of information that is stored on computer hard disks. 'For a very large proportion of the disks we looked at we found enough information to expose both individuals and companies to a range of potential crimes such as fraud, blackmail and identity theft. 'Businesses also need to be aware that they could also be acting illegally by not disposing of this kind of data properly.' Dr Iain Sutherland of the University of Glamorgan said: 'Of significant concern is the number of large organisations that are still not disposing of confidential information in a secure manner. In the current financial climate they risk losing highly valuable propriety data.' A spokesman for Lockheed Martin, who make the THADD launch system, said: 'Lockheed Martin is not aware of any compromise of data related to the Terminal High Altitude Area Defence programme. 'Until Lockheed Martin can evaluate the hard drive in question, it is not possible to comment further on its potential contents or source.' A spokesman for NHS Lanarkshire said: 'This study refers to hard disks which were disposed of in 2006. At that time NHS Lanarkshire had a contractual agreement with an external company for the disposal of computer equipment. 'In this instance the hard drives had been subjected to a basic level of data removal by the company and had then been disposed of inappropriately. This was clearly in breach of contract and was wholly unacceptable.' The spokesman said the trust now destroy equipment containing data on the premises, so no longer use external companies to dispose of IT equipment.

Νέοι ανιχνευτές χειρός για χημικές και βιολογικές πολεμικές ουσίες

Μια νέα σειρά χημικών και βιολογικών ανιχνευτών χειρός από την εταιρεία Smiths Detection. Η HazMatID Ranger μπορεί να διακρίνει μεταξύ 32.000 άγνωστων στερεών ή υγρών ουσιών που αφορούν στερεά, υγρά, λευκές σκόνες, εκρηκτικά, κοινά και τοξικά βιομηχανικά χημικά. Η συσκευή Bio-Seeq PLUS δίνει on-site αποτελέσματα σχετικά με τις πλέον σημαντικές βιολογικές απειλές ενώ το νέο μοντέλο χημικού ανιχνευτή LCD 3.3 αποτελεί εξαιρετικά χρήσιμο βοήθημα στον τομέα της ανίχνευσης των σύγχρονων χημικών όπλων.

Smiths Detection rolls-out handheld chemical and biological agent detectors

It may be a sad reflection of the times we live in, but there's a growing worldwide demand for devices capable of detecting chemical, biological, radiological, and nuclear (CBRNE) threats. Detecting such threats in a laboratory environment is all well and good, but to really save



lives such detection needs to be carried out at the site of the threat.

That means a detection device that offers lab quality results with a portable form factor - both qualities that Smiths Detection promises in its range of threat detection systems now being rolled-out worldwide.

The first is the HazMatID Ranger, a device introduced in the US last May that is able to identify over 32,000 unknown solids or liquids including white powders, WMDs, explosives, common and toxic industrial chemicals. Smith

Detection claims this is the most

extensive library available throughout the global market. The device has also been specifically designed with portability as a priority featuring single-handed operation to suit a range of field applications. It can also be used in tandem by two responders by detaching the unit's PDA computer and utilizing Bluetooth connectivity. Results can then be transmitted to an external laptop for integration with test results performed by other Smiths Detection equipment. Secondly, Bio-Seeq PLUS is a handheld biological testing unit designed for global military and emergency response applications to biological threats. The system provides on-site detection and identification of trace amounts of biological warfare agents such as Anthrax (pX01 & pX02), Tularemia, Plague and Pan Orthopox. The units were not only designed for portability, but also for ease of use by those who may have little to no biological testing experience. An interface guided by easy-to-follow software prompts makes the Bio-Seeq PLUS easy to use with one hand, even when wearing protective gear. Smiths Detection has also announced the global launch of the newest model in its Lightweight Chemical Detector series, the LCD 3.3. This new detector is an individual hazardous vapor warning device that offers real-time detection of nerve, blood, blister and choking agents at, or immediately below, dangerous concentration levels. Smiths Detection is touting the LCD 3.3 as the most advanced chemical agent detector of its kind in the world. It features a non-radioactive source to identify unknown substances and has been sufficiently ruggedized for both military and emergency responder use. As well as enabling troops and emergency responders to mitigate chemical incidents in military and civilian attacks more quickly, the device also records and stores key data for post-mission analysis.

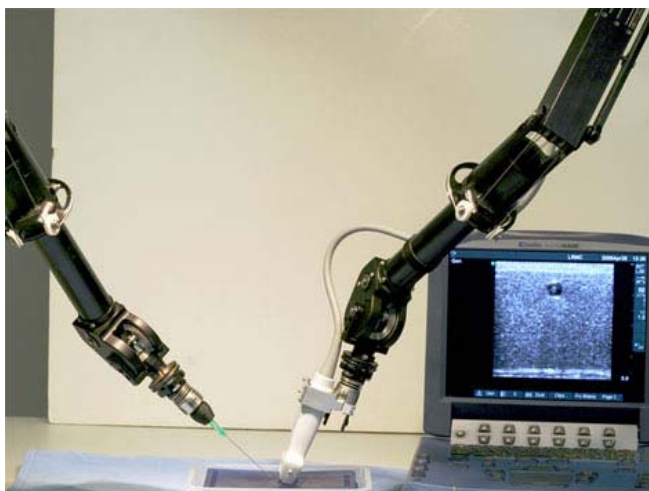
Μια εικόνα από το μέλλον που είναι ήδη παρόν

Νέοι στρατιώτες από την εταιρεία Segways για την αντιμετώπιση IEDs και ελέγχου του όχλου που αναμένεται να ελαχιστοποιήσει τον κίνδυνο για το προσωπικό ασφαλείας

Robotic Task Force: A Two-Robot, Bomb-Defusing, Riot-Controlling, Firefighting Team

Fact: Two new robots unveiled at the 2009 Robobusiness conference in Boston are specifically designed to steal jobs from hard-working, flesh-and-blood Americans.

More relevant fact: As usual, the jobs in question are the sort of thankless, dangerous and unsavory work that most humans would run screaming from.

Dirty-Bomb Disposal

The robot with the dirtier, and arguably more dangerous job description is an advanced explosive ordinance disposal unit. This bot, a collaboration between Segway Robotics and SRI International, allows a remote operator to defuse a bomb with surgical precision. That's not an exaggeration the robot is a wheeled platform for SRI's M7 telesurgery system, which surgeons (such as PM contributor Ken Kamler) have used to suture simulated flesh in

a range of environments, including microgravity. The purpose of this unnamed drone, according to SRI, would be to handle the bombs and IEDs of the future; advanced threats that can't be neutralized by a slap from a robot's pincer or a burst of high-pressure water. "Inevitably, there are going to be complex devices, like a dirty bomb or a chemical dispersal system, that are going to require an expert to technically deactivate the device, rather than just disrupt it," says Thomas Low, director of the medical systems and devices program at SRI. To provide a greater range of motion for its operator, surgical arms are mounted on Segway's RMP 50 Omni, a unique mobility platform that uses mecanum wheels essentially wheels consisting of multiple tiny wheels to slide around the target. The goal is for the remote technician to focus on the business of bomb disposal while the robot makes its own adjustments, autonomously gliding an inch to one side for a better angle on a wire, and back in the other direction to snip the next wire. Unfortunately, the system was displayed here at Robobusiness without its twin arms (the mecanum-wheeled platform was unveiled at last year's conference in Pittsburgh), looking more like a self-guided shelving system than a slayer of radiological dragons. SRI hasn't announced a potential price or testing schedule for the robot, but Low believes there's enough of a market to pursue testing. As a worst-case-scenario backup plan, he sees customers tucking units away in high-value targets like airports or the Pentagon.

Riot Control and Fighting Fires



The other robot unveiled by Segway Robotics is an entirely different kind of saviour the kind you send into a hail of rocks and Molotov cocktails. Based on the company's existing four-wheeled, 240-pound RMP 400 robotic platform, the prototype can travel at a blistering (by ground robot standards) 18 mph, and is armed with a water cannon capable of firing 10

gallons of liquid per second. While that makes the robot a natural fit for fighting forest fires (where Segway believes that one operator could do the work of three exhausted fire-fighters, either piloting it remotely or using the controls mounted on the rear of the vehicle) or responding to fires near pressurized tanks or other explosives, the mounted water cannon is the same kind used by Israeli authorities for riot control. That's no coincidence. "Once you adjust the settings, that cannon will knock down a whole line of people," says Will Pong, director of robotics at Segway Robotics. When the company begins its marketing push for the water-cannon variant of the RMP 400 (shown navigating roadways to the sound of shredding guitar in the video below) within the next six months, Pong expects nearly all of the sales to be geared toward fighting fires, with a small but significant number of units snapped up for crowd control. He also expects customers to modify the robot to their own specs, reinforcing it with Kevlar or other armor as they see fit. If Segway succeeds in getting the RMP variant's initial price, estimated at \$100,000 or more, down to \$50,000, it could be only a matter of time before units show up around the world and street protests start looking like nothing less than the opening skirmishes in a war with the machines.

Το καμουφλάζ του μέλλοντος

Η απόκρυψη και η εναρμόνιση με το περιβάλλον είναι διαχρονικά ένα από τα βασικά ζητούμενα στο πεδίο των επιχειρήσεων. Σύμφωνα με τους ερευνητές των Sandia National Laboratories δεν απέχει πολύ ο καιρός που οι στολές θα αλλάζουν χρώματα ανάλογα με το περιβάλλον και θα επιτρέπουν στον μαχητή να είναι σχεδόν μη ορατός ανεξάρτητα εάν βρίσκεται σε πυκνό δάσος ή στην έρημο.

US company envisions chameleon camouflage

Imagine a uniform that changes colour like a chameleon to match the surrounding environment, allowing a soldier to remain camouflaged while moving from the desert to the sea. Sandia National Laboratories researchers have demonstrated that, in theory, they could cause synthetic materials to change color like chameleons or certain fish species. They believe their work could lead to color-changing material in five to 10 years. Demonstrating that color changes are possible in the lab is the first step toward developing camouflage clothing that works at the nanoscale level, said principal investigator George Bachand. Nanoscale refers to atomic and molecular scale _ the head of a pin is about a million nanometers, for example. «Just the ability to change those two states (colors) back and forth allows us now to understand how to do that in an artificial environment,» said Bachand, whose background is in bioengineering. «It's the first proof we can do it. That will allow materials engineers to move forward to create materials with color-changing properties, he said. «The long-term goal and payoff has a number of different applications, both in civilian applications as well as military ones,» Bachand said. «There's always this concept of the national labs being involved in highly secret, covert work they can't talk about, but a lot of work ... has many facets that can affect our lives. The idea of developing materials that could sense their environment and change to fit it seemed like a good target, said Bachand, who has worked on the process for most of his eight years with Sandia. «What really are some things nature and living systems can do better than our manmade systems can? One of the great aspects nature has evolved is the ability to sense and adapt to the environment,» he said. That biological property could lead to materials that change with surrounding conditions _ not just color, but in the longer range, properties such as breathability or temperature control, he said. A typical spring day in New Mexico, for example, starts out cold and gets warm. Instead of people dressing in layers, Bachand envisions a shirt that changes its thermal properties. Or for military use, he envisions a material that's able to allow air exchange for comfort but changes if it comes into contact with a chemical warfare agent «so it doesn't allow that to cross the material boundary. Sandia's work, mimicking biology, relies on a basic cellular fuel called ATP, which releases energy as it breaks down. About half that energy is absorbed by the motor proteins _ tiny proteins within a cell that are responsible for moving materials around. Sandia's work takes motor proteins from a living cell and puts them into a system that uses a glass slide or a

silicon surface such as those used for making computer chips, along with an artificial pigment crystal for color change, Bachand said. He likens it to a complex of railroad tracks within a single cell, with the motor protein serving as the locomotive to move things. Color-changing fish have specific cells in their skin that use motor proteins to aggregate or disperse pigment particles. Bringing the cells tightly together or spreading them out changes the color on the fish, Bachand said. Think of it like an ink jet printer that uses red, yellow and blue to make a black spot. Taking those individual droplets and dispersing them along a page produces a much different color from putting them together on a tiny spot. In the long run, motor proteins won't be used to produce a camouflage fabric because they require liquid to function, Bachand said. But the work with such proteins shows it's possible to create that kind of change outside a living system, he said. Henry Hess, a professor in the University of Florida's department of materials science and engineering who researches biomolecular motors, said he believes the path Bachand is pursuing has advantages. «One is, of course, we know it works because we see it used by fish and other animals to camouflage themselves. Second, it's really a materials response and not a device.» Hess said in a telephone interview from his office. Hess, who has worked with Bachand in the past, cited the evolution of the bright red uniforms of the 18th century to the gray uniforms of the Civil War to today's patterned uniforms. «This is sort of the 21st century approach to creating material that can be dramatically adapted,» he said. A paper describing Sandia's research was published in the journal *Biotechnology and Bioengineering* last October. The work also was the subject of a cover article in the Dec. 2 edition of the journal *Advanced Materials*. While nature uses complex signaling mechanisms to make colors change, Sandia had to come up with a simpler way of turning the motor on and off. What Bachand and his colleagues did, in essence, was shackle the protein. Researchers linked a metal atom to the sides of the protein, immobilizing it to keep pigment particles in one state or the other _ as if someone walking along a railroad track had their feet frozen in place, he said. «It physically keeps it from moving and keeps the color where we want it» Bachand said. The process also is reversible. Clothing that automatically camouflages will depend on scientists' ability to develop a series of engineered pigment crystals in nanosize, Bachand said. «You could use those three colors in different ratios to get a whole range, just like an ink jet printer does» he said. «It's just a matter of how you manipulate those different particles to get the different colors.

Πρόοδος στο νέο φάρμακο κατά της τοξίνης του άνθρακα

Το νέο φάρμακο Anthim της εταιρείας Elusys εισέρχεται σε νέα φάση κλινικών δοκιμών. Βασισμένο στην τεχνολογία των ανθρώπινων μονοκλωνικών αντισωμάτων στοχεύει το προστατευτικό αντιγόνο της τοξίνης του άνθρακα.

Elusys' Anthrax Anti-Toxin, Anthim™, Enters Second Phase I Clinical Study

Elusys Therapeutics, Inc. (Elusys), a privately-held biopharmaceutical company developing antibody-based therapies for the treatment of life-threatening infectious diseases, announced the initiation of a second Phase I human safety trial of Anthim(TM), a high-affinity humanized and deimmunized monoclonal antibody targeting the anthrax toxin protective antigen. The Phase I dose-escalation trial is planned to enroll 45 healthy volunteers and is designed to expand the human safety database. Elizabeth Posillico, Ph.D., President and Chief Executive Officer of Elusys, commented, "We are extremely pleased with the success of our development program for Anthim. Our drug consistently demonstrates remarkable efficacy in treating anthrax infection in animal models and is a strong candidate for addition to the Strategic National Stockpile." The Company also reported the results of a previously conducted animal efficacy study. A single dose of Anthim provided a significant survival benefit (up to 94 percent survival in treated rabbits vs. 0 percent in controls) when administered to symptomatic rabbits. These results are consistent with several previous rabbit and primate studies that Elusys has conducted and show the dramatic protective effect of Anthim. Dr. Leslie Casey, Vice President of Research, commented, "Anthim has shown

significant life-saving potential even when given in a single dose to symptomatic animals many hours after anthrax exposure. In earlier animal studies, Anthim provided 100 percent protection when given within 12 hours of an anthrax exposure. These results have been consistent across studies whether Anthim was used with or without antibiotics. Our first Phase I human safety study demonstrated that Anthim is safe and well-tolerated as a monotherapy and as a combined therapy with the antibiotic ciprofloxacin. This second study will continue to expand our safety database and provide additional pharmacokinetic data." Dr. Posillico added, "Death from the effects of anthrax toxin can occur in a few days if patients are not treated quickly. We are very excited about Anthim because the results of all of our studies show that treatment with Anthim has the potential to provide significant therapeutic benefit for people infected with anthrax in a bioterrorism emergency." Currently antibiotics represent the only therapeutic option for anthrax infection. Antibiotics target the bacteria, but can still fail to prevent death from the damaging effects of anthrax toxins. In addition, antibiotic resistant strains of anthrax could be used in a bioterror attack, making the medical need for anti-toxin therapy even more acute.

Αισθητήρες μιας χρήσης για την ανίχνευση ραδιενεργών απειλών

Η εταιρεία Sichel Technologies ανακοίνωσε πρόσφατα ότι σε συνεργασία με την εταιρεία Gentag πρόκειται να κατασκευάσουν τους πρώτους παθητικούς (χωρίς μπαταρία) ασύρματους αισθητήρες μιας χρήσης για την ανίχνευση ραδιενέργειας στα εμπορευματοκιβώτια

Disposable Sensors Detect Radiation Threats

Sichel Technologies announces that it has entered into a strategic partnership with Gentag to create the world's first passive (no battery), disposable, wireless Radio Frequency Identification (RFID) sensor to detect radiation threats in shipping containers using modified cell phone technology. The patented technology is a combination of Sichel Technologies' medical radiation sensor technology and Gentag's wireless sensor platform. The technologies can be integrated with standard LF, HF or UHF RFID technologies or Radar Responsive Sensor Tags, allowing the miniature radiation sensors to be read from distances ranging from one inch to 12 miles. Sichel's expertise in manufacturing FDA-cleared radiation sensors, combined with Gentag's platform technology, will allow the companies to develop and produce a low-cost threat detection solution. The technology can be used with cell phones that incorporate both an RFID reader and a sophisticated CZT isotopic radiation detector allowing immediate validation and GPS location of any potential threat. The chip can also be modified to include low-cost printable chemical sensors." This technology has the potential to revolutionize threat detection in the global transportation and shipping industries worldwide," says Michael Riddle, President and CEO, Sichel Technologies. "We are gratified and excited that our innovative medical device has the unique versatility to not only help save people from a healthcare perspective, but now also by helping to make our shipping and transportation industries safer from potential threats. Under the terms of the agreement, the companies will seek to license their combined intellectual property for developing container and shipping monitoring systems for the US Government, the North Atlantic Treaty Organization (NATO) and other countries, under a competitive bidding process. "These new wireless threat sensors can be produced so affordably that they could feasibly be integrated into every shipping box used worldwide to immediately warn of potential radiological or chemical threats. The technology represents a new step for us towards the creation of ubiquitous mesh wireless sensor networks," says Dr. John Peeters, President & CEO Gentag. "By overlaying the CZT technology, cell phones, and standard RFID technologies, any labeled box containing a potential radiological threat can be immediately authenticated and triaged. It is estimated that there are 200 million container trips per year and billions of packages are shipped every year that could be tagged with this new technology."

Εποχούμενο χημικό εργαστήριο για την CBIRF

Η παλαιότερη και πλέον γνωστή μονάδα χημικού πολέμου των ΗΠΑ (CBIRF) απέκτησε το δικό της εποχούμενο χημικό εργαστήριο που αναλύει κάθε είδους χημική ουσία

CBIRF's Chem Lab on Wheels

Sometimes, the enemy isn't recognized. Chemical Biological Incident Response Force, II Marine Expeditionary Force Marines and Sailors have a life-saving mission as emergency responders. This requires a lot of different disciplines, one of which is organic to CBIRF. "The mobile laboratory is an analytical suite on a mobile platform," said Dr. Erick Swartz, who is the resident scientist here. "It is designed to analyze gases but more specifically, liquids and solids that give off a gas." With such a state-of-the-art piece of equipment, training on how to use it is vital to its implementation. Being able to recognize the contaminants in a contaminated area, identification and detection platoon (IDP) Marines are imperative to CBIRF's mission. Only Marines with IDP can operate the mobile laboratory and go through extensive training on its usage. "First, Marines must master sampling techniques in a contaminated area," Swartz explained. "Then, they must pass technical classes, including organic chemistry, in which they have to get at least an A- to pass. This class really teaches them to speak like a scientist. Once Marines complete the class, they are able to recognize different materials from alcohols to organic phosphates," he added. IDP Marines effectively use the mobile laboratory to establish how CBIRF Marines and Sailors conduct their rescue operations. "Primarily, IDP Marines identify the hazard to establish clean and dirty routes through the contaminated area. They also identify the hazard to determine the level of [personal protective equipment] and for decontamination and medical purposes," Swartz explained. The mobile laboratory has many different capabilities, including a force preservation factor. CBIRF Marines and Sailors respond to any Chemical, Biological, Radiological, Nuclear, or High-yield Explosive incident using different levels of protection, one being level B, which includes a gas mask and a semi-encapsulated chemical protective over garment. "Once we find out what the contaminant is, we can determine what level of PPE the Marines have to be in, if any. I think it's really important just for that factor, because being [in the contaminated area] in level B all of the time can tire any Marine out," said Lance Cpl. Logan Carr, junior mobile laboratory operator, IDP, Headquarters and Service Company, CBIRF. One of the many stepping stones in training with the mobile lab is putting it to use at the Defense Research and Development Center, where IDP Marines conduct live agent training under the guidance of world-renowned scientists. "Marines must also know downrange analysis using portable analytical instrumentation. This also serves a prerequisite for a mobile lab operator." Swartz added. In order to get the sample that is in the contaminated area, IDP Marines travel into the contaminated area to skillfully collect the samples. "Then, [IDP Marines] bring the samples back to us here at the mobile lab," Carr explained, "and we'll process the sample from there." Undergoing several changes, the mobile laboratory has gone from a simple process to an innovative and state-of-the-art operation, Swartz explained. "The original mobile lab pretty much consisted of a [Gas Chromatograph-Mass Spectrometer] in a van," Swartz explained. "In the old mobile lab, we had a portable separate fume hood on a table," Swartz added. The new mobile lab benefited from several lessons learned. "We designed it with two things in mind; safety and redundant operations, so if we lose something, we'll have a back-up," Swartz explained. "For example, if our hydrogen generator fails, we have a small helium tank that lasts for several days of operation, until the hydrogen generator can be fixed or replaced. For safety, one thing we have is the glove box, which is safer than a fume hood." Leading the way in progressive research, CBIRF is exploring a new way to use the mobile lab with sorbent sampling tubes, which collect most gases and vapors from the air. While the tubes are the size and shape of a pen, they fit onto a Marine's chemical protective over garment. "The sorbent tubes let us analyze what contaminant the Marines are exposed to," Swartz explained. "So, the mobile lab allows us to monitor Marines, when they come through the decontamination line." Having the

right tool for the right job is pivotal in analyzing contaminants, so CBIRF Marines can properly execute their life-saving mission, making them more capable of saving lives.

Προστασία λιμανιών από πειρατές

Οι επιθέσεις των πειρατών στα ανοικτά της Σομαλίας και στον Κόλπο του Aden επανέφεραν στο προσκήνιο την απειλή που αντιμετωπίζουν τα μεγάλα λιμάνια από κάθε είδους τρομοκράτες και εγκληματίες. Στις ΗΠΑ καθημερινά διακινούνται πάνω από 32.000 εμπορευματοκιβώτια. Παρά το γεγονός ότι διενεργούνται έλεγχοι σε ποσοστό που πλησιάζει το 86%, ο κίνδυνος εξακολουθεί να είναι ορατός. Η πρωτοβουλία Megaports (2003) έχει υλοποιηθεί μόνον σε 12 λιμάνια του εξωτερικού και προχωρεί με βραδείς ρυθμούς.

Pirates Attack! Protect Our Ports!

The recent pirate attacks off the coast of Somalia should serve as a reminder that our nation's ships remain vulnerable. Commentators and pundits are frantically devising new methods of increasing security on board U.S. ships to ward off another pirate attack as well as to prevent terrorists from using our nation's ships as a new medium of attack. However, while increased security on board ships is crucial, the battle to secure our nation's shipping must not stop there. The danger is not just off the coast of Somalia, but right here at home. The events of Sept. 11, 2001, prompted increased vigilance in almost all areas of U.S. security. Subsequent terrorist attacks from Madrid to Mumbai cemented the reality of today's terrorism threats into our global consciousness. Yet, more than seven years after the Sept. 11 attacks, the federal government has still failed to implement a comprehensive port security strategy, leaving our nation's ports vulnerable.

The 9/11 Commission's final report, released in 2004, stated that American ports face an even greater risk for terrorism than commercial airplanes.

Every day, more than 32,000 cargo containers pass through U.S. ports. The Department of Homeland Security's Container Security Initiative claims to thoroughly screen as many as 86% of these containers at their points of origin through a series of X-ray and gamma ray machines and radiation detection devices. The ultimate goal is to check 100% of imports by 2012. The U.S. government has spent roughly \$437 million over the last three years to implement CSI. And it has not worked. The 9/11 Commission's final report, released in 2004, stated that American ports face an even greater risk for terrorism than commercial airplanes. These concerns remain valid. Many port security improvements have relied upon "voluntary partnerships" established by the Customs-Trade Partnership Against Terrorism program. Under these partnerships, foreign cargoes are granted "expedited" shipment through U.S. ports if foreign inspection officials agree to comply with U.S. federal inspection laws at the cargoes' ports of origin. This system has failed to provide adequate security. According to a Government Accountability Office report released in April 2005, 28% of the high-risk containers referred to foreign governments for inspection were never actually inspected. Another GAO report, released in January 2008, determined that customs officials had still failed to set "minimum technical criteria for equipment or systematically collected information on the equipment, people, and processes involved" in foreign governments' examinations of "high-risk, U.S.-bound container cargo." The report explains that the U.S. government "potentially lacks information to ensure that host government examinations can detect and identify weapons of mass destruction." This poses a serious national security threat, since cargoes examined at ports of origin are "typically not reexamined in the United States," according to the report. The National Nuclear Security Administration is currently working with foreign countries to install newer equipment to test for nuclear materials in 75 ports worldwide, under the Megaports Initiative of 2003. But, so far, such equipment has been

installed in a mere 12 ports worldwide, and, even where installed, will remain ineffective so long as the U.S. fails to clearly delineate security screening procedures. The Security and Accountability for Every Port Act, or "SAFE Ports Act" of 2006's Secure Freight Initiative provided for the improvement of equipment used to detect harmful substances in cargo, and the 9/11 Act of 2007 placed a time table on screening all cargoes. Both were designed to enhance port security, but notably failed to set uniform standards for the screening process itself. Since the U.S. currently places a great deal of trust in foreign countries' security measures, standard operating procedures are necessary to maintain successful security partnerships. Yet, we are still without any way of verifying that foreign countries are thoroughly screening the cargo entering U.S. ports. Security is only as strong as its weakest link. So long as we fail to implement such standards, both for equipment and personnel, our nation will remain vulnerable to a potentially devastating attack. Emergency preparedness planners are concerned that terrorists might smuggle a chemical or even nuclear weapon into the U.S. inside a cargo-shipping container. But if terrorists were to succeed in smuggling a small, conventional weapon laced with radiological materials (a so-called "dirty bomb") into the U.S., they could kill dozens of people, damage infrastructure and precipitate widespread panic. Fear of secondary explosions could temporarily halt U.S. imports and devastate an already fragile economy. The threat is real; our response, despite repeated recommendations by the audit, oversight and investigative arms of congress, has been desultory at best. President Obama and Congress must make improving port security measures a high priority to protect our country from another potentially devastating attack. The time for decisive action is now.

Τα πολυαναμενόμενα αποτελέσματα δοκιμών ανίχνευσης ρικίνης

Μέχρι σήμερα οι υφιστάμενες δοκιμασίες ανίχνευσης ρικίνης είναι βραδείες, πολύπλοκες και μη ακριβείς. Η ομάδα των Schramm και Matthews προτείνει μια νέα δοκιμασία που βασίζεται στην ανίχνευση της απελευθέρωσης αδερίνης από ειδικά υποστρώματα ρικίνης. Η μέθοδος μπορεί να ανιχνεύσει ποσότητες ενός δισεκατομμυριοστού του γραμμαρίου! Η ομάδα των Barr και Kalb χρησιμοποιεί δοκιμασία τριών σταδίων που ανιχνεύει τη ρικίνη από την αλληλουχία των αμινοξέων της μέσω μαζικής φασματομετρίας.

Long-awaited New Tests For Detecting The Bioterrorism Agent Ricin

In a development that could help safeguard people against potential acts of terrorism involving ricin, two groups of scientists in Georgia and New York are reporting the development of faster, more sensitive tests for detecting the deadly poison. One can detect one billionth of a gram of toxin in a single droplet of fluid in just five minutes, the scientists say. Reports on the tests - the most sensitive to date for detecting ricin - appear in *ACS' Analytical Chemistry*, a semi-monthly journal. The scientists note in the new studies that ricin, a ribosomal inactivating protein found in castor beans, is one of the agents most likely to be used in acts of aerosol or food-related bioterrorism. Ricin can be obtained easily and quickly causes death when inhaled or eaten in small amounts. There is no known antidote. Quantitation of ricin also has medical applications, since ricin immunoconjugates have been used as anticancer agents. Although earlier researchers have developed tests capable of identifying ricin by protein recognition methods, existing tests are generally slow, cumbersome, and inaccurate. In one study, Vern Schramm and Matthew Sturm describe a new test that detects the presence of active ricin in any sample by measuring the release of adenine from specific ricin substrates. Ricin-catalyzed adenine release from ribosomes stops protein synthesis and is the mechanism of action of this deadly toxin. By coupling adenine release to light formation by firefly luciferase, scientists can visualize the presence of ricin by the simple detection of light. The test can detect nanogram (one-billionth of a gram) amounts of ricin in minutes, they note. In the other, John Barr and Suzanne Kalb describe development of a highly selective three-part test that involves capturing the ricin protein using special antibodies, evaluating the enzymatic activity of the ricin protein by mass spectrometry, and

identifying the ricin protein by its amino acid sequence through mass spectrometry. In laboratory tests using small amounts of ricin spiked into food and body fluids, including milk, apple juice, serum, and saliva, the scientists found that the test was highly specific and accurate in comparison to current tests.

Εδώ τα δείγματα, εκεί τα δείγματα...

Συμβαίνουν και στα καλύτερα εργαστήρια – όμως το ενδεχόμενο να καταλήξουν εκεί που δεν πρέπει σκόρπισε αναστάτωση, πριν 6 μήνες, στους αρμόδιους κύκλους του Fort Detrick. Τελικά φαίνεται ότι τα 3 δείγματα ιού που προκαλεί την VEE (Venezuelan Equine Encephalitis) μάλλον καταστράφηκαν και δεν καταγράφηκαν αναλόγως. Ο ιός προσβάλλει κυρίως άλογα και μουλάρια αλλά μπορεί να προκαλέσει νόσηση και των ανθρώπων. Μήπως και η περιπέτεια με τα γράμματα του άνθρακα δεν ξεκίνησε από υψηλά φυλασσόμενα εργαστήρια ;

Army: 3 missing disease samples likely destroyed

An investigation of three disease samples missing from a Fort Detrick lab found that the samples were likely destroyed, according to Army officials. The probe started after the samples were reported missing last year and was not connected to an inventory started after the FBI concluded that a researcher was responsible for the 2001 anthrax mailings, officials said Wednesday. Samples of Venezuelan Equine Encephalitis were discovered missing last year in an inventory of a group of samples left by a departing researcher, said Caree Vander Linden, a spokeswoman for the U.S. Army Medical Research Institute of Infectious Diseases at Fort Detrick. VEE occurs naturally, typically in horses and mules, though it can also make humans ill, she said. An extensive investigation found no evidence of criminal activity, said U.S. Army Criminal Investigation Command spokesman Chris Grey. Vander Linden said the the samples were likely among those destroyed when a freezer malfunctioned. The investigation was separate from the suspension of much of the research at the lab in February while officials made sure the lab had accounted for all dangerous germs and poisons. That inventory was expected to take up to three months and Vander Linden said it was not yet complete. The decision to halt research for the inventory came after a review of inventory controls prompted by the FBI's conclusion that Fort Detrick scientist Bruce E. Ivins was responsible for the anthrax mailings that killed five people and sickened 17 others in 2001. Ivins killed himself in July after learning he would be charged in the attacks. His attorney maintains he was innocent.

Καλά πάμε! Μπορούμε να συντομεύουμε ;

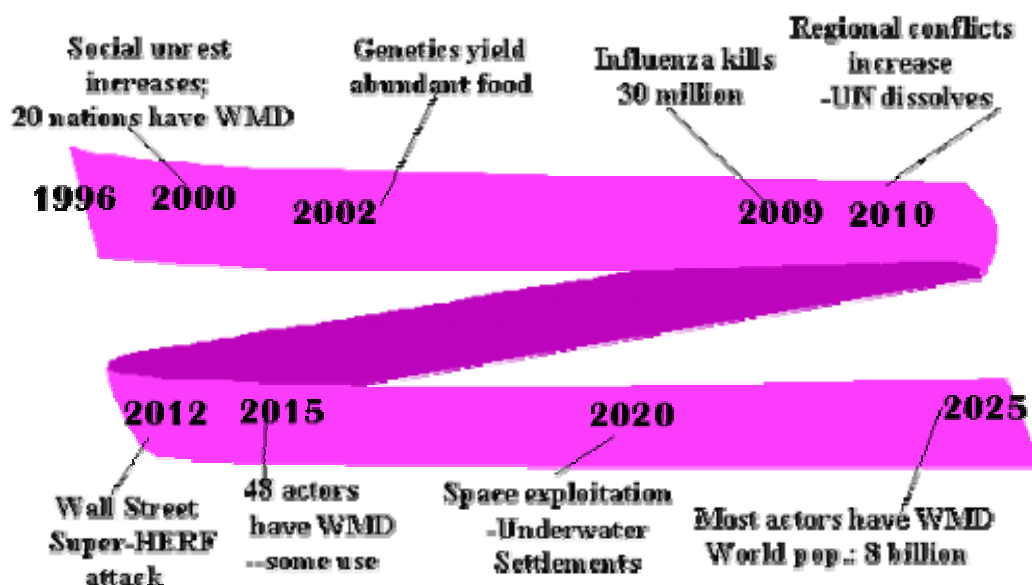
Αξιωματούχοι της CMA (US Army Chemical Materials Agency) ανακοίνωσαν ότι έχει καταστραφεί το 60% του χημικού οπλοστασίου των ΗΠΑ.

Army destroys 60 Percent of U.S. chemical weapons

"Today, U.S. Army Chemical Materials Agency (CMA) officials announced the destruction of 60 percent of the U.S. declared stockpile under the Chemical Weapons Convention (CWC). This milestone was achieved Saturday, April 25. CMA reached the 50 percent milestone in December 2007 and is poised to destroy its two-millionth munition in the coming months.

ΕΡΩΤΗΣΗ: Μπορείτε να αναγνωρίσετε την προέλευση αυτής της φωτογραφίας ;

QUIZ: Can you identify the source of this photo?



ΑΠΑΝΤΗΣΗ ΕΡΩΤΗΜΑΤΟΣ: Μελέτη USAF του 1998, με τίτλο: «Air Force 2025», από το College of Aerospace Doctrine, Research & Education στη Maxwell Air Force Base (Alabama) – Κεφάλαιο 5

QUIZ ANSWER: From a 1998 study of USAF entitled “Air Force 2025” conducted by the College of Aerospace Doctrine, Research & Education στη Maxwell Air Force Base (Alabama) – Chapter 5

Μερικές φορές οι συμπτώσεις είναι τόσο συγκλονιστικές που καταλήγουν σε υποψίες...

Κάμερες που αντέχουν στις εκρήξεις

Δύο αμερικανικές εταιρείες (Videology, Inc. of Greenville, R.I. και Visual Defence-USA, Inc. of Alexandria, Va.) μέσω του προγράμματος SECURE έχουν κατασκευάσει κάμερες που περιέχουν chips που αντέχουν στις αντίξοες συνθήκες μιας έκρηξης παρέχοντας έτσι πολύτιμες πληροφορίες για τα γεγονότα που διαδραματίστηκαν.

Ka-Boom! The Sequel

When two camera prototypes were tested in a bombing last month aboard a mass transit bus, not only was the Transportation Security Administration interested, so were the cities of New York, Washington, Chicago, and Seattle. Would these cameras show they were sturdy enough to withstand bombing attacks, fires, and floods, but inexpensive enough to use in places where a complete surveillance system is not workable - like mass transit venues? Last month we reported the cameras did indeed survive. "Amid the wreckage, clean-up crews found the cameras," said Stephen Dennis, Homeland Security Science and Technology Directorate (S&T) program manager for the test. The question was, had their memory chips survived? The prototype chips had been preloaded with video so that engineers could cleanly compare the content and quality of images both before and after the blast. "Today we can report that 14 of 16 chips did survive," continued Dennis. "Of the 14 cameras recovered, every video minute on there was without degradation." DHS is developing plans to work with a pilot group of U.S. cities to test the reliability, performance, and maintenance requirements of cameras operating on regular bus routes and trains. Two companies - Videology, Inc. of Greenville, R.I. and Visual Defence-USA, Inc. of Alexandria, Va. - are working to deliver this technology

to the commercial marketplace within months. Development of the forensic cameras is occurring through a public-private partnership known as SECURE* - one in which the private sector uses its own money and expertise to develop products and services. "The only taxpayer money used with these forensic cameras was in the testing," says Tom Cellucci, Department of Homeland Security chief commercialization officer. "In most SECURE projects, no taxpayer money is used at any stage. The SECURE program helps bypass what typically is an arduous technology development process within government." "Prevention of suicide bombings and crimes is the primary concern," Dennis explains, "The collection of forensic data from tragic events like bombings help us develop strategies to prevent the crime in the first place." While so-called "rugged" memory chips currently on the market can survive heavy vibrations in industrial applications like lumber and drilling, these prototype chips are a "step beyond," said Dennis. Images recovered from working cameras would be used by law enforcement only forensically after an incident, rather than transmitting video to a third party. At \$150-\$200 each, outfitting a bus with cameras is a bargain compared to a surveillance system likely to cost more than \$6,000. The bus blast test is just one of three phases of testing. In January, prior to attempting the transit bus bombing test, engineers put 36 cameras through more controlled testing to measure the survival rate. All of them survived that first test also. The final phase of testing will investigate how well the systems survive the kind of heat likely to be found in a burning vehicle. Engineers will bake the camera-and-chip units inside an oven at high temperatures to see if they turn to crisp.

Τι αποκάλυψε η πρόσφατη γρίπη των χοίρων σχετικά με την κουλτούρα του φόβου

Εξαιρετικό άρθρο που πραγματεύεται το σημαντικό θέμα του φόβου σε συνάρτηση με τις ευρείες/μαζικές καταστροφές και τον τρόπο που οι διάφορες εμπλεκόμενες ομάδες το διαχειρίζονται. Όμως το βασικό αντίδοτο του φόβου είναι η ενημέρωση, η εκπαίδευση και η έγκαιρη προετοιμασία που δεν τον απαλείφουν σίγουρα όμως τον μετριάζουν σημαντικά. Ο φόβος πολλαπλασιάζει τον αναπάντεχο και την έκπληξη οδηγώντας σε καταστροφικά αποτελέσματα.

What swine flu reveal about the culture of fear

When, in the future, historians look back on this performance of fear, and on the swine flu panic more broadly, they will surely ask themselves: was Chan speaking as a public health official or as a moral entrepreneur? It is striking that Chan, like most fear entrepreneurs, does not perceive her behaviour as being in any way illegitimate or unduly alarmist. Indeed, she, like other fear mongers, qualified her warning with a reassuring statement: 'Don't panic.' This combination of fear-promotion with the rhetoric of reassurance is a key aspect of the modern-day narrative of fear. Consider Chan's warning that WHO is likely to raise its flu alert to the top of its six-point scale and declare a pandemic. This time she did not talk about the threat to 'all of humanity' and the danger of human extinction. 'Level six does not mean, in any way, that we are facing the end of the world', she said, before noting that 'it is important to make this clear because [otherwise], when we announce level six, it will cause unnecessary panic'. So Chan raised the spectre of human extinction with the elevation of the threat level from four to five, but when it came to the possibility of raising it to level six she appeared to take a more relaxed attitude towards the potential for global catastrophe. Of course, her very attempt to sound reassuring was framed in the sort of rhetoric that is likely to have the opposite effect. Informing the public that 'we are not facing the end of the world' implies that we might face it some time soon, and indicates that apocalyptic thinking is no longer confined to the world of religion. Chan's secular version of apocalyptic thinking is powered by a contemporary cultural script that both exaggerates health threats and also links these threats with human malevolence more broadly. From this perspective, every virus, every disease, every new outbreak of flu, is potentially a weapon in the armoury of Evil. The protagonists in today's market of fear have forcefully sought to demonise flu as a threat to the world, as something that might even be turned into a weapon of mass destruction. The prestigious Massachusetts Institute of Technology now advertises a course on 'Pandemics and

Bioterrorism'. It claims that 'swine flu is only the most recent of the challenges posed by threats of bioterrorism and global pandemics'. The casual manner in which the threat of bioterrorism is introduced into the discussion of swine flu, by one of the most respected scientific institutions in the world, provides disturbing evidence that fearmongering has become a respectable pastime and pursuit.

Today, fear entrepreneurs come in all shapes and sizes. Some are moral crusaders who genuinely believe that the very fabric of society is threatened by evil forces. At the other end of the spectrum are the salespeople and hustlers of the market of fear. It is useful to distinguish between the different species of scaremonger, so here is your 'Guide To Spotting The Different Actors In The Dramatisation Of Fear'.

Religious moral entrepreneurs

Historically, religion has often warned about the dangers of moral transgression. Although the influence of religion has waned in recent years, prophets of doom who foresee an apocalypse still play an important role in society. Religious moral entrepreneurs have been in the forefront of promoting scares about satanic ritual abuse and other wicked behaviour that challenges the sanctity of family life. However, although religious moral entrepreneurs exercise significant influence on specific issues, they are no longer a dominant force in society. They are merely one group of moral entrepreneurs that is in constant competition with various other fear marketeers. Religious moral entrepreneurs are convinced that human misfortune ultimately springs from the activities of Satan. In the age of the internet, they often appear as digital, wired-up Jeremiahs warning that God will punish sinners for their errant ways. Some have argued that AIDS is God's way of punishing immoral sexual behaviour. Big catastrophes such as 9/11 and Hurricane Katrina have been portrayed as retribution for degenerate, sinful behaviour. One Christian columnist described Katrina as 'the fist of God'. Unlike other types of scaremongers, religious moral entrepreneurs explicitly talk up the moral corruption of society. They have also willingly embraced current anxieties about the future of our planet. They have quite effortlessly reworked the language of environmentalism to make it fit with their views on apocalypse, Armageddon and 'End Times'. Only in their vision, the triad of sin, evil and Satan replaces economic growth and carbon emissions as the main cause of the environmental problem.

Their favourite word: Sin.

Secular moral entrepreneurs

For some time, concern about moral corruption has taken an increasingly secular form, sometimes leaving the religious moral entrepreneurs behind. Many high-profile advocacy organisations have devoted themselves to warning the public about a variety of perilous events. In some areas – for example, child protection – advocacy groups have successfully, and fundamentally, changed the way that generations interact and the way children conduct their lives. Organisations such as the National Society for the Prevention of Cruelty to Children (NSPCC) continually use alarmist messages about the scale of child abuse in order to raise funds and influence public opinion. Unlike religious moral entrepreneurs, advocacy groups use 'surveys' and 'research', rather than the language of good and evil, to claim that a particular problem is getting worse and that, unless Something Is Done, it will engulf the whole of society. Secular moral entrepreneurs embrace their causes with the dogmatic fervour of the old-time religious crusaders – only theirs is a crusade that has no end. Advocacy groups promoting the cause of children or animals or the homeless can never bring themselves to concede that the situation of these groups is improving; on the contrary, they invariably claim that the problem is getting worse and worse, because that is what guarantees their hold on the public imagination. Secular moral entrepreneurs continually seek out new opportunities to

promote their cause, in a process described by sociologists as ‘domain expansion’: that is, expanding a widely recognised problem to encompass new issues. For example, widespread public concern about child abuse has encouraged secular moral entrepreneurs to use the language of abuse in relation to other issues, too: some now campaign to prevent ‘elder abuse’, ‘animal abuse’ and what they call ‘peer-to-peer abuse’. It is now even argued that people who are cruel to animals are likely to be cruel to their family members as well – in other words, one form of abuse begets another. With relentless repetition, and the support of the media, this imaginative linking together of disparate problems can become a kind of conventional wisdom. Secular moral entrepreneurs frequently flag up the gravity of a certain threat by using metaphors of invisibility: problems are hidden, concealed, unacknowledged.

Their favourite phrase: ‘This is only the tip of the iceberg.’

Experts

Experts, particularly scientific experts, play a uniquely important role in today’s culture of fear. Many of our anxieties are provoked by the statements and predictions of experts. Experts warn about the potential devastating impact of global warming, impending food and energy shortages, or of an asteroid striking Earth. They warn us of dangers far (or near) in the future that cannot be seen by ordinary human beings. And their dire predictions about an impending flu epidemic and various other ‘super bugs’ frequently capture the public’s imagination. Expert warnings usually begin with the statement ‘research shows...’, and conclude with a demand for resources to be devoted to the task of preventing some future dreadful scenario from becoming a reality. Expert warnings are taken seriously because they are underpinned by the most influential form of twenty-first century authority: the authority of science. Consequently, the support of experts is continually sought out by other scaremongers – both religious and secular – who want to add some moral authority to their campaigns. In recent decades, the status of experts has increased exponentially. Experts claim to have insights that ordinary people could never possess. Their views are looked upon as far more important and profound than the public’s. Expert opinion is more than just an opinion: the statement ‘an expert warns...’ now gives great force and influence to a campaigner’s claims. Expert witnesses are, in many ways, the new demonologists: numerous children have been taken away from their parents after expert witnesses claimed to have detected physical signs of abuse. Fortunately, in some cases children have been returned to parents once the courts realised that the expert’s opinion was just that: the opinion of yet another scaremonger. Yet although experts often contradict one another, society finds it difficult to ignore what they have to say.

Their favourite phrase: ‘Research shows...’

Health activists

Health activists often claim to be experts. Under the cover of the authority of science, they continually raise concerns about the public’s physical and emotional wellbeing. They constitute a distinct group of fear entrepreneurs, whose focus is people’s health. They promote messages that prey on people’s existential fears. In recent decades, they have combined their fear mongering with the demand that people adopt a ‘healthy lifestyle’. Indeed, health activists self-consciously use scare tactics – what they call ‘fear appeals’ – to achieve their objectives. They preach the message that people’s lives are becoming more and unhealthier, and thus we need to be ever more vigilant in order to avoid becoming diseased. Health activists target every area of our lives – the food we eat, our emotional lives and sex lives, our relationships – with scare stories. Probably of all the scaremongers, health activists have the most direct and immediate impact on how people think and behave. And they have been extraordinarily successful in ‘diseasing’ everyday life. Bit by bit, they have expanded

the meaning of health; they frequently use the term 'wellness': we now have 'well men's clinics' and 'well women's clinics'. The premise is that being well is not a natural or normal state – instead it is something people need to work on, something to aspire to and achieve with the help of experts and gurus. Health activists insist that, unless you follow their prescribed patterns of behaviour, your risk of becoming ill will increase.

Their favourite expression: 'A risk to your health.'

Environmentalists

Environmentalism is accorded an enormous amount of respect and authority today; the predictions and warnings of green groups are taken very seriously indeed. Environmentalists are in the forefront of contemporary doom-mongering. Environmentalists influence and shape the language of twenty-first-century fear more than any other group in this list. Their message is straightforward and devastatingly simple: unless we alter the way we live, the planet will be destroyed. If anything, environmentalists have an apocalyptic vision of the future that is even more alarming than that possessed by religious moral entrepreneurs. Unlike the religious model of the Day of Reckoning, where at least some will be saved, environmentalists offer an apocalypse without redemption. Their pessimistic visions exercise a fundamentally important influence on Western culture and behaviour today. Environmentalism provides a motif for moral regulation. It not only resembles religion in its proclivity for talking up the coming apocalypse – it also shares religion's intolerance of heresy. Those who fail to accept its wisdom are denounced as 'climate change deniers' and accused of being driven by a malevolent hidden agenda. Anyone who refuses to accept the need to alter their behaviour and 'go green' is depicted as greedy and irresponsible. The growth of survivalism and green lifestyles in general is testament to the influence of this group of alarmists. Environmentalists have made a major contribution to the general language of fear mongering. They don't just have one or two favourite words to incite fear amongst the public; they have a virtual dictionary of scaremongering. 'Extinction', 'ecological catastrophe', 'pollution', 'depletion': these are just some of the terms that are now familiar even to pre-school children.

Their favourite words: There are too many to mention, but they particularly enjoy using the word 'toxic' to describe anything they don't like.

Relationship professionals

The arena of human relationships has become an important site for promoting fear and anxiety. Our relationships have been transformed into a territory that is fraught with danger, and a veritable army of relationship professionals – therapists, counsellors, life coaches, parenting gurus – continually warn us about the perils we face in our private lives. Relationship professionals tend to frighten people about their connection with members of their community, their neighbours, their lovers or their family members. It is striking that in the twenty-first century, many of the most high-profile, dreaded crimes are associated with inter-personal relationships. Rape, date rape, child abuse, elder abuse, bullying and stalking (both online and offline): these crimes remind us to beware those who are closest to us. Privacy was once looked upon as a haven in a heartless world. These days, intimacy and family life are often presented as sites of violence, danger and emotional trauma. Warnings about 'toxic relationships' and 'toxic families' (the T-word is borrowed from environmentalists) promote a sense of fear that is as intense as the fear of terrorism or planetary destruction. Their effect is to distance us from other people. Health warnings about relationships can have a devastating impact on the quality of our personal lives. Relationship professionals continually remind us not to trust ourselves or those closest to us. They have even tried to turn the desire for affection and love into a form of addiction, coining the term 'love sickness' and warning that the intensity of love can be damaging to people's wellbeing.

Books with titles such as *Women Who Love Too Much* seek to distance people from one another. The idea is that relationships are far too dangerous to be left to amateurs – they need to be negotiated with the help of professionals.

Their favourite diagnosis: ‘You have self-esteem issues.’

Law-and-order moral entrepreneurs

Anxieties about crime and terrorism are widespread in Western societies. Alarmist warnings about personal and community security are regularly made by the media and figures of authority. There are also various advocacy groups that are devoted to raising concern about threats to law and order, such as illegal immigration, paedophilia, rape or gun crime. Historically, governments and officials have been in the forefront of this kind of scaremongering. Many governments sought to gain the public’s acquiescence by claiming to provide security from various threats, practising what is today called the ‘politics of fear’. Now, raising concerns about law and order is no longer confined to politicians. There are numerous campaigning groups that raise the alarm about issues such as school violence, gun crime, terrorism, immigration, ‘epidemics’ of homophobia, hate crimes. Indeed, law-and-order scaremongers constantly compete with each other, trying to out-scare other fear mongering camps in their attempt to win public support. Like others in this list, law-and-order scaremongers are always looking for new opportunities, even inventing new crimes. For example, they have systematically recycled offline crimes into online crimes: the construction of ‘cyber-crime’ – such as internet bullying, internet paedophilia, identity theft, fraud, and general internet abuse – is testimony to this group’s success in criminalising the virtual world as well as the real one.

Their favourite incantation: ‘There is an epidemic of crime.’

Fear-market entrepreneurs

Entrepreneurs regularly harness the prevailing culture of fear in order to promote their businesses and sell their products. They habitually warn that we face all sorts of dangers to our health, security and wellbeing. In some cases, hazards are fabricated – for example, the idea that tap water is unsafe – leading to a transformation in how people live and behave. The health and pharmaceutical industry – one of the most profitable sectors of the economy – has been well-served by today’s never-ending panics. Food scares have significantly influenced our eating habits. Concerns about global warming have given rise to a new cadre of green entrepreneurs who argue that, unless the entire economy is reorganised around green issues, we will all be doomed. One of the consequences of this flourishing fear market is the growth of competitive claims about what we should be most scared about today. Fear entrepreneurs are very inventive when it comes to turning minor problems into threats, for which they can helpfully provide a treatment or a product. For example, they can turn a normal personal problem like shyness into a disease, relabelling it ‘social phobia’, warning about its dangerous consequences, and then selling you a drug that can treat it. Worried parents are one of the favourite targets of fear entrepreneurs: they frequently warn parents that unless they purchase one of their safety products, they will bear some of the responsibility for harms that afflict their children.

Their favourite claim: ‘Your safety is our main concern.’

We should note that, although these eight groups are conceptually distinct from one another, their activities and interests often overlap. Health activists are sometimes associated with fear entrepreneurs who sell various products on the market; religious moral entrepreneurs have formed alliances with both environmentalists or therapists working as ‘relationship

professionals'. Indeed, despite their diverse interests, the work of these different groups tends to reinforce scaremongering as a whole, as they all contribute to the construction of a climate where promoting fear and anxiety comes to be seen as a legitimate pursuit. And as the performance of fear around the current drama titled 'Swine Flu Pandemic' shows, all of these groups are competing for a role in today's dramatisation of doom.

Frank Furedi is author of *Culture of Fear* (buy this book from Amazon(UK) and *Invitation To Terror: The Expanding Empire of The Unknown* (buy this book from Amazon(UK), both published by Continuum Press.

Υψηλή τεχνολογία στην καταπολέμηση της τρομοκρατίας

Η σύγχρονη τεχνολογία έχει πολλές εφαρμογές στον τομέα των επιχειρήσεων κατά της τρομοκρατίας. Ο χειρισμός των όπλων γίνεται πλέον και με joysticks, οι σκύλοι-εργασίας φορούν αλεξίσφαιρα γιλέκα και πηδούν με αλεξίπτωτο, τα i-Robots εξουδετερώνουν βόμβες με τηλεχειρισμό κοκ. Ας μην ξεχνούμε ότι πολλές σύγχρονες «ειρηνικές» εφαρμογές που κάνουν πιο άνετη τη ζωή μας έχουν περάσει από τα πεδία των μαχών. Ουδέν κακόν αμιγές καλού...

High-tech ways to combat terrorism

Under an Acme Gadget Division banner, Ryland Fleet enticed passers-by to consider his product, a .30-caliber machine gun mounted atop a vehicle and fired by the driver using a joystick. "You don't buy it because you need it," explained Fleet, who wears all black and machine-tools his weapons at home in the Virginia woods. "You buy it because you might." America's post-Sept. 11 fear of terrorist attacks not only spawned the \$55-billion-a-year Homeland Security Department, it also fueled a domestic defense boom for survivalists, backyard inventors and small businesses that scrambled beside major contractors for sales to local, state and federal agencies. About 650 mostly small vendors peddled their sometimes-



bewildering wares to government officials at a federally funded exhibition for three days last week at a regional airport here in rural Virginia in one of the nation's largest such trade shows. The event's slogan: "Fighting terrorism with commercial technology." "This is designed not just for overseas applications," said Carl White, a spokesman for the fair, which was not open to the public. "It's for the local courthouse, or

prison, or any other state or local asset vulnerable to terrorism." To weed out so-called dreamware -- gizmos that look good on "24" but don't actually work -- only companies with proven technology were invited to exhibit. Scott Stuckey's giant loudspeakers can direct ear-piercing sirens at approaching targets. He said his San Diego-based company, American Technology Corp., just sold a set to the Maersk Alabama, the cargo ship attacked by pirates last month off Somalia. Other shipping companies, airports and nuclear power plants are customers as well, he said. "Inside 100 meters, it approaches the threshold of pain," Stuckey said, giving a brief demonstration that caused other vendors to cover their ears and shout at him. Fair organizers barred what Ryan Alles called "the pots-and-pans, shoe-insert and T-shirt stands" that he sees at lesser trade shows. His company sells \$1,500 kits that he says can help people escape burning high-rise buildings. In case of fire, clip a pulley onto a bracket on the wall outside, climb into a flame-resistant bag that looks like a huge silver cocoon, push off and lower away on a rope. "It's not an Armani suit, but it works," promised Alles, a former

Florida firefighter. One also could order the latest in camouflage body armor and hazmat suits, or brightly hued "decorative bollards" for the boutique look when protecting buildings against onrushing vehicles. Armored SWAT vehicles with ramming bars also come in several colors. Ten booths offered small, unmanned aircraft that carry surveillance cameras, including one \$6,000 system disguised as a sea gull. One company sold bicycles designed for parachute drops, and another showed photos of a sky-jumper with a large dog lashed to his chest in a harness. The dog's bulletproof vest costs extra. Friends could fly along in a Buckeye Breeze, which looks like a go-kart with a giant propeller stuck on the back. It chugs through the air under a parachute wing, comes with "crushed velour" seat covers and is offered in teal, aqua and Red Baron Red. Assembly is required. Nearby, an energetic salesman, German Arias, pulled a reporter into a shower-like glass stall, pressed a button and flooded the enclosure with thick, choking fog and blinding strobe lights. "This is best of show," he said from somewhere in the fog. "It makes you invisible." Across the way, Bill Grimm insisted that his Corner Shot device deserved top honors. It attaches a small video camera and semiautomatic weapon to a gun stock with a swivel hinge, allowing it to shoot around a corner. The system is popular in Israel, he says, but hasn't caught on here yet. "Americans like to see before they shoot," explained Grimm, who heads the Golan Group in Boca Raton, Fla. There was much to see at the Force Protection Equipment Demonstration, as the biennial fair is called. Booths bristled with tire-spiking belts, vehicle X-ray systems, nerve gas detectors, laser guidance units, night vision goggles and more than 3,200 other items designed to foil terrorists. Officials from Pentagon agencies and the departments of Homeland Security, Justice and Energy -- as well as foreign diplomats, state police officers and other first responders -- crowded the carnival-like fairgrounds. Bangs, buzzes and the occasional trumpet blaring reveille filled the air. At midday, many of the fair-goers boarded buses to a firing range at the Marine Corps Base Quantico, about 10 miles away. Sitting on bleachers, they watched live tests of bulletproof glass, explosive charges, grenade launchers, and other things that went boom on a sunny afternoon. Back at the iRobot booth, Lowell Howard used the down time to practice with bomb disposal robots, each with video cameras and mechanical arms, that he sells to the military and police. Howard fiddled with an Xbox-style game controller and sent the largest robot, the SUGV300, bouncing through ruts like a World War I tank. "I always wanted to put a La-Z-Boy on it and drive it around," he confessed. It wasn't possible to determine how vendors rang up sales on the first day. But Fleet, president of Acme Gadget Division, was optimistic that he had found a buyer for one of his armored, turret-mounted, belt-fed machine guns. "A Colombian general," he said, "was very interested."

Γιατί αρρωσταίνουν οι μαθήτριες στο Αφγανιστάν ;

Πολλοί υποστηρίζουν ότι οι Taliban ρίχνουν δηλητηριώδη αέρια στα σχολεία θηλέων. Όμως οι σχετικές έρευνες δεν έχουν επιβεβαιώσει ότι κάτι τέτοιο οφείλεται για τη ζάλη, τους εμετούς και τις λιποθυμίες πάνω από 200 κοριτσιών σε ώρες σχολείου. Μήπως πρόκειται για MSI (Mass Sociogenic Illness);

Why are Afghan students falling ill?

Afghan girls are getting sick. In the last few weeks about 200 of them, mostly teenagers, in three northern schools, have fallen ill with symptoms like dizziness, vomiting and fainting. Some locals suspect that members of the Taliban, driven from power eight years ago but still a presence, staged poison gas attacks on the girls' schools. But neither forensic nor medical tests have yet proved that. In fact the patients may be suffering not from poison but a different sort of ailment: They are girls, and they live in Afghanistan. That alone may be enough to trigger what doctors call a "mass sociogenic illness," or MSI. A 2002 paper published in the *British Journal of Psychiatry*, by Robert E. Bartholomew and Simon Wessely, defined an MSI as "the rapid spread of illness signs and symptoms affecting members of a cohesive group." The symptoms, while real, are found to have no organic cause. Dr. David B. Adams, an Atlanta psychologist who studies psychosomatic disorders, thinks a psychological explanation is possible in this case. "The Afghan females are under continual threat by the

Taliban," he writes in an e-mail. "The threat is relentless and, consequently, so are the demands upon their bodies. Since their families fear that they are, in fact, being poisoned, the students will emulate the concerns of the parents and share their anxiety." Seeing other students with similar symptoms and anxiety leads to further emulation. If this is a case of MSI, it would have plenty of historical precedent. The *British Journal of Psychiatry* study describes the circumstances surrounding outbreaks in European nunneries from the 15th to 19th centuries: "Young girls typically were coerced by elders into joining these socially isolating religious orders, practicing rigid discipline in confined, all-female living quarters. Their plight included forced vows of chastity and poverty. Many endured bland near-starvation diets, repetitious prayer rituals and lengthy fasting intervals. Punishment for even minor transgression included flogging and incarceration." Let's compare that to living as a girl under the Taliban, which Northern Afghans reasonably fear could happen again. Coerced by elders, check. Practicing rigid discipline, check. Enforced poverty and chastity, check. Flogging for minor transgressions, check. The Taliban have been noted for their keen ability to replicate the Middle Ages; here's yet another successful example. The content of the delusions exhibited in a mass sociogenic illness will reflect the mood of the time. As the paper observes, "the perceived threatening agent must be seen as credible to the affected group." In European convents and in Puritan Massachusetts, victims were thought to have been demonically possessed, a belief that led to the Salem witch hunts of 1692. During the Industrial Revolution, MSI episodes were recorded in factories in England, France and Germany. The first recorded outbreak in a workplace happened in a Lancashire cotton mill in February 1787 and involved violent convulsions and sensations of suffocation. Numerous outbreaks have occurred in modern European and American schools, often related to feelings about food. In the summer of 1999, Belgians had already gone through several food safety scares over possible toxins, when 26 school children started complaining of nausea, headaches and palpitations after drinking Coca-Cola. The next evening, a television broadcast announced that the company was withdrawing bottles from store shelves. Soon the ailment had spread. Coca-Cola ended up withdrawing tens of millions of units, but no culprit toxin was ever found, and doctors subsequently determined that it was a case of MSI. Today, trepidation about terrorist attacks often plays a role in such episodes. During the first two weeks of October 2001, Bartholomew and Wessely note, over 2,300 anthrax false alarms occurred, many involving sociogenic symptoms like nausea and even a claim of having received a chemical burn. "There is a danger of responding to every incident in space suits and inadvertently amplifying psychological responses," they write. Yes, the media has played a role in spreading mass fear. Unfortunately for Afghan girls, the Taliban pose their threat with or without the cameras rolling. Extreme oppression may literally be driving girls crazy. Crazy has its uses. Bartholomew and Wessely describe an incident in modern-day Malaysia, where, over time, girls in isolated all-female Muslim boarding schools repeatedly showed symptoms like screaming, abnormal movements and histrionics. In 1987, during an outbreak, girls took hostages at knife point. They were transferred to a more liberal school. "Claiming impunity through possession," they were not held legally accountable for their actions. Demonic possession may be out of fashion as a medical term, but "possess," meaning "to have and hold as property," is an apt term. When the social order insists on possessing women, it should come as no surprise when they end up possessed.

Η ισραηλινή εμπειρία στην προετοιμασία αντιμετώπισης κρίσεων

Πολύτιμο συμπέρασμα από την πολυετή εμπειρία των ισραηλινών σε θέματα αντιμετώπισης κρίσεων και χειρισμού του πληθυσμού: «ο ενεργός πολίτης είναι η καλύτερη άμυνα». Μακάρι να διαβάσουν το παρακάτω άρθρο κάποιοι εγχώριοι «υπεύθυνοι» που εξακολουθούν να πρεσβεύουν ότι η κάθε είδους ενημέρωση θα οδηγήσει σε πανικό τους πολίτες. Η που εξακολουθούν να νομίζουν ότι οι πολίτες περιμένουν αυτούς για να ενημερωθούν... Σήμερα η πληροφόρηση είναι προσβάσιμη από πολλές πηγές και κυρίως από το διαδίκτυο. Έτσι οι κρατικές πληροφορίες όχι μόνον συγκρίνονται αλλά και ελέγχονται και αλίμονο εάν είναι λανθασμένες ή παραπλανητικές! Ας μάθουμε επιτέλους ότι στα πολύ μεγάλα προβλήματα η μόνη ορθή στρατηγική είναι η ΑΛΗΘΕΙΑ!

Crisis preparedness and the public – the Israeli experience

It's a widely accepted truism in American politics that an engaged citizenry is the best defense. Yet, when it comes to emergency preparedness, the American public remains incredibly unengaged in the process, largely lacking both the knowledge and the opportunity to participate proactively and constructively. A report titled *Public Role and Engagement In Counterterrorism Efforts: Implications of Israeli Practices for the US.*, prepared for the U.S. Department of Homeland Security's Office of Science and Technology by the Homeland Security Institute (a federally-funded research and development center which serves as the Department's think tank) examines both why that is the case, and how study of Israeli citizen involvement in crisis response might help US preparedness and "social resilience" improve. The study was co-authored by Dr. Sibel McGee (the principal investigator), Catherine Bott, Vikram Gupta, Kimberly Jones and Alex Karr. Published as a PDF document it has not yet been released on the web. "The successful management of emergency situations," according to the report, "requires not only competent emergency response personnel and prudent and effective emergency plans by the local/state/federal government, but also a public that is equipped and empowered with knowledge and information." The report cites Israel as a primary example of a nation with an effective track record in motivating and maintaining public mobilization in support of counterterrorism efforts. A reflection of that success, the report suggests, is that "the level of public understanding of the terrorist threat and readiness for terror-induced emergencies is such that Israeli public has an impressive ability to bounce back from frequent terrorist attacks." To accomplish this, according to the report, the Israeli government pursues a comprehensive and diverse program to bolster a strong public resilience and utilizes it as a deliberate counterterrorism tool. As the report describes it the Israeli government pursues a multi-faceted strategy to inspire effective public participation in counterterrorism efforts. "First," it says, "a comprehensive and extensive public education and awareness program on terrorism ensures public understanding of the threat, its serious consequences, and the need for readiness and response skills." "Second," the report adds, "the public is educated on how to handle and report suspicious activity, persons, and vehicles and the public is treated as the true first responders and its ability to effectively handle emergencies is regularly tested through periodic training and drills." Finally, and perhaps most crucially, "the Israeli government's risk communications with the public on terrorism-related issues are balanced, precise and honest. They also reflect adequate differentiation in the messaging in accordance with the audience and intent." In the United States, on the other hand, within the official paradigm of homeland security, terrorism is subsumed under an "all-hazards" approach. "Both the public and the government perceive counterterrorism primarily to be the responsibility of the government," the report notes critically. "In official emergency management and security/counterterrorism programs, the term 'the public' appears to be frequently understood to mean only uniformed /official first responders. Thus, large parts of the public at large are excluded." As a consequence of these limitations, the report notes, the level of public participation in counterterrorism efforts and readiness programs for catastrophic incidents—both natural and manmade, including terrorism-related emergencies, is very low in the US. The report recommends that DHS "champion greater understanding, in both the general public and within those responsible for homeland security, of the public's unique role in ensuring its own safety and homeland security." "Emergency authorities, in particular," it says, "need to change their perceptions of the public from seeing them as victims to considering them as partners and force multipliers. As a way to reinforce this understanding the report's authors believe that DHS needs to support programs that inform, educate, train, and prepare the public to take a role in ensuring its own safety and security. The current all-hazards approach, despite its benefits, they argue, has an unintended consequence; terrorism-specific preparedness issues are not adequately understood and addressed. "There is need for more systematic and comprehensive terrorism awareness and education programs in the United States that can highlight terrorism-specific risks and coping strategies," they conclude. The authors are aware that, given fundamental differences in

social, cultural and political context between the US and Israel the challenges of galvanizing and sustaining high public participation in counterterror efforts will be unique. “Given the perception that the terrorist threat to the United States is non-immediate,” they explain, “the government will need to work creatively to overcome public apathy, and must increase preparedness for disasters in general and terrorism-related emergencies in particular.” The sine qua non of any such effort, they say, is that DHS and other federal agencies involved in homeland security issues must improve information sharing internally and better coordinate their risk communications with the public. Further they must make it top priority to provide the public, particularly the more youthful segments of the population, with terrorism-related information, education, and training may prove useful in facilitating and maintaining public resilience as a long-term counterterrorism strategy.

Καθαριστήρας νερού χειρός

Το Steripen αποτελεί βασικό συστατικό κάθε συλλογής επείγουσας ανάγκης καθώς προσφέρει τη δυνατότητα καθαρισμού του νερού που αποτελεί πρώτη προτεραιότητα. Η συσκευή βασίζεται στην υπεριώδη ακτινοβολία και μπορεί εύκολα να χρησιμοποιηθεί στα μπιμπερό των μωρών, σε ποτήρια νερού κάθε είδους και προέλευσης (σε καθημερινή χρήση) ή στο μπολ νερού των κατοικίδιων. Δουλεύει με μπαταρίες και μπορεί να καθαρίσει 16 ounces νερού σε 48 δευτερόλεπτα ή 32 ounces σε 90 δευτερόλεπτα παρέχοντας σχετική ένδειξη με την ηλεκτρονική λυχνία που διαθέτει.

SteriPEN Handheld Emergency Water Purifier - Review

Steripen is a “must have” for any 72 hour kit, go bag or emergency kit. In almost any emergency, having an available supply of safe, clean water is a top priority. It’s the perfect tool to insure you and your family have safe drinking water in an emergency. The SteriPEN uses ultraviolet light to purify water so there is no chemical taste, odour or risky side-effects. I’ve tried a number of purifiers and while most work as promised in purifying the water, the taste is often times so bad the water is virtually undrinkable. SteriPENs are validated by the most extensive library of testing of any portable water treatment method. Multiple laboratories have proven that it’s ultra-violet light eliminates viruses, bacteria, and protozoa to keep your drinking water safe in an emergency. In fact, every unit is tested before



packaging to insure that it exceeds the UV output standard to keep your family safe. SteriPEN is easy to use in baby bottles, a glass in your hotel room or restaurant, or commercial water bottles and it will protect your pet’s water as well. Most people are not aware that pets won’t drink chemically treated water. With a SteriPEN, you’re carrying hundreds of gallons of pure water in your pocket, purse, glove box, or emergency kit. It weighs just 8 ounces with four AA, disposable batteries and will purify 16 ounces of water in 48 seconds, or 32 ounces in 90 seconds. The ultraviolet light (UV) actually destroys the DNA of micro organisms, making them unable to reproduce and cause illness. It’s effective against outdoor microbes like giardia and cryptosporidium; pathogens that cause diarrhoea, dysentery, hepatitis, and Legionnaire’s Disease; household germs such as bird flu, E. coli, and salmonella; staph and strep; and natural-disaster risks like botulism, cholera, smallpox, and typhoid. No pumping, no chemicals, no test strips, no timekeeping, no lubricating, and no replacement filters are required. All that is required is to push the water purifier’s button (once for 32 ounces, twice for 16 ounces), place the pen-like lamp in clear water, and stir until an indicator light turns green. Water has no aftertaste after being purified. It’s simple to use, easy to store and could save your life in an emergency.

Νέος θανατηφόρος ιός στην Αφρική

Επιστήμονες ανακάλυψαν στη Ζάμπια και τη Ν Αφρική έναν νέο ιό με την ονομασία Lujo (από τις πόλεις Lusaka και Johannesburg), που έχει προκαλέσει τον θάνατο 4 ατόμων από τους πέντε που νόσησαν. Πρόκειται για arenavirus που συγγενεύει με τον ιό που προκαλεί τον πυρετό Lassa – πάθηση που επίσης απαντάται στην Αφρική.

Scientists identify new lethal virus in Africa

Scientists have identified a lethal new virus in Africa that causes bleeding like the dreaded Ebola virus. The so-called "Lujo" virus infected five people in Zambia and South Africa last fall. Four of them died, but a fifth survived, perhaps helped by a medicine recommended by the scientists. It's not clear how the first person became infected, but the bug comes from a family of viruses found in rodents, said Dr. Ian Lipkin, a Columbia University epidemiologist involved in the discovery. "This one is really, really aggressive" he said of the virus. A paper on the virus by Lipkin and his collaborators was published online Thursday on in PLoS Pathogens. The outbreak started in September, when a female travel agent who lives on the outskirts of Lusaka, Zambia, became ill with a fever-like illness that quickly grew much worse. She was airlifted to Johannesburg, South Africa, where she died. A paramedic in Lusaka who treated her also became sick, was transported to Johannesburg and died. The three others infected were health care workers in Johannesburg. Investigators believe the virus spread from person to person through contact with infected body fluids. "It's not a kind of virus like the flu that can spread widely," said Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases, which helped fund the research. The name given to the virus — "Lujo" — stems from Lusaka and Johannesburg, the cities where it was first identified. Investigators in Africa thought the illness might be Ebola, because some of the patients had bleeding in the gums and around needle injection sites, said Stuart Nichol, chief of the molecular biology lab in the CDC's Special Pathogens Branch. Other symptoms include fever, shock, coma and organ failure. Genetic extracts of blood and liver from the victims were tested at Columbia University in New York, and additional testing was done at CDC in Atlanta. Tests determined it belonged to the arenavirus family, and that it is distantly related to Lassa fever, another disease found in Africa. The drug ribavirin, which is given to Lassa victims, was given to the fifth Lujo virus patient — a Johannesburg nurse. It's not clear if the medicine made a difference or if she just had a milder case of the disease, but she fully recovered, Nichol said. The research is a startling example of how quickly scientists can now identify new viruses, Fauci said. Using genetic sequencing techniques, the virus was identified in a matter of a few days — a process that used to take weeks or longer. Along with Fauci's institute, the National Heart, Lung, and Blood Institute and Google also helped fund the research.

Πράσινο φως για νέο αντιμικροβιακό κατά του άνθρακα

Η EPA (Environmental Protection Agency) των ΗΠΑ έδωσε την πρώτη έγκριση για την κυκλοφορία του προϊόντος Peridox που απενεργοποιεί τα σπόρια άνθρακα σε σκληρές επιφάνειες.

EPA Green Lights First Antimicrobial Pesticide against Anthrax

The Environmental Protection Agency has approved the first registration, or license, of an antimicrobial pesticide product to deactivate anthrax spores on hard surfaces. "Peridox with the Electrostatic Decontamination System" can decontaminate buildings, structures, vehicles, ships, aircraft, personal protective equipment, and other items infected with anthrax spores. Its use is limited to dry, pre-cleaned, hard, nonporous surfaces. EPA reviewed extensive data provided by the manufacturer, Clean Earth Technologies, to be sure that the product will be effective and not cause unreasonable adverse effects. EPA also reviewed the labelling of Peridox and associated training materials to ensure that they are consistent with EPA's

Pesticide Registration Notice 2008-2, which specifies the terms and conditions that would apply to anti-anthrax products. The notice provides guidance to prospective applicants of antimicrobial products that claim to deactivate anthrax spores. The availability of such products will better prepare the United States to respond to anthrax incidents. The guidance assures that anthrax-related products are registered, bear appropriate labelling, and are effective when applied as directed. The use of anthrax-related products will be limited to federal on-scene coordinators, the U.S. military, and persons trained and certified competent by the manufacturer. Peridox is the first pesticide registered to deactivate anthrax spores. EPA previously issued crisis exemptions allowing use of unregistered antimicrobial chemicals to clean buildings and any contents contaminated with anthrax spores. Anthrax is a disease caused by *Bacillus anthracis*. Both humans and animals are susceptible. Anthrax, if untreated, can cause acute illness or death.

Βιοτρομοκρατία, al Qaeda και μεξικανικά σύνορα – ο συνδυασμός που σκοτώνει!
Όποιος παρακολουθεί από κοντά τις εξελίξεις στα αμερικανο-μεξικανικά σύνορα, στο Μεξικό και στις βόρειες χώρες της Λατινικής Αμερικής δεν εκπλήσσεται από το ενδεχόμενο της διαπλοκής και συνεργασίας του οργανωμένου εγκλήματος με τη διεθνή τρομοκρατία (al Qaeda – Hezbollah) που φαίνεται ότι κτίζει προπύργια (Βενεζουέλα) στο μαλακό υπογάστριο των ΗΠΑ

Al Qaeda eyes bio attack from Mexico

U.S. counterterrorism officials have authenticated a video by an al Qaeda recruiter threatening to smuggle a biological weapon into the United States via tunnels under the Mexico border, the latest sign of the terrorist group's determination to stage another mass-casualty attack on the U.S. homeland. The video aired earlier this year as a recruitment tool makes clear that al Qaeda is looking to exploit weaknesses in U.S. border security and also is willing to ally itself with white militia groups or other anti-government entities interested in carrying out an attack inside the United States, according to counterterrorism officials interviewed by The Washington Times. The officials, who spoke only on the condition they not be named because of the sensitive nature of their work, stressed that there is no credible information that al Qaeda has acquired the capabilities to carry out a mass biological attack although its members have clearly sought the expertise. The video first aired by the Arabic news network Al Jazeera in February and later posted to several Web sites shows Kuwaiti dissident Abdullah al-Nafisi telling a room full of supporters in Bahrain that al Qaeda is casing the U.S. border with Mexico to assess how to send terrorists and weapons into the U.S. "Four pounds of anthrax -- in a suitcase this big -- carried by a fighter through tunnels from Mexico into the U.S. are guaranteed to kill 330,000 Americans within a single hour if it is properly spread in population centers there," the recruiter said. "What a horrifying idea; 9/11 will be small change in comparison. Am I right? There is no need for airplanes, conspiracies, timings and so on. One person, with the courage to carry 4 pounds of anthrax, will go to the White House lawn, and will spread this 'confetti' all over them, and then we'll do these cries of joy. It will turn into a real celebration." In the video, obtained and translated by the Middle East Media Research Institute, al-Nafisi also suggests that al Qaeda might want to collaborate with members of native U.S. white supremacist militias who hate the federal government. Sean Smith, a spokesman for Homeland Security Secretary Janet Napolitano, said the U.S. takes such threats seriously. "We can never stop being vigilant while there are individuals who seek to do harm on the American people," he said. "We continue to step up our efforts with additional personnel and better technology along the northern and southern borders and continue to strengthen our sea, land and air ports of entry." A U.S. counterterrorism official, speaking on the condition of anonymity, said al-Nafisi is a "person of interest" and a veteran recruiter for al Qaeda. Misidentified on some blog sites as a professor, he is a Kuwaiti dissident and al Qaeda associate who is thought to have communicated with senior al Qaeda leaders in recent years, the counterterrorism official said. The recruiter is also said to have

close ties to Mullah Mohammed Omar, the senior Afghan Taliban leader now thought to be in Pakistan. Al-Nafisi "is a significant ideological player in terrorist circles, and that makes him dangerous because he can inspire his followers to do extremely bad things," the official said. Drug Enforcement Administration and Defense Department officials have been paying close attention to links between various terrorist organizations, such as Hezbollah, and drug cartels in South America, Central America and Mexico. "It shouldn't be a surprise to anyone that terrorist organizations would utilize the border to enter the U.S.," said a DEA official who also asked not to be named because of his involvement in ongoing intelligence operations. "We can't ignore any threat or detail when it comes to al Qaeda and other terrorist organizations bent on attacking the U.S." The Times first reported in March that Hezbollah -- an Iran-backed group based in Lebanon -- is using routes that Mexican drug lords control to smuggle contraband and people into the United States to finance operations. While Hezbollah appears to view the U.S. primarily as a cash cow to finance its operations elsewhere, "it should not be viewed lightly, as the money raised can be used against the U.S. or assets in future operations," another counterterrorism official said. No confirmed attacks in the U.S. have been linked to Hezbollah. In the video, al-Nafisi emphasized that al Qaeda had chemical laboratories in Afghanistan prior to the U.S. invasion. He described his admiration for Hezbollah and said that al Qaeda continues to have scientists and resources at its disposal. "The Americans are afraid that the [weapons of mass destruction] might fall into the hands of 'terrorist' organizations like al Qaeda and others," he told followers. "There is good reason for the Americans' fears. ... [Al Qaeda] had laboratories in north Afghanistan. They have scientists, chemists and nuclear physicists. They are nothing like they are portrayed by these mercenary journalists - backward Bedouins living in caves. No, no, by no means. This kind of talk can fool only naive people. People who follow such things know that al Qaeda has laboratories, just like Hezbollah." Intelligence officials said the video provides important insights into al Qaeda recruitment methods and views of the West. In the 10-minute clip, al-Nafisi suggested that al Qaeda might want to make common cause with what he claimed are "300,000" members of white supremacist and other militias in the U.S. "These militias even think about bombing nuclear plants within the U.S.," he said. "May God grant them success, even though we are not white, or even close to it, right? They have plans to bomb the nuclear plant at Lake Michigan. This plant is very important. ... May God grant success to one of these militia leaders, who is thinking about bombing this plant. I believe that we should devote part of our prayers to him."

Διαγνωστικές συσκευές από το Star Trek

Η συσκευή SPTT που βασίζεται στην παλμομετρία, μοιάζει να προέρχεται απ' ευθείας από το διαστημικό Star Trek και προορίζεται να αποτελέσει σημαντικό εργαλείο των πρώτων διασωστών στον τομέα της διαλογής των απωλειών υγείας στο σημείο της καταστροφής. Είχαμε αναφερθεί και σε παλαιότερο τεύχος στην τεχνολογία αυτή – φαίνεται ότι σήμερα τα πράγματα έχουν εξελιχθεί σημαντικά και προς την σωστή κατεύθυνση

Triage Technology With A Star Trek Twist: Tricorder-like Device



Triage technology comes with a Star Trek twist, at the U.S. Department of Homeland Security's Science & Technology Directorate (DHS S&T). Determining who needs medical care at the scene of a disaster is still pretty old-fashioned: emergency responders bent over a victim, checking body temperature, heart rate, and muscle movement. Up close and personal, the entire process can take 3-5 minutes per person. "Human nature is to pay attention to those who are screaming and bleeding, but someone with a less obvious internal injury may be the real top priority," said Greg Price, Director of S&T's Tech Solutions, whose office is managing a new DHS S&T project. "In the case of large-scale triage, it is not

always the squeaky wheel that needs the grease," he says. In partnership with the Technical Support Working Group (TSWG), Boeing and Washington University's School of Medicine in St. Louis, S&T's Tech Solutions group is developing the Standoff Patient Triage Tool (SPTT), a device that classic Star Trek fans will recognize for its resemblance to the medical diagnostic tool known as the tricorder. Because time is the most precious resource in a crisis, every second shaved can be a life-saver. With this in mind, S&T wants to make a revolutionary leap forward in triage. Why not 30 seconds per person? And why not from a distance? "We thought, 'Wow, wouldn't it be nice if a responder, fully clothed in an emergency suit, could have a technology to take vital signs quickly from 5 to 40 feet away?'" said Price. Like the tricorder, SPTT takes key physiological readings necessary to any diagnosis —pulse, body temperature, and respiration. It's triage at twenty paces. The magic behind SPTT is a technology known as Laser Doppler Vibrometry, which has been used in aircraft and automotive components, acoustic speakers, radar technology, and landmine detection. When connected to a camera, the vibrometer can measure the velocity and displacement of vibrating objects. An algorithm then converts those data points into measurements emergency medical responders can use in their rapid assessment of a patient's critical medical conditions. With the help of Washington University, researchers have found that best place to capture strong readings vital signs is on the carotid artery, although strong signals have been obtained from the head, chest, abdomen, even a foot. Researchers are also testing whether readings could be taken when someone is lying in an awkward position, or wearing multiple layers of clothing. So far, the results are encouraging. Despite its promise, the SPTT is not quite as sophisticated as StarTrek's tricorder, which was able to comprehensively diagnose obscure diseases. The standoff patient triage tool is a quantum leap forward for medical response, but science fiction remains on the big screen for the moment. The goal is to develop a handheld unit about the size of a legal notebook and as thick as a ream of paper. Achieving this will require hardening of the unit, and further testing of optical stabilization technology to make sure the unit can function despite a responder's arm and hand movements. Transition and commercialization could occur sometime mid to late 2010. The final frontier for the SPTT, of course, is the first responders themselves. S&T's Tech Solutions wants to put working prototypes in the hands of medical teams this fall for extensive field tests. From there, everyone is hoping for warp speed ahead.

Έλεγχος τρίχας μπορεί να καταρρίψει το άλλοθι του τρομοκράτη

Αμερικανοί και ισπανοί ερευνητές έχουν καταλήξει σε μια μέθοδο (LA-MC-ICP-MS), που μπορεί να πραγματοποιήσει μετρήσεις χημικών στοιχείων σε ατομικό επίπεδο σε μια τρίχα. Με τη μέθοδο αυτή αναμένεται να καταστεί δυνατή η καταγραφή των γεωγραφικών κινήσεων ενός ατόμου είτε είναι διεθνής εγκληματίας ή θύμα εγκληματικής ή τρομοκρατικής ενέργειας.

Sulphur in just one hair could blow a terrorist's alibi

A group of researchers from the LGC Chemical Metrology Laboratory in the United Kingdom and the University of Oviedo, Spain, have come up with a method to detect how the proportions of isotopes in a chemical element (atoms with an equal number of protons and electrons but different numbers of neutrons) vary throughout the length of a single hair. The mid-term objective is to be able to use these methods to track the geographical movements of people, including international crime suspects and victims. In order to carry out this study, which is published this month in the journal *Analytical and Bioanalytical Chemistry*, the scientists focused on the most abundant sulphur isotopes in hair keratin – sulphur-32 (32S), which accounts for about 95%, and sulphur-34 (34S), which makes up around 4%. This proportion can change slightly in response to people's diets and if they travel from one country to another, and the technique is able to detect these small variations. "The new method is based on combining a laser ablation system and multicollector inductively-coupled plasma mass spectrometry (abbreviated to LA-MC-ICP-MS)", Rebeca Santamaria-Fernández

of LGC, lead author of the study, tells SINC. To summarise, the laser makes contact with the selected fraction of the hair, generating an aerosol, which later ionises within plasma, with the spectrometer providing the exact proportions of the sulphur isotopes. "The advantage of this method compared with others is the high resolution resulting from use of the laser", points out Santamaría-Fernández. This advance has enabled the scientists to confirm that the sulphur variations in hair can be linked to peoples' geographical movements.

The traveller experiment

The researchers collected hair samples of more than 4cm in length donated by three volunteers. Two were permanent residents in the United Kingdom, while the third – dubbed "the traveller" – had spent the past six months in Croatia, Austria, the United Kingdom and Australia. "We are what we eat, and the small variations in the 34S/32S relationship reflect changes to our diet, which can in turn be related to movements from one country to another", Justo Giner, another of the study's authors, tells SINC. In addition, as hair grows an average of 1.25cm per month, the data obtained from a hair measuring between 4cm and 6cm can provide information about its owner's activities in the months leading up to the sample being taken. The results of the experiment revealed that the traveller's hair indeed showed significant variations in the sulphur isotopes, while changes in the hairs of the two people living in the United Kingdom were minimal, and similar in both samples. The authors believe they have overcome "the first hurdle" – developing an effective method to measure longitudinal isotope variations in hair, with the potential to relate these changes to geographical movements. The next objective is to demonstrate the global significance of these variations, and they are already working with hair samples from 150 volunteers with different diets and geographical origins in order to move forward in this area. In addition, the researchers will also measure the isotopic variations of other elements apart from sulphur in their study, for example carbon and nitrogen. The scientists are confident they will be able to create databases that will one day make it possible to link the relationship between a specific isotope in hair keratin and a country or region, which would be of great help to the police in tracking down international criminals. "Although we still cannot say that a certain isotopic variation in a person's hair shows that he or she has been in a particular country, the method can help to break down the alibis of some terrorists who claim not to have moved over recent months", says Santamaría-Fernández. Various British security forces, such as the London Metropolitan Police, have already expressed their interest in this project. The LGC centre (previously known as the Laboratory of the Government Chemist) is working with various national and international research groups, among them the University of Oviedo.

Στο εσωτερικό του ιού των χοίρων

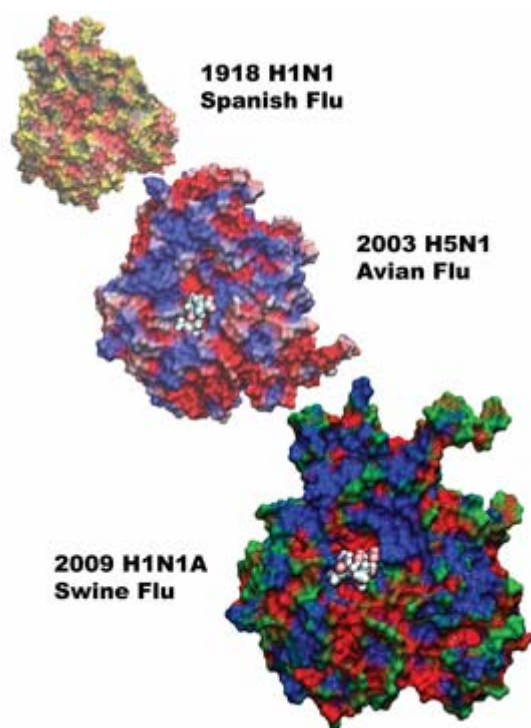
Ενδιαφέρουσες λεπτομέρειες για τον ιό των χοίρων που έχει προκαλέσει παγκόσμια πανδημία που είναι σε εξέλιξη. Πως εξελίχθηκε, πως δρα και πως αμύνεται έναντι του Tamiflu.

Inside the Swine Flu Virus

Highlights:

- The swine flu has infected more than 11,000 people worldwide and frightened millions with the specter of a pandemic.
- A research team from the University of Illinois and the University of Utah simulated the molecular level dynamics of antiviral drugs interacting with Spanish, Avian and Swine flues using the *Ranger* supercomputer.
- The researchers discovered how mutations in the viral DNA can prevent Tamiflu, the most common antiviral flu medication, from binding. They now have a fuller picture of how adaptations to the flu's structure lend it drug resistance.

Swine flu, also known as the A/H1N1 virus, first surfaced in Veracruz, Mexico in April 2009. A deadly form of Influenza A that combines the DNA of swine, avian and human flu viruses, it awakened a lingering dread of a pandemic as it spread throughout the United States, Canada, and around the world. With more than 11,000 cases reported and 85 fatalities to date, A/H1N1 has not yet erupted into the “plague” that some feared, but it has questioned our readiness to confront more virulent forms of the disease that may come in the future. To forestall the dangers of avian flu and other diseases, a team of researchers led by Klaus Schulten (from the Department of Physics, U. of Illinois at Urbana-Champaign) and Thanh Truong (Department of Chemistry, U. of Utah) involving their coworkers Eric Lee and Ly Le, respectively, have been using high performance computers to look inside the flu virus and study how antiviral medications interact with its proteins. The project “turned very hot due to the world-wide health threat from swine flu,” said Klaus Schulten, director of the Theoretical and Computational Biophysics Group at the Beckman Institute of his university. At the forefront of flu physics, the researchers found themselves in the midst of an emergency situation where their scientific insights would play a crucial role.



Computational models show Spanish H1N1 with no drugs bound, Avian H5N1 with Tamiflu bound, and Swine A/H1N1 with Relenza bound.

When evidence emerged that the A/H1N1 virus that led to deaths in Mexico was resistant against Tamiflu, one of the most prescribed anti-flu drugs, the stakes rose higher. Resistance to front line drug defenses could make swine flu a very dangerous virus. The researchers faced some vital questions: How do drugs bind to the flu viruses? What made some forms of the virus resistant to previously-effective drugs? And was it possible to find a new weak spot on the virus by which a drug could permanently disable the whole suite of influenza viruses? These questions could only be answered, and answered quickly, by computational simulation. “Simulations are the only way that one can visualize what is actually happening

when a drug binds to a flu protein,” said Lee. “They let us to peek into the molecule so we can see the atomic interactions that are responsible for the protein and drug binding events. This is important, because drugs are designed with these specific atomic interactions in mind.” The group had models of the Spanish and Avian flu viruses, but to understand the current outbreak, they needed to determine the three-dimensional structure of the new A/H1N1 virus, or more specifically the virus’ *neuraminidase* protein: a mushroom-shaped projection on the surface of the influenza virus that plays a crucial role in the virus’ reproductive cycle. Neuraminidase is the main target for commercial antiviral drugs, but it is also the most quickly evolving part of the virus, playing cat and mouse with drugs and necessitating new flu medications each year. Combining genetic sequence data from swine flu samples with information from homology, or common ancestral characteristics (Swine flu is 91% identical to Avian flu), the researchers created the first atomistic model of A/H1N1 neuraminidase. Then, using NAMD (Nanoscale Molecular Dynamics), a powerful atomic-level 3D modeling program developed by the Schulten group, the scientists prepared simulations to show how the three virus neuraminidases (Spanish, Avian and Swine flu) interact with: the two most-

prescribed flu-fighting medicines (Tamiflu and Relenza), two phase III trial drugs candidates (Peramivir and A-315675), and Sialic acid, their natural target on the human cell. If they pushed the pace of their simulations, the research could provide useful insights in real time. The study could be crucial to stockpiling the right medicines and accelerating the design of new drugs to fight mutating viruses. But the researchers would need access to a supercomputer to develop a rapid prognosis of the swine flu virus' evasion mechanism. On April 30, Schulten called the Texas Advanced Computing Center (TACC) and received a special allocation on *Ranger*, one of the world's most powerful supercomputers, to execute emergency simulations. "This is a perfect example of cooperation among TeraGrid staff to provide a research team with time-critical access to the petascale resources funded by the National Science Foundation," said Chris Hempel, TACC associate director of User Services. With priority access to *Ranger* through a special queue, the group employed between 2,000 and 3,000 processors continuously over two weeks, and produced simulations that revealed how drugs normally bind to the neuraminidase and how changes to the A/H1N1 protein could cause drug resistance. Antiviral drugs work by binding in a deep pocket — a receptor — on the surface of the neuraminidase. "If that receptor is occupied by drugs, like Tamiflu or Relenza, then production of the virus is stopped," Schulten said. "The drug is like an off button." But that's only part of the story. An atomistic look, using the 3D computational microscope, revealed a side-channel in the Avian and Spanish versions of the protein that provided a shortcut for drugs to reach their binding site. Changes in the Swine flu structure had closed the channel, they hypothesized, making necessary an approach through an electrostatically repulsive ring of molecules. The current strain of A/H1N1 swine flu does not appear to be drug resistant yet, but the high rate of mutations among normal seasonal strains of the flu may transfer their Tamiflu drug-resistance genes to the swine flu. Relenza and the phase III trial drugs are effective against Tamiflu-resistant strains. However, according to researchers, resistance to these new drugs is likely not far behind, underscoring the need to understand precisely how mutations make the flu immune to antiviral therapy. By anticipating the likely atomic-level mutations in the virus' structure, they believe it will be possible to intelligently design a drug or vaccine that can't be resisted. "We're in a race against nature," said Lee. "Mutations happen naturally and we have to predict what might happen and stay one step ahead." The project represents a computational, as well as a scientific, breakthrough, according to Schulten. "We were able to learn something in a few weeks that usually would take many months," he said. "We investigated the site of the reactions and made sense of the interactions, and we think that our computational view can help create drugs that are optimally attuned to avoid resistance." The group is preparing the initial results of their virtual drug trials for publication. They will continue to analyze their data in the coming months, while simulating potential mutant varieties of the flu viruses. Supercomputers routinely assist in emergency weather forecasting, earthquake predictions, and epidemiological research. Now, says Schulten, they are proving their usefulness in biomedical crises. "It's a historic moment," he said. "For the first time these supercomputers are being used for emergency situations that require a close look with a computational tool in order to shape our strategy."

Διήθηση τρομοκρατών μέσω καρτέλ ναρκωτικών – Η απειλή για τις ΗΠΑ

Στα αμερικανο-μεξικανικά σύνορα μήκους 3.200 χλμ διαδραματίστηκε η Επιχείρηση Red Zone από την AWG (Asymmetrical Warfare Group) του αμερικανικού στρατού αποτελούμενη από 350 άτομα. Σκοπός της εξειδικευμένης αυτής ομάδας ήταν να αναγνωρίσει σε προσωπικό επίπεδο τα κενά της άμυνας των συνόρων προκειμένου να ληφθούν τα ανάλογα διορθωτικά μέτρα. Σήμερα στις ΗΠΑ διαβιούν παρανόμως 8.2 εκατομμύρια λαθρομετανάστες στην πλειοψηφία τους μεξικανοί. Ίσως μια καλή ιδέα για την αντιμετώπιση του προβλήματος της λαθρομετανάστευσης στην Ελλάδα!

Army Report: Drug Cartels, Terrorists Infiltrate U.S.

A secret intelligence mission recently conducted along the southern border of the United States found that drug cartels are teaming with terrorists to exploit the numerous vulnerabilities along the sparsely defended 2,000-mile Mexican border. The



mission, dubbed Operation Red Zone was conducted in February and March by the Army's Asymmetrical Warfare Group (AWG).

The clandestine intelligence gathering organization is a 350-member special mission unit that works to identify critical threats and enemy and friendly vulnerabilities through global first-hand observations, the Army says. The group is based at Ft. Meade, Maryland,

also home to the National Security Agency. Red Zone investigators discovered numerous alien smuggling and drug trafficking operations along the border. Perpetrators are using maritime surface craft, semi-submersible watercraft, ultra-light aircraft and possess the capability [to] utilize other potential aerial infiltration techniques to circumvent ground border protection capabilities, according to Asymmetric Observations Along the U.S.- Mexican Border released May 14 by the Army to federal and state law enforcement agencies. The AWG served as observers to advise the Border Patrol, Coast Guard and local law enforcement. During the operation AWG personnel were not authorized to enter Mexican territory and none were armed, Donald Cicotte, spokesman for the AWG at Ft. Meade tells Newsmax. After the mission was completed, AWG personnel prepared a classified report for the Department of Defense. A cleansed version, like the one viewed by Newsmax, was sent to civilian law enforcement agencies. Obviously we don't want to lose control of this [report,] CiCotte adds. We obviously don't want to tell the bad guys what we know. Operating behind the scenes on the project was Joint Task Force North (JTF-N), a joint-service command headed by Army Brig. Gen. Sean B. McFarland. The 180-member task force helps local, state, and federal law enforcement agencies plan and coordinate activities to thwart drug cartels, human smugglers, and other emerging threats, JTF-N spokesman Armando Carrasco tells Newsmax. In this instance the U.S. Customs and Border Protection in the San Diego area requested assistance identifying new threats and the AWG was recruited, he said. We don't have any resources of our own. We don't have heavy equipment or helicopters. For instance we can't call up an engineer battalion to build a road. We solicit units from all the services equipped with what we need and asked them for help, Carrasco said. We have three JAG attorneys that ensure we are legally authorized to perform the mission. The lawyers spell out in briefings to each unit that they cannot be deployed in a law enforcement role. Military theorists define asymmetrical threats as strategies and tactics used by ill-equipped terrorists and criminals to circumvent sophisticated defenses of more powerful governments. Common examples include clandestine cross-border infiltration, smuggling, and defeating sophisticated electronics and optical sensors with simple counter-measures. During the operation, the AWG worked with the Department of Homeland Security and state and local law enforcement in the San Diego area to observe asymmetric infiltration operations and emerging asymmetric threats. The Army investigators discovered that drug traffickers and smugglers are

employing exceptional surveillance and counter-surveillance capabilities, robust technical communications capabilities as well as effective marking and signaling techniques to facilitate smuggling of illegal personnel and illicit cargo into the United States, the report says. Some of the aliens are suspected of being terrorists from Middle Eastern countries sneaking into the country by employing drug smugglers skilled in transporting human cargo into the United States, the report adds. Few of the tactics employed by the border busters appear sinister at first glance. In one example, the AWG reported seeing a woman setting up a road-side tamale stand on the south-side of the primary border fence. Upon investigation it was found that her car was parked pointing toward known fence breach points as a signal to border jumpers. Other seemingly innocent activities observed by the intelligence operatives revealed drug trafficking and alien smuggling spotters using taxis and other legitimate businesses located on the U.S. side of the border to monitor and report Border Patrol activities to criminals who pay them with drug proceeds. The innocuous nature of the smugglers tactics mask as far more sinister motive than smuggling illegal aliens seeking the American dream, the report concludes. Drug-related assassinations and kidnappings [in Mexico] are now common-place occurrences throughout the country. Squad-sized units of the police and army have been tortured, murdered, and their decapitated bodies left on public display. The malignancy of drug criminality now contaminates not only the 2000 miles of cross-border U.S. communities, but stretches throughout the United States in more than 295 cities. To accomplish their goals the drug and human smugglers use a variety of guises to transport drugs and illegal aliens into the United States, the report shows. Beside simply running across the border when nobody is looking, the smugglers are digging dozens of tunnels under the border, using homemade spelunking-style ladders to climb over border fences, and employing cutting torches and power tools to cut through the barrier, the AWG observers discovered. Smugglers are also using hidden containers inside externally mounted fuel tanks of large trucks to hide both illegal drugs and people. One technique involves cutting the end off of large tanker trucks, inserting a sealed aquarium-like container into the tank and then welding the end back onto the tank with the illicit cargo inside. The tank is then filled with fuel, making the submersed container much harder to detect. In one instance, 49 illegal aliens were discovered inside a water truck disguised to look like the water trucks the Border Patrol uses to wet down paths to detect foot prints of infiltrators crossing the border, the report said. Terrorist organizations could adapt the tactic of hiding containers within larger liquid haul tanks to deliver explosives onto U.S. bases, compounds or through Ports of Entry, the reports warns. The carrier could vary from a small automobile gas tank to a large seafaring oil tanker. The ability to detect this transport method exploits the current tactics that border authorities use to identify false compartment unless x-ray machines are available. The smugglers have not limited their operations to land. They also employ a variety of ships, boats and semi-submersible watercraft that can carry up to 10 tons and travel virtually undetected for more than 2,000 miles, the report said. Drug traffickers used an estimated 50 to 80 semi-submersible watercraft to smuggle hundreds of tons of drugs and an unknown number of people into the US last year. A semi-submersible is capable of moving large amounts of narcotics virtually undetected, the report says. The semi-submersible watercraft ranges from 33 to 60 feet in length and operates with a crew of four personnel. The vessel can navigate approximately 2000 miles and is virtually invisible to radar and sonar. In addition, the traffickers line the top of the vessel with lead to counter infrared surveillance. Traffickers offload the cargo onto power boats to move the product to shore for

distribution. The transfer commonly takes place 25-30 nautical miles off shore. After the deliver is made the vessel is often scuttled, the report said. The Army fielded the intelligence gathering unit in 2006 to assess new tactics potential adversaries may use to take advantage of U.S. vulnerabilities, according to the Pentagon.

Μαθήματα από Μοναχικούς Λύκους

Ζουν ανάμεσα μας και μπορούν να ενεργοποιηθούν ανά πάσα στιγμή: πρόκειται για τους Μοναχικούς Λύκους και τα κίνητρά τους που μπορεί να οδηγήσουν σε απρόβλεπτες καταστάσεις καθώς επειδή δεν ανήκουν σε δίκτυα και οργανώσεις είναι εξαιρετικά δύσκολο να εντοπιστούν και να εξουδετερωθούν.

Lone Wolf Lessons

At approximately 10:30 a.m. on June 1, as two young U.S. soldiers stood in front of the Army Navy Career Center in west Little Rock, Ark., a black pickup pulled in front of the office and the driver opened fire on the two, killing one and critically wounding the other. Eyewitnesses to the shooting immediately reported it to police, and authorities quickly located and arrested the suspect as he fled the scene. According to police, the suspect told the arresting officers that he had a bomb in his vehicle, but after an inspection by the police bomb squad, the only weapons police recovered from the vehicle were an SKS rifle and two pistols. At a press conference, Little Rock Police Chief Stuart Thomas identified the suspect as Abdulhakim Mujahid Muhammad, a 23-year-old African-American man who had changed his name from Carlos Leon Bledsoe after converting to Islam. In Arabic, the word mujahid is the singular form of mujahideen, and it literally means one who engages in jihad. Although Mujahid is not an uncommon Muslim name, it is quite telling that a convert to Islam would choose such a name — one who engages in jihad — to define his new identity. Muhammad was originally from Memphis, Tenn., but according to news reports was living and working in Little Rock. Chief Thomas said Muhammad admitted to the shootings and told police that he specifically targeted soldiers. During an interrogation with a Little Rock homicide detective, Muhammad reportedly said that he was angry at the U.S. Army because of their attacks against Muslims overseas, that he opened fire intending to kill the two soldiers and that he would have killed more if they had been in the parking lot. These statements are likely what Chief Thomas was referring to when he noted in his press conference that Muhammad appears to have had political and religious motives for the attack and that it was conducted in response to U.S. military operations. Chief Thomas also stated that the initial police investigation has determined that Muhammad acted alone and was not part of a wider conspiracy, but given that the shooting was an act of domestic terrorism directed against U.S. military personnel, a thorough investigation has been launched by the FBI to ensure that Muhammad was not part of a larger group planning other attacks. ABC News has reported that Muhammad had traveled to Yemen after his conversion, though the date of that travel and its duration were not provided in those reports. ABC also reported that while in Yemen, Muhammad was apparently arrested for carrying a fraudulent Somali passport and that upon his return from Yemen, the FBI opened a preliminary investigation targeting him. The fact that the FBI was investigating Muhammad but was unable to stop this attack illustrates the difficulties that lone wolf militants present to law enforcement and security personnel, and also highlights some of the vulnerabilities associated with using law enforcement as the primary counterterrorism tool.

Challenges of the Lone Wolf

STRATFOR has long discussed the threat posed by lone wolf militants and the unique challenges they pose to law enforcement and security personnel. Of course, the primary challenge is that, by definition, lone wolves are solitary actors and it can be very difficult to determine their intentions before they act because they do not work with others. When militants are operating in a cell consisting of more than one person, there is a larger chance

that one of them will get cold feet and reveal the plot to authorities, that law enforcement and intelligence personnel will intercept a communication between conspirators, or that law enforcement authorities will be able to introduce an informant into the group, as was the case in the recently foiled plot to bomb two Jewish targets in the Bronx and shoot down a military aircraft at a Newburgh, N.Y., Air National Guard base. Obviously, lone wolves do not need to communicate with others or include them in the planning or execution of their plots. This ability to fly solo and under the radar of law enforcement has meant that some lone wolf militants such as Joseph Paul Franklin, Theodore Kaczynski and Eric Rudolph were able to operate for years before being identified and captured. Lone wolves also pose problems because they can come from a variety of backgrounds with a wide range of motivations. While some lone wolves are politically motivated, others are religiously motivated and some are mentally unstable. Even among the religiously motivated there is variety. In addition to Muslim lone wolves like Muhammad, Mir Amal Kansi, Hesham Mohamed Hadayet and John Allen Muhammad, we have also seen anti-Semitic/Christian-identity adherents like Buford Furrow and Eric Rudolph, radical Roman Catholics like James Kopp and radical Protestants like Paul Hill. Indeed, the day before the Little Rock attack, Scott Roeder, an anti-abortion lone wolf gunman, killed prominent abortion doctor George Tiller in Wichita, Kan. In addition to the wide spectrum of ideologies and motivations among lone wolves, there is also the issue of geographic dispersal. As we've seen from the lone wolf cases listed above, they have occurred in many different locations and are not just confined to attacks in Manhattan or Washington, D.C. They can occur anywhere. Moreover, it is extremely difficult to differentiate between those extremists who intend to commit attacks from those who simply preach hate or hold radical beliefs (things that are not in themselves illegal due to First Amendment protections in the United States). Therefore, to single out likely lone wolves before they strike, authorities must spend a great deal of time and resources looking at individuals who might be moving from radical beliefs to radical actions. With such a large universe of potential suspects, this is like looking for the proverbial needle in a haystack.

Limitations on Both Sides

Due to the challenges lone wolf militants present, the concept of leaderless resistance has been publicly and widely embraced in both the domestic terrorism and jihadist realms. However, despite this advocacy and the ease with which terrorist attacks can be conducted against soft targets, surprisingly few terrorist attacks have been perpetrated by lone wolf operatives. In fact, historically, we have seen more mentally disturbed lone gunmen than politically motivated lone wolf terrorists. A main reason for this is that it can be somewhat difficult to translate theory into action, and as STRATFOR has frequently noted, there is often a disconnect between intent and capability. Because of the difficulty in obtaining the skills required to conduct a terrorist attack, many lone wolves do not totally operate in a vacuum, and many of them (like Muhammad) will usually come to somebody's attention before they conduct an attack. Many times this occurs as they seek the skills or materials required to conduct a terrorist attack, which Muhammad appears to have been doing in Yemen. However, in this case, it is important to remember that even though Muhammad had been brought to the FBI's attention (probably through information obtained from the Yemeni authorities by the CIA in Yemen), he was only one of the thousands of such people the FBI opens a preliminary inquiry on each year. A preliminary inquiry is the basic level of investigation the FBI conducts, and it is usually opened for a limited period of time (though it can be extended with a supervisor's approval). Unless the agents assigned to the inquiry turn up sufficient indication that a law has been violated, the inquiry will be closed. If the inquiry indicates that there is the likelihood that a U.S. law has been violated, the FBI will open a full-field investigation into the matter. This will allow the bureau to exert significantly more investigative effort on the case and devote more investigative resources toward solving it. Out of the many preliminary inquiries opened on suspected militants, the FBI opens full-field investigations only on a handful of them. So, if the information reported by ABC News is correct, the FBI was not conducting surveillance on Muhammad because to do so it would have had to have opened a full-field investigation. Of course, now that Muhammad has

attacked, it is easy to say that the FBI should have paid more attention to him. Prior to an attack, however, intelligence is seldom, if ever, so black and white. Sorting out the individuals who intend to conduct attacks from the larger universe of people who hold radical thoughts and beliefs and assigning law enforcement and intelligence resources to monitor the activities of the really dangerous people has long been one of the very difficult tasks faced by counterterrorism authorities. This difficulty is magnified when the FBI is looking at a lone wolf target because there is no organization, chain of command or specific communications channel on which to focus intelligence resources and gather information. Lacking information that would have tied Muhammad to other militant individuals or cells, or that would have indicated he was inclined to commit a crime, the FBI had little basis for opening a full-field investigation into his activities. These limitations, and the FBI's notorious bureaucracy (as seen in its investigation of Zacarias Moussaoui and the 9/11 hijackers), are the longstanding shortfalls of the law-enforcement element of counterterrorism policy (the other elements are diplomacy, financial sanctions, intelligence and military). However, politics have proved obstructive to all facets of counterterrorism policy. And politics may have been at play in the Muhammad case as well as in other cases involving Black Muslim converts. Several weeks ago, STRATFOR heard from sources that the FBI and other law enforcement organizations had been ordered to "back off" of counterterrorism investigations into the activities of Black Muslim converts. At this point, it is unclear to us if that guidance was given by the White House or the Department of Justice, or if it was promulgated by the agencies themselves, anticipating the wishes of President Barack Obama and Attorney General Eric Holder. As STRATFOR has previously noted, the FBI has a culture that is very conservative and risk-averse. Many FBI supervisors are reluctant to authorize investigations that they believe may have negative blow-back on their career advancement. In light of this institutional culture, and the order to be careful in investigations relating to Black Muslim converts, it would not be at all surprising to us if a supervisor refused to authorize a full-field investigation of Muhammad that would have included surveillance of his activities. Though in practical terms, even if a full-field investigation had been authorized, due to the caution being exercised in cases related to Black Muslim converts, the case would most likely have been micromanaged to the point of inaction by the special agent in charge of the office involved or by FBI headquarters. Even though lone wolves operate alone, they are still constrained by the terrorist attack cycle, and because they are working alone, they have to conduct each step of the cycle by themselves. This means that they are vulnerable to detection at several different junctures as they plan their attacks, the most critical of which is the surveillance stage of the operation. Muhammad did not just select that recruiting center at random and attack on the spot. He had cased it prior to the attack just as he had been taught in the militant training camps he attended in Yemen. Law enforcement officials have reported that Muhammad may also have researched potential government and Jewish targets in Little Rock, Philadelphia, Atlanta, New York, Louisville and Memphis. Had the FBI opened a full-field investigation on Muhammad, and had it conducted surveillance on him, it would have been able to watch him participate in preoperational activities such as conducting surveillance of potential targets and obtaining weapons. There is certainly going to be an internal inquiry at the FBI and Department of Justice — and perhaps even in Congress — to determine where the points of failure were in this case. We will be watching with interest to see what really transpired. The details will be extremely interesting, especially coming at a time when the Obama administration appears to be following the Clinton-era policy of stressing the primacy of the FBI and the law enforcement aspect of counterterrorism policy at the expense of intelligence and other elements.

Όταν τα μυστικά βγαίνουν στη φόρα...

Σε αμερικανική κυβερνητική ιστοσελίδα αναρτήθηκε κατά λάθος αναφορά 266 σελίδων που περιείχε λεπτομέρειες σχετικά με τα πυρηνικά προγράμματα της χώρας. Το λάθος έγινε

αντιληπτό από τους New York Times που ενημέρωσαν αρμοδίως τις αρχές.

U.S. Accidentally Releases List of Nuclear Sites

The federal government mistakenly made public a 266-page report, its pages marked “highly confidential,” that gives detailed information about hundreds of the nation’s civilian nuclear sites and programs, including maps showing the precise locations of stockpiles of fuel for nuclear weapons. The publication of the document was revealed Monday in an online newsletter devoted to issues of federal secrecy. That set off a debate among nuclear experts about what dangers, if any, the disclosures posed. It also prompted a flurry of investigations in Washington into why the document had been made public. On Tuesday evening, after inquiries from The New York Times, the document was withdrawn from a Government Printing Office Web site. Several nuclear experts argued that any dangers from the disclosure were minimal, given that the general outlines of the most sensitive information were already known publicly. “These screw-ups happen,” said John M. Deutch, a former director of central intelligence and deputy secretary of defense who is now a professor at the Massachusetts Institute of Technology. “It’s going further than I would have gone but doesn’t look like a serious breach.” But David Albright, president of the Institute for Science and International Security, a private group in Washington that tracks nuclear proliferation, said information that shows where nuclear fuels are stored “can provide thieves or terrorists inside information that can help them seize the material, which is why that kind of data is not given out.” The information, considered confidential but not classified, was assembled for transmission later this year to the International Atomic Energy Agency as part of a process by which the United States is opening itself up to stricter inspections in hopes that foreign countries, especially Iran and others believed to be clandestinely developing nuclear arms, will do likewise. President Obama sent the document to Congress on May 5 for Congressional review and possible revision, and the Government Printing Office subsequently posted the draft declaration on its Web site. As of Tuesday evening, the reasons for that action remained a mystery. On its cover, the document referred to the Committee on Foreign Affairs and ordered to be printed. But Lynne Weil, the committee spokeswoman, said the committee had “neither published it nor had control over its publication.” Gary Somerset, a spokesman for the printing office, said it had “produced” the document “under normal operating procedures” but had now removed it from its Web site pending further review. The document contains no military information about the nation’s stockpile of nuclear arms, or about the facilities and programs that guard such weapons. Rather, it presents what appears to be an exhaustive listing of the sites that make up the nation’s civilian nuclear complex, which stretches coast to coast and includes nuclear reactors and highly confidential sites at weapon laboratories. Steven Aftergood, a security expert at the Federation of American Scientists in Washington, revealed the existence of the document on Monday in Secrecy News, an electronic newsletter he publishes on the Web. Mr. Aftergood expressed bafflement at its disclosure, calling it “a one-stop shop for information on U.S. nuclear programs.” In his letter of transmittal to Congress, Mr. Obama characterized the information as “sensitive but unclassified” and said all the information that the United States gathered to comply with the advanced protocol “shall be exempt from disclosure” under the Freedom of Information Act. The report details the locations of hundreds of nuclear sites and activities. Each page is marked across the top “Highly Confidential Safeguards Sensitive” in capital letters, with the exception of pages that detailed additional information like site maps. In his transmittal letter, Mr. Obama said the cautionary language was a classification category of the International Atomic Energy Agency’s inspectors. The agency, in Vienna, is a unit of the United Nations whose mandate is to enforce a global treaty that tries to keep civilian nuclear programs from engaging in secret military work. In recent years, it has sought to gain wide adherence to a set of strict inspection rules, known formally as the additional protocol. The rules give the agency powerful new rights to poke its nose beyond known nuclear sites into factories, storage areas, laboratories and anywhere else that a nation might be preparing to flex its nuclear muscle. The United States signed the agreement in 1998 but only recently moved forward with carrying it out.

The report lists many particulars about nuclear programs and facilities at the nation’s three nuclear weapons laboratories — Los Alamos, Livermore and Sandia — as well as dozens of other federal and private nuclear sites. One of the most serious disclosures appears to center on the Oak Ridge National Laboratory in Tennessee, which houses the Y-12 National Security Complex, a sprawling site ringed by barbed wire and armed guards. It calls itself the nation’s Fort Knox for highly enriched uranium, a main fuel of nuclear arms. The report lists “Tube Vault 16, East Storage Array,” as a prospective site for nuclear inspection. It said the site, in Building 9720-5, contains highly enriched uranium for “long-term storage.” An attached map shows the exact location of Tube Vault 16 along a hallway and its orientation in relation to geographic north, although not its location in the Y-12 complex. Tube vaults are typically cylinders embedded in concrete that prevent the accidental formation of critical masses of highly enriched uranium that could undergo bursts of nuclear fission, known as a criticality incident. According to federal reports, a typical tube vault can hold up to 44 tons of highly enriched uranium in 200 tubes. Motion detectors and television cameras typically monitor each vault. Thomas B. Cochran, a senior scientist in the nuclear program of the Natural Resources Defense Council, a private group in Washington that tracks atomic arsenals, called the document harmless. “It’s a better listing than anything I’ve seen” of the nation’s civilian nuclear complex, Mr. Cochran said. “But it’s no national-security breach. It confirms what’s already out there and adds a bit more information.”

Συνδυασμός ομάδων HAZMAT-SWAT

Η εμπλοκή των ειδικών ομάδων επέμβασης της αστυνομίας σε επιχειρήσεις σε μολυσμένο περιβάλλον οδήγησε στην ανάγκη εξειδικευμένης εκπαίδευσης στον τομέα της ΧΒΡΠ άμυνας.

HazSWAT changed?

Combining hazmat and SWAT training for tactical operators



BCSO works with fire and hazmat teams to adopt and adapt protocols for hazSWAT response. Learning to function wearing PPE is essential to safe SWAT operations in IDLH situations.

CBRNE (chemical biological, radiological, nuclear or explosive) might bring to mind Three Mile Island and dirty bombs. Although these environments are classified as hazardous, officers may find themselves in a myriad of other situations, such as surrounded by the toxic dust at Ground Zero, or the Anthrax spores in the American Media Inc. building in Boca Raton, Fla. Numerous arrests for possession of ricin, a deadly toxin made from castor beans, have been reported from Las Vegas to Escanaba,

Mich. With the abundance of meth labs, officers often find themselves in situations immediately dangerous to life or health (IDLH), where they must continue to perform regardless of the environment. "There are new chemical labs and that's becoming more frequent, creating adverse conditions that law enforcement has to deal with," says Monroe County (Fla.) Sheriff's Office SWAT Assistant Team Leader Det. Juan Llera. Because of the detrimental consequences involved in IDLH situations, federal agencies, including Occupational Safety and Health Administration, have established standards emergency responders must adhere to. These not only apply to fire departments and hazardous materials (hazmat) teams, but also to tactical officers. OSHA 1910.120 (Hazardous Waste Operations & Emergency Response) assists agencies by defining hazardous situations, emergency responses and qualified personnel. When officers respond to emergencies involving hazardous materials, they are required to follow these guidelines to reduce the chance of "an uncontrolled release of the hazardous substance." OSHA furthers emergency responder requirements with 1910.134, which explains guidelines that reference the control of contaminated air. These include "harmful dusts, fogs, fumes, mists, gases, smokes, sprays or vapors," and require a respirator be provided to anyone entering into a contaminated environment.

SWAT

Although both entities are designated as first responders and bound by OSHA requirements, SWAT team operators have a different mission than a hazmat team when responding to potential hazards. "During a normal SWAT call-out, we have to contain the human threat," explains Lt. Darin Dowe, Broward County (Fla.) Sheriff's Office (BCSO) SWAT operator and instructor, and tactical WMD program coordinator. "With the suspected or actual hazmat/WMD threat we have two issues: Containing the person and containing the threat substance that person may or may not have." Dowe says. "[In reference to] hostage rescue, we can't run into a house where it is suspected there is a CBRNE threat and put the operator in harm's way. We have to determine the level of protection we need before we can take action. Our goal is to ensure that the public and all public safety personnel are safe." As first responders, tactical operators enter volatile situations and need to function in a certain way to meet their mission. The inclusion of a hazardous material changes both the scenario and response. To meet these challenges, several Florida agencies incorporated hazardous material training into their tactical operations.

Εμβόλιο κατά της ευλογιάς

Το ιστορικό της περιπέτειας ενός πεζοναύτη που εμβολιάστηκε κατά της ευλογιάς...

A Marine's hard fight: leukemia and a smallpox vaccine infection

First came the stomachaches and low fevers. Then Lance Cpl. Cory Belken broke out in a rash. His temperature shot up to 104.6 degrees. The young man became delirious, telling his



mother, Barbara Skaggs, that he wanted to go to the smoking section even though he had never smoked. His blood pressure dropped. Belken, a 20-year-old Marine, had been dealing with two potentially life-threatening conditions at once -- a recent onset of acute leukemia and a blooming infection from a smallpox vaccination. He was that unlucky one-in-a-million case, his doctors said, but one they hoped would end well. Unfortunately, his immune system wasn't regenerating very well

after two rounds of chemotherapy. Belken was crashing. In doctors' and family members' account of that harrowing night of March 7, hospital staff at Naval Medical Center San Diego

scrambled to get Belken to the intensive care unit about 11 p.m. and worked on him for about 12 hours. Doctors pumped five medications called vasopressors into Belken's body at the highest dose, constricting peripheral blood vessels to keep blood pumping to his heart and brain. Other organs started to fail. His hands and feet turned dusky. On the afternoon of March 8, Lt. William Danchenko, an oncology nurse practitioner, approached family members in the waiting room. He thought this was it. "We need you now," Danchenko told them. Skaggs, 39, rushed to the bedside of her only child. "Come back," she begged.

Bad timing

Belken was the victim of bad timing, said Lt. Cmdr. Edith Lederman, an infectious diseases specialist at the naval hospital. When a corpsman at the Marine Corps Air Ground Combat Center in Twentynine Palms, Calif., jabbed Belken's arm 15 times to deliver the smallpox vaccine Jan. 13, the young man felt fine. He was running regularly and lifting weights every day. His family, which hails from the St. Louis area, had no history of leukemia, a cancer of the bone marrow that cripples the immune system. His answers to a standard set of health questions did not rule him out from getting the standard regimen of vaccines for deploying to Iraq. So Belken got the smallpox shot, which delivers a live form of the virus vaccinia, a milder cousin of the smallpox virus variola. Had the cancerous cells built up faster, officials would have seen the symptoms of leukemia and exempted him from getting the vaccine, Lederman said. Or, if he had gotten the vaccine several months earlier, she said, his immune system probably could have cleared the vaccinia without much trouble. "It's a fluke, really," Lederman said. More than 1.7 million service members have been vaccinated against smallpox since 2002 because of fears of a bioterrorism attack. Most simply develop a tiny blister that scabs over after 14 days. The scab typically falls off by the 21st day, leaving a barely visible circle of new skin on the arm. But the military knows it is risking potentially fatal side effects to protect service members, who are exposed to diseases most Americans never encounter. About 200 service members have developed complications associated with the smallpox vaccination that were serious enough to require hospitalization or absence from work, according to Lt. Col. Patrick Garman of the Military Vaccine Agency. Problems included inflammations of the brain and parts of the heart. Most of these people recovered, but in one case in 2003, two expert panels concluded that a group of standard deployment vaccines, including the one for smallpox, probably contributed to the death of Army Spc. Rachel Lacy. In 2007, a vaccinia infection also nearly killed a 2-year-old Indiana boy who contracted the virus from his father, a recently vaccinated serviceman. The boy, who was vulnerable because he had the skin condition eczema, developed vaccinia lesions over 50% of his body. He recovered after he received an experimental drug. This low rate of serious problems is still high enough to keep public health officials from mandating smallpox jabs for the general population, experts said. After all, the disease has been eradicated as a natural infection since 1980. But because the military still thinks there is a credible threat of bioterrorism with smallpox, one of the deadliest diseases known to man, officials remain committed to inoculating service members, said Dr. Michael Kilpatrick, who directs strategic communications for the Military Health System. Military officials said that they were doing their best to reduce complications by asking about preexisting conditions, but that they couldn't catch everything. "The reality is, we're never going to have zero risk on a vaccine," Kilpatrick said. "There's always going to be that individual that has some untoward event that would occur." Belken was one of the estimated 12,800 Americans a year who develop acute myelogenous leukemia. He just didn't know it when he was vaccinated. Things started to go awry about a week later. He had a headache that didn't go away, and he slept straight through a day and a half. A friend took him to an on-base Navy emergency room. "They drew blood, and they told me that I had half the blood that I should've had," Belken recalled. On Jan. 28, he was admitted to Naval Medical Center San Diego. Cmdr. Amy Reese, a staff oncologist, thought it best to start chemotherapy immediately, despite the blistering and slightly enlarged size of his vaccination site. "We know untreated leukemia is 100% fatal," she said. Doctors weren't sure what the treatments, which wipe out both good and bad cells, would do to the vaccination site. "It's a strange situation to come across," she said. Doctors said they don't

believe his vaccination triggered the leukemia. But his depleted immune system, crippled by the leukemia and chemotherapy, did appear to leave enough of an opening for the vaccinia to take hold. A colleague asked Lederman to take a look at Belken's lesion because he knew she worked on pox viruses during a fellowship at the federal Centers for Disease Control and Prevention. When she lifted up the gauze March 2, seven weeks after the shot, she was shocked to see the lesion had grown to nearly 2 inches in diameter. A rim of blistering tissue surrounded a tan-colored crust. Vaccinia appeared to be actively eating up tissue. Lederman told Belken and family members who had flown in from Missouri that she was very concerned. She suspected a spreading infection known as progressive vaccinia. She was sending samples to the CDC. Lederman told the family that it was a rare condition and potentially fatal. In the past, when Americans routinely received smallpox jabs, 15% of patients who developed progressive vaccinia died, despite massive amounts of vaccinia immune globulin, the standard treatment. In his laid-back, Southern-inflected drawl, Belken asked evenly, "Can it be cured?" Yes, Lederman told him, but it would probably require some experimental treatments in addition to the standard ones. Because she had worked on the case of the child from Indiana, she knew about a drug called ST-246. The toddler was the first vaccinia patient who had received the drug, and it had worked. Belken felt encouraged. "All right then," he said. Lederman secured special approval from the Food and Drug Administration. Belken got very protective of his arm and didn't want family members to hug too tightly. "Stay away," he told them. "That stuff's no joke."

Minutes to live

With so many things haywire in Belken's system, doctors hustled to figure out what was causing his crash. The main problem turned out to be a multiple-drug-resistant bacterium called *Pseudomonas aeruginosa*. It had invaded Belken's bloodstream while his immune system was low. Tests for vaccinia did not show any in the blood or bone marrow, but Lederman acknowledged that the infection may have had some effect. "Any time you have an infection or multiple infections going on at the same time, you distract the immune system somewhat," she said. Doctors gave him minutes to live, his mother recalled. "And then after those minutes went by, it was hours," she said. "It turned to days, and then it was all right." One doctor called Belken "Lazarus." Danchenko has never seen such a turnaround. "He had one foot in the grave and one on a banana peel," he said. "If you have anybody who's an atheist, they should go meet Cory." The near-death experience left its mark, shriveling some of Belken's toes. Surgeons had to amputate both legs below the knees. The vaccinia also spawned satellite lesions. Lederman had to add another experimental drug known as CMX-001, which had never been tested on vaccinia patients. About a month later, she had to kill another drug-resistant bacterium that started to grow on Belken's lesion. The young man required so many doses of vaccinia immune globulin that the CDC has suggested re-evaluating how much we keep in the Strategic National Stockpile. Belken's infection required an amount originally estimated to be enough for 30 people. In his fifth-floor hospital room one recent morning, Belken patiently crossed his arms and waited for Lederman to apply medicine to his lesion. His face was gaunt and serious, a contrast with the rosy-cheeked former self smiling back in pictures tacked to the wall. Lederman was pleased with the scabbing and new purplish-pink skin. "We haven't got any live virus in over a week," she said with a smile. Belken still can't believe all of these problems attacked him at once. "It sucks," he said. "I mean, I did all the training with all my friends and, I mean, we were moments away from going." Belken and his family wished he didn't have to deal with the vaccinia in addition to the leukemia. They didn't think a smallpox attack was very likely. "I think it's a big chance they're taking, giving them the shots," Skaggs said. She was just glad he ended up at a hospital that had enough experience to handle her son's case. "If we wouldn't have tried these experimental drugs, he could've died from it, you know," she said. Belken has a long road to recovery, but he is making progress. After a four-month stay at the San Diego hospital, he was transferred to a rehabilitation facility about a week and a half ago. With the help of a front-wheel walker, Belken can now go about 50 feet on his new prosthetic legs without taking a break. He is taking such long, fast strides now that sometimes his physical

therapists ask him to pull back because they are worried he might reopen some sores on his amputations. He was also promoted to corporal last week. Bone marrow tests lately have shown no evidence of leukemia, and Belken is eagerly preparing for a transplant. Doctors think they have found a pretty close donor match. Belken's grandmother Judy Weekley said she has heard there is a 20% chance her grandson won't make it through the surgery. But she said the family is holding on to the guarded optimism that has sustained them through this ordeal. "God's kept him alive through this; he's not going to let him down now," Weekley said. "Cory's a fighter. He wants to live. Real bad."

ETA – 50 χρόνια από την ίδρυση της

Η βασκική τρομοκρατική οργάνωση ETA συμπλήρωσε φέτος 50 χρόνια επιχειρήσεων κατά των ισπανικών αρχών έχοντας στο ενεργητικό της πολλές αιματηρές επιθέσεις. Η πρόσφατη δραστηριότητα της στοχοποιεί την τουριστική βιομηχανία της Ισπανίας με συντονισμένες επιθέσεις σε θέρετρα όπως η Μαγιόρκα (καλοκαίρι 2009).

ETA Marks 50 Years of Operations

On a December morning in 1973, an ear-splitting blast ripped through the fashionable Salamanca district of Madrid, shaking the walls of this reporter's home. The first frenzied reports on the Spanish state-controlled media spoke of a gas main explosion. A journalist's instinct said this was not so; political tensions were running high in the final years of the Franco dictatorship, the aged general was suffering from severe Parkinson's disease and his frail voice was barely audible in broadcasts. Everyone impatiently awaited the end of four decades of a tyranny that still had two years to run, and everyone expected trouble. When the dust cleared, it emerged that the Basque guerrilla organisation Euskadi ta Askatasuna (Basque Homeland and Liberty - ETA) had detonated a bomb under the street, blowing up the car of Prime Minister Admiral Luis Carrero Blanco, Franco's heir apparent, known as the "Ogre" for his extremist hard-line policies. It was generally agreed that had Carrero Blanco survived, Spain was in for a messy post-Franco period. The banned socialist and communist parties, backed with the muscle of their trades unions, were beginning to resurface after nearly 40 years underground. Tensions were running



high and there were widespread fears of bloody street clashes under a future Carrero Blanco régime. That night, stocks of champagne were depleted in the wine shops of the Basque Country, though this was the last time one of ETA's violent actions was to win widespread popular support across Spain.

Origins of ETA

This year ETA celebrates its 50th birthday, making it Europe's longest surviving terrorist organisation. ETA's founders were not urban guerrillas or militants of the revolutionary proletariat. They were well-heeled, middle-class university students from Bilbao's Deusto University, whose aim was not to launch a campaign of violence. They took their inspiration from Sabino Arana, the 19th century father of Basque nationalism and founder of the Basque Nationalist Party (Partido Nacionalista Vasco - PNV). The students were angered by the Franco regime's political oppression, but also by what they perceived to be a plot to stamp out

the Basque identity, as embodied in some



of Arana's more fanciful proclamations. For instance, "We, the Basques, must avoid mortal contagion, maintain firm our faith in our ancestors and the serious religiosity that distinguishes us, and purify our customs, in the past so healthy and exemplary, and now so infected and at the point of corruption by the influence of those who have come from outside." The Basque region was granted autonomy by the Spanish Republic in 1936 and formed its own government and army. Basque resistance to Franco's rebel troops in the 1936-39 Spanish civil war collapsed following the carpet bombing of the Basque

city of Guernica by the German Luftwaffe and Italian Aviazione Legionaria in 1937. After the war, Franco took his revenge on the Basques by declaring Vizcaya and Guipúzcoa, part of the intransigent Basque hinterland, "punished provinces." The Basque language was banned and all other manifestations of Basque culture were proscribed. The provinces of Vitoria and Navarre (the latter not officially part of the Basque Country) had gone over to the fascist cause early in the war and were spared the ravages of Franco's Falangists. In 1959, a small group of Basque students managed to obtain government permission to travel abroad on the pretext of participating in a sporting event. They went to Paris to meet with José Antonio Aguirre, the president of the Basque government in exile, and seek his support for a campaign of political activism. The student delegation was kept waiting for hours and when Aguirre finally emerged, he greeted them effusively with "wonderful news" - all the defeated Republic's political parties now in exile had at last agreed on a common platform. Struggling to conceal their dismay with this apparent demise of the Basque nationalist movement, the students returned to Spain, where some began to find inspiration in armed guerrilla movements like Israel's Irgun and the Irish Republican Army. Thus began ETA's transition from graffiti to bullets. ETA has never had a problem, then or now, recruiting young militants to its cause. In the Franco years, any attempt to raise the Basque flag or distribute nationalist leaflets was met with a merciless police crackdown, which often included torture sessions in the basement of Madrid's Security Headquarters. Hence there was never a shortage of angry youth happy to take up arms for the cause. The fledgling band of revolutionaries was able to organize and arm itself thanks to donations from Basque exiles in Mexico and Venezuela. Later on, bank robberies and extortion became routine fund-raising tactics. ETA drew its first blood in 1968 when a notorious police torturer, Melitón Manzanás, was gunned down outside his home in the border town of Irún. The government's response was to impose a "state of exception," effectively suspending constitutional guarantees, first in the Basque country and then in all of Spain. That same month some 600 arrests were made in the Basque provinces. The round-ups carried on for months and the following year another 2,000 people were detained, allegedly tortured and convicted of crimes against the state. The ETA activists, who at their peak never numbered more than a few hundred hardcore militants, had now acquired the status of a violent threat to the Franco régime.

International Connections

Leaving aside the early financial contributions from abroad, it is worth pointing out that ETA's alleged links to terrorist groups in Latin America, North Africa and elsewhere are tenuous and sporadic. The Basques have reportedly helped train some FARC (Fuerzas Armadas Revolucionarias de Colombia) guerrillas in exchange for cash and the Colombian terrorists have unsuccessfully tried to persuade ETA to carry out killings on their behalf in Spain, but the relationship is peripheral to ETA's strategic objectives (El País, July 30, 2008). ETA is not concerned with world revolution and the liberation of the proletariat. It is a narrowly-focused movement fighting to achieve an independent Basque homeland free from "Spanish pollution" and embracing an almost hysterical doctrine of "racial purity". The only

mantra it shares with other guerrilla groups is an intense dislike of the United States. This hostility, however, is not based on accusations of imperialism but rather of betrayal. After the Second World War, the Basque government in exile fervently expected the United States to depose Franco, who had sided with Hitler in the war despite declaring Spanish neutrality. Instead, what they got was four U.S. military bases on Spanish soil and an aid package from the Eisenhower administration that rescued Spain from economic collapse. Given the ferocity of the police crackdown, one wonders how ETA managed to survive and indeed intensify its campaign of violence. The answer is the French connection. The French Basque region provided refuge for ETA militants on the run and a safe haven to regroup and plan attacks south of the border. "ETA operated across the border between Spain and France with something approaching impunity," says the Basque journalist and ETA historian Iñigo Gurruchaga. "It was in the latter country that their leadership operated, apparently unhindered by French security forces." [7] ETA considers this French region a part of Euskalherria, or the Greater Basque Country. In fact, one of their slogans is $4+3 = 1$, referring to the four Spanish and three French Basque provinces. The French government takes a somewhat different view, yet for years Paris refused to comply with Spanish demands to hand over ETA guerrillas holed up in French territory. During the Franco period, France turned a deaf ear to Madrid's demands on the grounds that it could not in good conscience deport asylum seekers to a fascist dictatorship. It is only in recent years that ETA militants have been denied a safe haven across the border. Thanks to French police work, a number of major ETA figures have been arrested and sent back to Spain. This has undeniably weakened the movement, perhaps terminally, though there remains the deeply-rooted challenge of grassroots support.

The Political Dimension

Gone are the days when ETA's now illegal political arm, Herri Batasuna, could command 15% or more of the vote in Basque elections. Last March, radical parties won only four of 75 seats in the regional Basque parliament. The result also marked a crushing setback for the Basque nationalist PNV, which had held power for nearly 30 years (El Correo, March 27). Socialist Party leader Patxi López was sworn in as president of a government that will rule the Basque region in coalition with the conservative Popular Party. For the moment, the Spanish government has no plans to renew peace talks with the guerrillas. Sporadic attempts to achieve a lasting ceasefire have been ongoing for years and the last round failed in 2006, when ETA planted a massive bomb in Madrid Airport (Reuters, April 21). ETA still believes it is negotiating from a position of strength and refuses to budge from its demands for a referendum on Basque independence. The Spanish government correctly argues that this is unconstitutional and refuses to open a dialogue on greater regional independence.

Conclusion

The ETA has killed more than 825 people since the start of its campaign of violence in the late 1960s. More will undoubtedly fall until a sizeable segment of the Basque people is persuaded to withdraw its tacit support for the terrorists. Most of the victims have been members of the security forces or figures linked to the government, but the Basque terrorists have not shied away from the occasional civilian atrocity. Nevertheless, the suspected beating of an ETA supporter in police custody, or the transfer of an ETA convict to a prison outside the Basque Country, are events capable of detonating mass street protests in San Sebastián or one of the industrial towns of Vizcaya and Guipúzcoa. ETA retains the capacity to inflict isolated acts of murder and destruction. It has never had the ability to destabilize the Spanish political system, but documents seized in the recent arrest of Jurdan Martitegi Lizaso, the military leader of ETA, indicated the group was about to begin a new series of attacks on the new Socialist government of the Basque region (La Voz de Galicia, April 23; Euro Weekly [Spain], April 30). Madrid will now have to decide whether to soften its approach to Basque nationalism without capitulating to the terrorists, or accept separatist violence as a long-term thorn in the side of Spanish democracy.

Γουρούνια γρίπης – γουρούνια αγωγών – το ίδιο επικίνδυνα

Τα πρώτα είναι γνωστά αν και έχουν άδικα ενοχοποιηθεί. Τα δεύτερα είναι ειδικές συσκευές που επιθεωρούν αγωγούς καυσίμων για βλάβες και δυσλειτουργίες. Τι θα γίνει όμως εάν μεταλλαχθούν σε τρομοκρατικές συσκευές;

'Pigs' cited as serious terror threat

The idea of using a device called a "pig," or pipeline inspection gauge, for mayhem isn't new, and even was highlighted in the James Bond movie "The World is Not Enough," where a nuclear bomb is attached to such a device. In the movie storyline from many years ago, the plan was that the explosion would happen in a strategic oil pipeline in Kazakhstan and cut vital oil supplies to Europe. But analysts say that the concept is, indeed, grounded in reality. In fact, there are U.S. security experts who believe terrorists would be capable of using pigs to infiltrate the pipeline networks in the United States and create havoc and destruction. A pig is



a device used by pipe contractors to clean or detect weaknesses in pipelines used for oil and gas, water or sewage. The device gets its name not only because of the acronym for pipeline inspection gauge but because it makes a squealing sound while travelling through a pipeline. Pigs come in various sizes and can travel remotely at high speeds. Contractors routinely use pigs in maintaining their pipelines. Crisscrossing U.S. cities and states, pipelines carry the nation's oil and natural gas, sewage and water and other products. Pipelines also connect to refineries and liquefied natural gas terminals and cross properties including airports, federal lands, streets, highways and interstates. In fact, the use of pigs to carry explosives or even weapons of mass destruction in pipelines while performing various operations without stopping the flow of product in the pipeline is quite possible. "Terrorists throughout the

world are very familiar with this simple method of delivering conventional and/or unconventional weapons anywhere and at anytime," according to David Gaubatz, a former agent for the U.S. Air Force Office of Strategic Investigations.

"The weapons can be placed into a pig launching system from any section of a city and sent remotely to any location that has oil, water, gas or sewage continuous pipelines," Gaubatz wrote to the G2Bulletin. "The weapons/explosives can then be detonated." One of Gaubatz' assignments as a special agent was to go into Iraq at the start of Operation Iraqi Freedom in early 2003 to locate WMD sites. He pointed out that Saddam Hussein



and Islamic terrorist organizations already knew the significance of the pig as a tool of mass destruction and terror. "Even Iraqi citizens were aware of the pig system," he said. "Chemical, biological and/or nuclear weapons can be stored in the pig and moved remotely through the thousands of miles of sewage, oil and water pipes throughout Iraq," he added. "There is a reason the water and sewage pipes (infrastructure) were bombed ... to hopefully destroy WMD that was hidden inside the pipes."

Φιδίσια όραση κατά της χημικής τρομοκρατίας

Μια νέα συσκευή από το Ισραήλ που χρησιμοποιεί μέρος του υπέρυθρου φάσματος

που είναι ορατό μόνον από τα φίδια ή τις νυκτερίδες vampire για να ανιχνεύσει, σε πραγματικό χρόνο, χημικές απειλές στο πόσιμο νερό.

Snake vision to fight chemo-terrorism

Chemical terrorism, or chemo-terrorism for short, doesn't get as much press as bio-terrorism, but the objectives are the same and the means even more readily available. In both cases, the purpose is to intimidate or coerce governments or civilian populations, to further political or social objectives. The difference is the method: chemo-terrorism means poisoning the air, water and food supply using chemicals such as caustic acids, arsine, benzene, cyanide,



hydrofluoric acid, mustard/T, ricin, sarin, and others. Bioterrorism involves releasing biologic agents or toxins, such as anthrax, brucella, cholera, e.coli 0157:H7, glanders, ricin toxin, typhoid fever, viral hemorrhagic fever, or any communicable disease. And while it may be difficult to get hold of anthrax, many poisons are as easy to get as going down to the local hardware or gardening store. Urban water supplies are particularly vulnerable to chemoterror, says Israeli physicist Prof. Abraham Katzir. Colorless and odorless liquids can't be seen by the human eye and water supplies aren't necessarily subject to daily testing. With many skyscrapers holding water reserves on

the top of the building, a terrorist only needs to introduce poison into a tank to wreak havoc. "A terrorist wouldn't have to kill tens of thousands of people. Only 50 deaths - as horrible as that would be - would cause nationwide panic." Now, to combat the threat of contamination due to sabotage, industrial spillage or natural disaster, Katzir has developed a new system that uses a part of the infrared (IR) spectrum seen only by snakes or vampire bats, to monitor the safety of a building or community's water supply - and in real time.

A personal challenge

Under Katzir's direction, Tel Aviv University's applied physics group has been involved for more than 10 years in research and development of devices that operate in the mid-IR spectrum (3-30 microns). The group has developed semiconductor lasers, electro-optical systems and optical fibers for this spectral range, in particular, crystalline fibers made of silver halides (AgClBr). One development, a laser bonding system that would allow surgeons to weld instead of suture tissue, has already received a great deal of media interest. Now Katzir is making news again, this time with a special IR fiber that could help protect water supplies from bio and chemo-terrorism as well as ecological disaster. Katzir has personal reasons for warning ordinary citizens against the threat of attack. His father, world-renowned scientist Prof. Aharon Katzir, was killed in 1972 at the Lod Airport Massacre, in which three members of the Japanese Red Army, on behalf of the Popular Front for the Liberation of Palestine, (PFLP), killed 24 people and injured 80 others at Israel's national airport. "I am trying to walk in his footsteps by doing applied research that can be a practical tool in an important battle," says Katzir.

Seeing water like snakes do

The modified optical fiber can detect "colors" in the IR spectrum that distinguish between pure and contaminated water. The spectrum is invisible to the naked human eye and perceived only by certain animals that use it to track down prey. "With our naked eyes we can't distinguish between pure water and water that contains a small amount of alcohol or acetone. They're all clear. We can't do it even with a spectrophotometer, which measures visible colors," explains Katzir. "But we can clearly distinguish between liquids using an infrared spectrometer which can distinguish between 'colors' in the invisible infrared spectrum."

Connected to a commercial IR spectrometer, the fibers serve as sensors that can detect and notify authorities immediately if a contaminant has entered a water reservoir, system, building or pipeline. Such an instrument could be used to detect hazardous chemicals, pollutants and threats in the water. The special fiber sensors enable real-time monitoring of water quality in remote locations, such as a lake, a river, or a pipeline. Currently, there is no system in place to detect chemical threats, whether intentional or accidental, instantaneously. Katzir says that the system he proposes can be ready for use in less than a year. According to the US Centers for Disease Control and Prevention, "drinking water can be tested around the clock, including hourly, monthly, quarterly, and annually, depending on the location and size of the public water system". Note the word 'can', not 'is'. In practice, water authorities in the US test water reservoirs usually once every day or two. Katzir notes that his automatic notification system "can cut millions of dollars from the cost of testing water manually."

Skyscrapers at risk

In lab tests, the fiber-optic system detected poisons such as pesticides in amounts well below the World Health Organization safety threshold. Preliminary field experiments have already been done at several European sites, and the results were reported recently in the *Journal of Applied Spectroscopy*. Katzir says that water management executives in Florida's Everglades and officials in Germany are among those who have expressed an interest in the technology. The sensors are biocompatible, non-soluble and non-toxic, he adds. "You can eat them and nothing will happen to you." And how real is the threat of chemo-terrorism? "Toxic materials are readily available as pesticides or herbicides in the agriculture industry, and can be harmful if consumed even in concentrations as low as few parts per million," says Katzir, who feels that skyscrapers in cities such as New York are a likely point of attack. "It's unlikely that someone will poison the water supply in Afghanistan, but America is in grave danger and needs to arm itself against chemical threats to its drinking water," he concludes.

To super market του θανάτου

Σύμφωνα με την πλέον πρόσφατη καταγραφή στο αμερικανικό USAMRIID στο Fort Detrick φυλάσσονται περίπου 70.000 φιαλίδια με δείγματα διαφόρων παθογόνων μικροοργανισμών σε 335 ψυγεία και καταψύκτες

USAMRIID finds more than 9,200 unrecorded disease samples

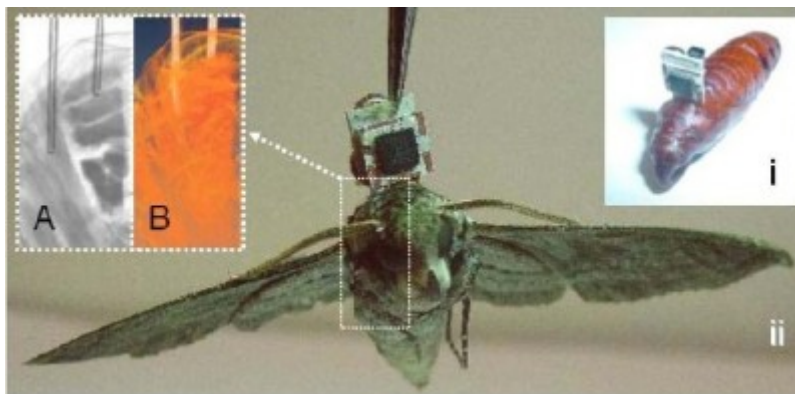
An inventory completed last month showed researchers at Fort Detrick had more than 9,200 more vials of disease samples than they had on record. The U.S. Army Medical Research Institute of Infectious Diseases searched all 335 of its refrigerators and freezers for the inventory, said Col. Mark Kortepeter, the institute's deputy commander. The institute's commander ordered the inventory Feb. 4, and the process was completed May 27. Overall, the institute holds more than 70,000 samples of so-called select agents, or diseases the government believes pose a severe threat to human health. The inventory process uncovered samples dating back several decades, and included vials of the pathogens that cause anthrax, ebola and rift valley fever. The vast majority of the found samples were likely working stock accumulated by researchers over several decades, Kortepeter said. Researchers determined that about half of the 9,200 samples had no further scientific value and destroyed them. The institute halted most of its research while it performed the inventory, but is now up and running again, Kortepeter said.

Νέα γενεά κυβερνο-εντόμων ανιχνεύει όπλα μαζικής καταστροφής

Φανταστική μικρο-τεχνολογία από το περίφημο ίδρυμα DARPA (πρόγραμμα HI-MES), στον τομέα των κυβερνο-εντόμων που θα διαθέτουν ικανότητες ανίχνευσης χημικών παραγόντων.

Pentagon Wants Cyborg Insects to Sniff WMD, Offer Free Wi-Fi

The Pentagon is looking for better ways to prevent chemical weapon attacks. So military researchers are implanting insect larvae with WMD-detectors - turning them into cyborg-critters that specialize in tracking down mustard gas. Naturally. In 2005, the military trained honeybees to sniff out land mines. Then, Darpa's HI-MEMS program started trying to mechanize insects instead. So far researchers have implanted micro-mechanical components into larval moths and created remote-controlled beetles. Those initial HI-MEMS efforts seemed designed for reconnaissance missions - this time, the Pentagon wants its modified bugs to detect and differentiate between chemical agents. The Pentagon has handed researchers at Agiltron Corporation a contract to implant larvae with "high sensitivity micromechanical chemical sensors" that run on electric power collected with an embedded "electromagnetic harvester." The implanted system would include muscle actuators, so



different tics or twitches would signal the detection of different chemicals. In separate deals, the Pentagon is also backing research into an insect-mounted device powered by fuel cells, for a more reliable energy source. "This solution offers several advantages over

the existing electromechanical methods; 50-100X higher power density, power-generation independent of insect species, and power generation in absence of insect motion," according to the contract award. And to really bring the critters into the 21st century, the military wants to hook them up with their own wireless network - using chirps instead of Tweets. They're funding two projects that would create "a mobile ad hoc network" for vocal insects like crickets and cicadas. Insects will be equipped with embedded MEMS transceivers that pick up modulated calling sounds from nearby insects. Once the information in a call is extracted by the transceiver, the information code is applied to an electromechanical device on board the insect that modulates the insect calls, thereby retransmitting the information to another insect, and so on. The instant-insect message would then be transmitted to humans or computerized systems, which could decode the covert chirp. Sure, swarms of teeny biochemical detectors would be valuable in war-zones. But fly-swatters take note: project proposals reference "civilian and defense applications," so your bug-squashing habit might soon make you a threat to national security.

Ασφάλεια περιοχών λατρείας

Πολύ ενδιαφέρουσα προσέγγιση από τη δεξαμενή σκέψης Stratfor στο αντικείμενο της ασφάλειας περιοχών λατρείας και συγκέντρωσης μεγάλου αριθμού ατόμων που αποτελούν στόχο για οργανωμένους τρομοκράτες ή μοναχικούς λύκους

Security at Places of Worship: More Than a Matter of Faith

In recent months, several high-profile incidents have raised awareness of the threat posed by individuals and small groups operating under the principles of leaderless resistance. These incidents have included lone wolf attacks against a doctor who performed abortions in Kansas, an armed forces recruitment center in Arkansas and the U.S. Holocaust Memorial Museum in Washington,



D.C. Additionally, a grassroots jihadist cell was arrested for attempting to bomb Jewish targets in the Bronx and planning to shoot down a military aircraft at an Air National Guard base in Newburgh, N.Y. In addition to pointing out the threat posed by grassroots cells and lone wolf operatives, another common factor in all of these incidents is the threat of violence to houses of worship. The cell arrested in New York left what they thought to be active improvised explosive devices outside the Riverdale Temple and the Riverdale Jewish Community Center. Dr. George Tiller was shot and killed in the lobby of the Reformation Lutheran Church in Wichita. Although Abdulhakim Mujahid Muhammad conducted his attack against a Little Rock recruiting center, he had conducted preoperational surveillance and research on targets that included Jewish organizations and a Baptist church in places as far away as Atlanta and Philadelphia. And while James von Brunn attacked the Holocaust Museum, he had a list of other potential targets in his vehicle that included the National Cathedral. In light of this common thread, it might be instructive to take a more detailed look at the issue of providing security for places of worship.

Awareness: The First Step

Until there is awareness of the threat, little can be done to counter it. In many parts of the world, such as Iraq, India and Pakistan, attacks against places of worship occur fairly frequently. It is not difficult for religious leaders and members of their congregations in such places to be acutely aware of the dangers facing them and to have measures already in place to deal with those perils. This is not always the case in the United States, however, where many people tend to have an “it can’t happen here” mindset, believing that violence in or directed against places of worship is something that happens only to other people elsewhere. This mindset is particularly pervasive among predominantly white American Protestant and Roman Catholic congregations. Jews, Mormons, Muslims and black Christians, and others who have been targeted by violence in the past, tend to be far more aware of the threat and are far more likely to have security plans and measures in place to counter it. The Jewish community has very well-developed and professional organizations such as the Secure Community Network (SCN) and the Anti-Defamation League that are dedicated to monitoring threats and providing education about the threats and advice regarding security. The Council on American-Islamic Relations has taken on a similar role for the Muslim community and has produced a “Muslim community safety kit” for local mosques. The Church of Jesus Christ of Latter-day Saints (LDS) also has a very organized and well-connected security department that provides information and security advice and assistance to LDS congregations worldwide. There are no functional equivalents to the SCN or the LDS security department in the larger Catholic, evangelical Protestant and mainline Protestant communities, though there are some organizations such as the recently established Christian Security Network that have been attempting to fill the void. Following an incident, awareness of the threat seems to rise for a time, and some houses of worship will put some security measures in place, but for the most part such incidents are seen as events that take place elsewhere, and the security measures are abandoned after a short time. Permanent security measures are usually not put in place until there has been an incident of some sort at a specific house of worship, and while the triggering incident is sometimes something that merely provides a good scare, other times it is a violent action that results in tragedy. Even when no one is hurt in the incident, the emotional damage caused to a community by an act of vandalism or arson at a house of worship can be devastating. It is important to note here that not all threats to places of worship will emanate from external actors. In the midst of any given religious congregation, there are, by percentages, people suffering from serious mental illnesses, people engaged in bitter child-custody disputes, domestic violence situations and messy divorces. Internal disputes in the congregation can also lead to feuds and violence. Any of these situations can (and have) led to acts of violence inside houses of worship.

Security Means More than Alarms and Locks

An effective security program is more than just having physical security measures in place. Like any man-made constructs, physical security measures — closed-circuit television

(CCTV), alarms, cipher locks and so forth — have finite utility. They serve a valuable purpose in institutional security programs, but an effective security program cannot be limited to these things. Devices cannot think or evaluate. They are static and can be observed, learned and even fooled. Also, because some systems frequently produce false alarms, warnings in real danger situations may be brushed aside. Given these shortcomings, it is quite possible for anyone planning an act of violence to map out, quantify and then defeat or bypass physical security devices. However, elaborate planning is not always necessary. Consider the common scenario of a heavy metal door with very good locks that is propped open with a trashcan or a door wedge. In such a scenario, an otherwise “secure” door is defeated by an internal security lapse. However, even in situations where there is a high degree of threat awareness, there is a tendency to place too much trust in physical security measures, which can become a kind of crutch — and, ironically, an obstacle to effective security. In fact, to be effective, physical security devices always require human interaction. An alarm is useless if no one responds to it, or if it is not turned on; a lock is ineffective if it is not engaged. CCTV cameras are used extensively in corporate office buildings and some houses of worship, but any competent security manager will tell you that, in reality, they are far more useful in terms of investigating a theft or act of violence after the fact than in preventing one (although physical security devices can sometimes cause an attacker to divert to an easier target). No matter what kinds of physical security measures may be in place at a facility, they are far less likely to be effective if a potential assailant feels free to conduct preoperational surveillance, and is free to observe and map those physical security measures. The more at ease someone feels as they set about identifying and quantifying the physical security systems and procedures in place, the higher the odds they will find ways to beat the system. A truly “hard” target is one that couples physical security measures with an aggressive, alert attitude and sense of awareness. An effective security program is proactive — looking outward to where most real threats are lurking — rather than inward, where the only choice is to react once an attack has begun to unfold. We refer to this process of proactively looking for threats as protective intelligence. The human interaction required to make physical security measures effective, and to transform a security program into a proactive protective intelligence program, can come in the form of designated security personnel. In fact, many large houses of worship do utilize off-duty police officers, private security guards, volunteer security guards or even a dedicated security staff to provide this coverage. In smaller congregations, security personnel can be members of the congregation who have been provided some level of training. However, even in cases where there are specially designated security personnel, such officers have only so many eyes and can only be in a limited number of places at any one time. Thus, proactive security programs should also work to foster a broad sense of security awareness among the members of the congregation and community, and use them as additional resources. Unfortunately, in many cases, there is often a sense in the religious community that security is bad for the image of a particular institution, or that it will somehow scare people away from houses of worship. Because of this, security measures, if employed, are often hidden or concealed from the congregation. In such cases, security managers are deprived of many sets of eyes and ears. Certainly, there may be certain facets of a security plan that not everyone in the congregation needs to know about, but in general, an educated and aware congregation and community can be a very valuable security asset.

Training

In order for a congregation to maintain a sense of heightened awareness it must learn how to effectively do that. This training should not leave people scared or paranoid — just more observant. People need to be trained to look for individuals who are out of place, which can be somewhat counterintuitive. By nature, houses of worship are open to outsiders and seek to welcome strangers. They frequently have a steady turnover of new faces. This causes many to believe that, in houses of worship, there is a natural antagonism between security and openness, but this does not have to be the case. A house of worship can have both a steady stream of visitors and good security, especially if that security is based upon situational awareness. At its heart, situational awareness is about studying people, and such scrutiny will

allow an observer to pick up on demeanour mistakes that might indicate someone is conducting surveillance. Practicing awareness and paying attention to the people approaching or inside a house of worship can also open up a whole new world of ministry opportunities, as people “tune in” to others and begin to perceive things they would otherwise miss if they were self-absorbed or simply not paying attention. In other words, practicing situational awareness provides an excellent opportunity for the members of a congregation to focus on the needs and burdens of other people. It is important to remember that every attack cycle follows the same general steps. All criminals — whether they are stalkers, thieves, lone wolves or terrorist groups — engage in preoperational surveillance (sometimes called “casing,” in the criminal lexicon). Perhaps the most crucial point to be made about preoperational surveillance is that it is the phase when someone with hostile intentions is most apt to be detected — and the point in the attack cycle when potential violence can be most easily disrupted or prevented. The second most critical point to emphasize about surveillance is that most criminals are not that good at it. They often have terrible surveillance tradecraft and are frequently very obvious. Most often, the only reason they succeed in conducting surveillance without being detected is because nobody is looking for them. Because of this, even ordinary people, if properly instructed, can note surveillance activity. It is also critically important to teach people — including security personnel and members of the congregation — what to do if they see something suspicious and whom to call to report it. Unfortunately, a lot of critical intelligence is missed because it is not reported in a timely manner — or not reported at all — mainly because untrained people have a habit of not trusting their judgment and dismissing unusual activity. People need to be encouraged to report what they see. Additionally, people who have been threatened, are undergoing nasty child-custody disputes or have active restraining orders protecting them against potentially violent people need to be encouraged to report unusual activity to their appropriate points of contact. As a part of their security training, houses of worship should also instruct their staff and congregation members on procedures to follow if a shooter enters the building and creates what is called an active-shooter situation. These “shooter” drills should be practiced regularly — just like fire, tornado or earthquake drills. The teachers of children’s classes and nursery workers must also be trained in how to react.

Liaison

One of the things the SCN and ADL do very well is foster security liaison among Jewish congregations within a community and between those congregations and local, state and federal law enforcement organizations. This is something that houses of worship from other faiths should attempt to duplicate as part of their security plans. While having a local cop in a congregation is a benefit, contacting the local police department should be the first step. It is very important to establish this contact before there is a crisis in order to help expedite any law enforcement response. Some police departments even have dedicated community liaison officers, who are good points of initial contact. There are other specific points of contact that should also be cultivated within the local department, such as the SWAT team and the bomb squad. Local SWAT teams often appreciate the chance to do a walk-through of a house of worship so that they can learn the layout of the building in case they are ever called to respond to an emergency there. They also like the opportunity to use different and challenging buildings for training exercises (something that can be conducted discreetly after hours). Congregations with gyms and weight rooms will often open them up for local police officers to exercise in, and some congregations will also offer police officers a cup of coffee and a desk where they can sit and type their reports during evening hours. But the local police department is not the only agency with which liaison should be established. Depending on the location of the house of worship, the state police, state intelligence fusion center or local joint terrorism task force should also be contacted. By working through state and federal channels, houses of worship in specific locations may even be eligible for grants to help underwrite security through programs such as the Department of Homeland Security’s Urban Areas Security Initiative Non-profit Security Grant Program. The world is a dangerous place and attacks against houses of worship will continue to occur. But there are proactive security

measures that can be taken to identify attackers before they strike and help prevent attacks from happening or mitigate their effects when they do.

Ο παράγοντας που εξακολουθεί να δηλητηριάζει το Βιετνάμ

Η χρήση του Agent Orange από το 1961 έως το 1971 από τις αμερικανικές ΕΔ στον πόλεμο του Βιετνάμ είναι και γνωστή και κατακριτέα. Όμως το πρόβλημα είναι ότι η επιπτώσεις του συγκεκριμένου χημικού (με υψηλή περιεκτικότητα σε διοξίνες), εξακολουθούν να δηλητηριάζουν τη χώρα ακόμη και μετά παρέλευση 35ετίας. Συγκλονιστικά νούμερα και μαρτυρίες από την εποχή εκείνη που αποτελεί όνειδος για την ανθρώπινη αβλεψία και ασέβεια σε ανθρώπους και περιβάλλον.

Agent Orange Continues to Poison Vietnam

From 1961 to 1971, the U.S. military sprayed Vietnam with Agent Orange, which contained large quantities of Dioxin, in order to defoliate the trees for military objectives. Dioxin is one of the most dangerous chemicals known to man. It has been recognized by the World Health Organization as a carcinogen (causes cancer) and by the American Academy of Medicine as a teratogen (causes birth defects). Between 2.5 and 4.8 million people were exposed to Agent Orange. 1.4 billion hectares of land and forest - approximately 12 percent of the land area of Vietnam - were sprayed. The Vietnamese who were exposed to the chemical have suffered from cancer, liver damage, pulmonary and heart diseases, defects to reproductive capacity, and skin and nervous disorders. Children and grandchildren of those exposed have severe physical deformities, mental and physical disabilities, diseases, and shortened life spans. The forests and jungles in large parts of southern Vietnam have been devastated and denuded. They may never grow back and if they do, it will take 50 to 200 years to regenerate. Animals that inhabited the forests and jungles have become extinct, disrupting the communities that depended on them. The rivers and underground water in some areas have also been contaminated. Erosion and desertification will change the environment, contributing to the warming of the planet and dislocation of crop and animal life. The U.S. government and the chemical companies knew that Agent Orange, when produced rapidly at high temperatures, would contain large quantities of Dioxin. Nevertheless, the chemical companies continued to produce it in this manner. The U.S. government and the chemical companies also knew that the Bionetics Study, commissioned by the government in 1963, showed that even low levels of Dioxin produced significant deformities in unborn offspring of laboratory animals. But they suppressed that study and continued to spray Vietnam with Agent Orange. It wasn't until the study was leaked in 1969 that the spraying of Agent Orange was discontinued. U.S. soldiers who served in Vietnam have experienced similar illnesses. After they sued the chemical companies, including Dow and Monsanto, that manufactured and sold Agent Orange to the government, the case settled out of court for \$180 million which gave few plaintiffs more than a few thousand dollars each. Later the U.S. veterans won a legislative victory for compensation for exposure to Agent Orange. They receive \$1.52 billion per year in benefits. But when the Vietnamese victims of Agent Orange sued the chemical companies in federal court, U.S. District Judge Jack Weinstein dismissed the lawsuit, concluding that Agent Orange did not constitute a poison weapon prohibited by the Hague Convention of 1907. Weinstein had reportedly told the chemical companies when they settled the U.S. veterans' suit that their liability was over and he was making good on his promise. His dismissal was affirmed by the Second Circuit Court of Appeals and the Supreme Court refused to hear the case. The chemical companies admitted in their filing in the Supreme Court that the harm alleged by the victims was foreseeable although not intended. How can something that is foreseeable be unintended? On May 15 and 16 of this year, the International Peoples' Tribunal of Conscience in Support of the Vietnamese Victims of Agent Orange convened in Paris and heard testimony from 27 victims, witnesses and scientific experts. Seven people from three continents served as judges of the Tribunal, which was sponsored by the International Association of Democratic Lawyers (IADL).

Testimony given by the witnesses showed the following:

Mai Giang Vu, a member of the Army of South Vietnam, carried barrels of the chemicals on his back. His two sons could not walk or function normally, their limbs gradually “curled up” and they could only crawl. They died at the ages of 23 and 25. Pham The Minh, whose parents also served in the South Vietnamese Army, showed the Tribunal his severely deformed, crooked, skinny legs; he has great difficulty walking, as well as digestive and pulmonary diseases. To Nga Tran is a French Vietnamese who worked as a journalist during the spraying. Her daughter weighed 6.6 pounds at the age of three months. Her skin began shredding and she could not bear to have skin contact or simple demonstrations of love. She died at 17 months, weighing 6.6 pounds. Ms. To described a woman who gave birth to a “ball” with no human form. Many children are born without brains; others make inhuman sounds. Rosemarie Hohn Mizo is the widow of George Mizo, who served in the U.S. Army in Vietnam in 1967. He slept on contaminated ground and consumed food and drink that were also contaminated. George refused to serve after he was wounded for the third time; he was court-martialed and sentenced to 2-1/2 years in prison and a dishonorable discharge. George helped found the Friendship Village where Vietnamese victims live in a supportive environment. He died from conditions related to his exposure to Agent Orange. Georges Doussin, co-founder of the Friendship Village, visited a dormitory where he saw 50 highly deformed “monsters,” who produced inhuman sounds. One man whose parent had been exposed to Agent Orange had four toes on each foot. Doussin said Agent Orange creates “total anarchy in evolution.” Dr. Nguyen Thi Ngoc Phuong, from Tu Du Hospital in Ho Chi Minh City (Saigon), sees many children born without arms and/or legs, without heads or faces, and without a brain chamber. According to the World Health Organization, only 1 – 4 parts per trillion (PPT) of Dioxin in breast milk can cause severe deformities in fetuses and even death. But up to 1450 PPT are found in maternal milk in Vietnam. Dr. Jeanne Stellman, who wrote the seminal article about Agent Orange in the magazine Nature, testified that “this is the largest unstudied environmental disaster in the world (except for natural disasters).” Dr. Jean Grassman, from Brooklyn College at City University of New York, testified that Dioxin is a potent cellular disregulator which alters a variety of pathways to disrupt many systems. Children, she said, are very sensitive to Dioxin; the intrauterine or post natal exposure to Dioxin may result in altered immune, neurobehavioral, and hormonal functioning. Women pass their exposure to their children both in utero and through the excretion of Dioxin in breast milk. Many ecosystems have been destroyed and Dioxin continues to poison Vietnam, especially in the several “hot spots.” Chemist Dr. Pierre Vermeulin testified that it was estimated that \$1 billion would be required to restore one hectare of land in Vietnam. The cost of caring for the victims, many of whom need 24-hour care, is enormous. In 1973, President Richard Nixon promised \$3.25 billion in reconstruction aid to Vietnam “without any preconditions.” That aid was never granted.

There are only 11 Friendship Villages in Vietnam; 1000 are needed to care for the child victims of Agent Orange. Last week, the Bureau of the IADL, meeting in Hanoi, presented President Nguyen Minh Triet of the Socialist Republic of Vietnam with the final decision of the Tribunal. The judges found the U.S. government and the chemical companies guilty of war crimes, crimes against humanity, and ecocide during the illegal U.S. war of aggression in Vietnam. We recommended that the Agent Orange Commission be established in Vietnam to assess the damages suffered by the people and destruction of the environment, and that the U.S. government and the chemical companies provide compensation for the damage and destruction. I told the President that it always struck me that even as U.S. bombs were dropping on the people of Vietnam; they always distinguished between the American government and the American people. The President responded, “We fought the forces of aggression but we always reserved our love for the people of America . . . because we knew they always supported us.” An estimated 3 million Vietnamese people were killed in the war, which also claimed 58,000 American lives. For many other Vietnamese and U.S. veterans and their families, the war continues to take its toll. Several treaties the United States has ratified

require an effective remedy for violations of human rights. It is time to make good on Nixon's promise and remedy the terrible wrong the U.S. government perpetrated on the people of Vietnam. Congress must pass legislation to compensate the Vietnamese victims of Agent Orange as it did for the U.S. Vietnam veteran victims. Our government must know that it cannot continue to use weapons that target and harm civilians. Indeed, the U.S. military is using depleted uranium in Iraq and Afghanistan, which will poison those countries for incalculable decades.

Περιπτώματα σκουληκιών που εξαφανίζουν άρματα μάχης

Γερμανός εφευρέτης που εργαζόταν στα Ηνωμένα Αραβικά Εμιράτα σε πρόγραμμα καλλιέργειας ραδικιών στην έρημο ανακάλυψε μια βαφή προερχόμενη από τα περιττώματα των σκουληκιών που προσδίδει ιδιότητες stealth στις επιφάνειες που καλύπτονται από την εν λόγω βαφή !

German Inventor Develops Miracle AR 1 Stealth Paint Having Given Up On Worm Excrement Project

According to reports surfacing in the German press, a German inventor by the name of Werner Nickel, who was initially working in the United Arab Emirates on a project that employed worm excrement to grow radishes in the desert (we couldn't make this stuff up if we tried) has developed a stealth paint, known merely as AR 1, that has confounded the experts who have confirmed that Nickel's stealth paint does indeed work, but they're not



exactly sure why. The miracle paint's formulation is not detailed, but what is known is that, whilst military funded 'black' projects may get multi-millions in funding, Nickel developed the paint in the desert without laboratories at his disposal and very much as a 'pet project' following on from experiments made in the past that had been showcased to the US military with disastrous results. Nickel's new paint, however, is causing considerable excitement, as well as a great deal of head-scratching. Needless to say, following laboratory tests that prove that Nickel's AR 1 paint works, rendering anything coated in it wholly invisible to long range radar, defence companies are positively clambering to get their hands on the paint with the Bundeswehr Technical Center for Ships and Naval Weapons (WTD 71) in Eckenförde,

based by the Baltic Sea, looking to instigate trials of the paint on warships. (Interestingly, we should add that a certain Saddam Hussein took an interest in the miracle paint long before, and contact was made with Nickel with view to him helping the dictator to hide military installations from US forces – however, Nickel did not proceed with talks stating that, 'the whole thing got too hot for me when they booked us rooms in the Al-Rashid Hotel in Baghdad'.) Whilst military applications of Nickel's AR 1 paint are all too obvious, it's also thought that the paint could also be used in the civil sector – most notably at airports where buildings that cutter radar screens could be coated in the paint to make them 'disappear'.

Προστασία οφθαλμών από χημικές ουσίες

Η εταιρεία RegeneRx σε συνεργασία με το ντιπιούτο USAMRICD και το Wayne State University δοκιμάζουν ένα νέο προϊόν (Τβ4 – οφθαλμικές σταγόνες) που θα παρέχει προστασία στους οφθαλμούς σε περίπτωση έκθεσης σε χημικούς παράγοντες. Το φαρμακευτικό μόριο έχει πολλές ενδιαφέρουσες δράσεις και ίσως δώσει λύσεις και σε άλλες

οργανικές δυσλειτουργίες!**RegeneRx Working with U.S. Military to Test Tβ4 Against Exposure to Chemical Agents in the Eye**

RegeneRx announced today that it is collaborating with the U.S. Army Medical Research Institute of Chemical Defense (USAMRICD) and Dr. Gabriel Sosne, Associate Professor of Ophthalmology at Wayne State University, to evaluate Tβ4's (RGN-259 eye drops) ability to prevent or reduce damage to the eye caused by exposure to chemical agents. The ability to prevent or reduce such damage is the focus of substantial efforts by both the military and homeland security. The project will consist of a series of research experiments over the next twelve months with Tβ4, which is being commercially developed by RegeneRx and is in Phase II clinical trials. Dr. Sosne and his colleagues have published several scientific articles describing Tβ4's ability to reduce damage from a number of different chemical agents by reducing inflammation and promoting re-epithelialization to repair the cornea. Other scientific teams have reported Tβ4's ability to promote stem cell differentiation to protect and repair tissue in the heart and skin. "We are pleased to be working with U.S. military on this important project. We hope their work will lead to the use of our technology for treatment of eyes exposed to caustic chemicals. RegeneRx is prepared to assist in any way possible to support efforts to protect our military personnel and citizens from exposure to debilitating or life-threatening chemical agents," stated J.J. Finkelstein, RegeneRx's president and CEO. Tβ4 is a synthetic version of a naturally occurring peptide present in virtually all human cells. It is a first-in-class multi-faceted molecule that promotes endothelial cell differentiation, angiogenesis in dermal tissues, keratinocyte migration, collagen deposition, and down-regulates inflammation. RegeneRx has identified several molecular variations of Tβ4 that may affect the aging of skin, among other properties, and could be important candidates as active ingredients in pharmaceutical and consumer products. Researchers at the National Institutes of Health, and at other academic institutions throughout the U.S., have published numerous scientific articles indicating Tβ4's *in vitro* and *in vivo* efficacy in accelerating wound healing and tissue protection under a variety of conditions.

Συγγραφείς επιστημονικής φαντασίας – σύμμαχοι ή εχθροί ;

Μια ενδιαφέρουσα προσέγγιση της ανάλυσης επικινδυνότητας για μελλοντικές τρομοκρατικές επιθέσεις. Ίσως η επιπλέον ανάλυση να οδηγεί τελικά σε αυξημένη αισιοδοξία και υπερβολική σιγουριά που είναι εξίσου καταστρεπτικές με την μειωμένη ή λανθασμένη ανάλυση επικινδυνότητας.

How Science Fiction Writers Can Help, or Hurt, Homeland Security

A couple of years ago, the Department of Homeland Security hired a bunch of science fiction writers to come in for a day and think of ways terrorists could attack America. If our inability to prevent 9/11 marked a failure of imagination, as some said at the time, then who better than science fiction writers to inject a little imagination into counterterrorism planning? I discounted the exercise at the time, calling it "embarrassing." I never thought that 9/11 was a failure of imagination. I thought, and still think, that 9/11 was primarily a confluence of three things: the dual failure of centralized coordination and local control within the FBI, and some lucky breaks on the part of the attackers. More imagination leads to more movie-plot threats -- which contributes to overall fear and overestimation of the risks. And that doesn't help keep us safe at all. Recently, I read a paper by Magne Jørgensen that provides some insight into why this is so. Titled *More Risk Analysis Can Lead to Increased Over-Optimism and Over-Confidence*, the paper isn't about terrorism at all. It's about software projects. Most software development project plans are overly optimistic, and most planners are overconfident about their overoptimistic plans. Jørgensen studied how risk analysis affected this. He conducted four separate experiments on software engineers, and concluded (though there are lots of

caveats in the paper, and more research needs to be done) that performing more risk analysis can make engineers more overoptimistic instead of more realistic. Potential explanations all come from behavioral economics: cognitive biases that affect how we think and make decisions. (I've written about some of these biases and how they affect security decisions, and there's a great book on the topic as well.) **First**, there's a control bias. We tend to underestimate risks in situations where we are in control, and overestimate risks in situations when we are not in control. Driving versus flying is a common example. This bias becomes stronger with familiarity, involvement and a desire to experience control, all of which increase with increased risk analysis. So the more risk analysis, the greater the control bias, and the greater the underestimation of risk. The **second** explanation is the availability heuristic. Basically, we judge the importance or likelihood of something happening by the ease of bringing instances of that thing to mind. So we tend to overestimate the probability of a rare risk that is seen in a news headline, because it is so easy to imagine. Likewise, we underestimate the probability of things occurring that don't happen to be in the news. A corollary of this phenomenon is that, if we're asked to think about a series of things, we overestimate the probability of the last thing thought about because it's more easily remembered. According to Jørgensen's reasoning, people tend to do software risk analysis by thinking of the severe risks first, and then the more manageable risks. So the more risk analysis that's done, the less severe the last risk imagined, and thus the greater the underestimation of the total risk. The **third** explanation is similar: the peak end rule. When thinking about a total experience, people tend to place too much weight on the last part of the experience. In one experiment, people had to hold their hands under cold water for one minute. Then, they had to hold their hands under cold water for one minute again, then keep their hands in the water for an additional 30 seconds while the temperature was gradually raised. When asked about it afterwards, most people preferred the second option to the first, even though the second had more total discomfort. (An intrusive medical device was redesigned along these lines, resulting in a longer period of discomfort but a relatively comfortable final few seconds. People liked it a lot better.) This means, like the second explanation, that the least severe last risk imagined gets greater weight than it deserves. Fascinating stuff. But the biases produce the reverse effect when it comes to movie-plot threats. The more you think about far-fetched terrorism possibilities, the more outlandish and scary they become, and the less control you think you have. This causes us to overestimate the risks. Think about this in the context of terrorism. If you're asked to come up with threats, you'll think of the significant ones first. If you're pushed to find more, if you hire science-fiction writers to dream them up, you'll quickly get into the low-probability movie plot threats. But since they're the last ones generated, they're more available. (They're also more vivid -- science fiction writers are good at that -- which also leads us to overestimate their probability.) They also suggest we're even less in control of the situation than we believed. Spending too much time imagining disaster scenarios leads people to overestimate the risks of disaster. I'm sure there's also an anchoring effect in operation. This is another cognitive bias, where people's numerical estimates of things are affected by numbers they've most recently thought about, even random ones. People who are given a list of three risks will think the total number of risks are lower than people who are given a list of 12 risks. So if the science fiction writers come up with 137 risks, people will believe that the number of risks is higher than they otherwise would -- even if they recognize the 137 number is absurd. Jørgensen does not believe risk analysis is useless in software projects, and I don't believe scenario brainstorming is useless in counterterrorism. Both can lead to new insights and, as a result, a more intelligent analysis of both specific risks and general risk. But an over-reliance on either can be detrimental. Last month, at the 2009 Homeland Security Science & Technology Stakeholders Conference in Washington D.C., science fiction writers helped the attendees think differently about security. This seems like a far better use of their talents than imagining some of the zillions of ways terrorists can attack America.

Η χρονο-βόμβα

Ποια είναι η τύχη των ραδιενεργών υλικών που μυστηριωδώς «χάνονται» σε διάφορα σημεία

του πλανήτη μας ; Σκέψεις με αφορμή την πρόσφατη επιστροφή εμπλουτισμένου ουρανίου (HEU) από τη Βουλγαρία στη Ρωσία για απενεργοποίηση (LEU).

The time bomb



Bulgarian Greenpeace activists march dressed in anti-radiation suits on the streets of the capital Sofia. Photograph: Vassil Donev/EPA

A little before dawn on a recent summer morning, a convoy of three large blue lorries, a handful of police cars and a bus rumbled along the dual carriageway heading north out of the Bulgarian capital, Sofia. Even if it had not been so early, the motorcade would probably not have drawn much attention. The lorries were unmarked, the bus carrying a few sleepy policemen was old and scruffy, while the lumbering shipment was big and slow enough to explain the escort and its flashing blue lights. But for Bulgaria, and indirectly for the rest of us, the convoy's progress marked an important transition - the departure of the country's last remaining stockpile of High Enriched Uranium (HEU), the stuff of which nuclear bombs are made. It took two years of talks and preparatory work before the highly radioactive material - just over 6kg of spent fuel from a defunct research reactor - was fished out of the storage pools in which it had lain unused and largely forgotten for nearly 20 years. It was sealed in steel casks - custom-made by ...koda, the Czech car manufacturer - and lowered into the three anonymous blue trucks. Over the course of the morning of July 5, the convoy made its way over the mountains and down to the banks of the river Danube, where the containers were winched into a long, black barge bound for Ukraine. Ten days and a rail journey later, the HEU arrived in Russia, whence it had come nearly half a century earlier as a gift. In Chelyabinsk, just east of the Urals, it is to be reprocessed or blended down. I was permitted to witness its secret journey on condition that nothing was printed until the shipment reached its destination, and this small but massively lethal fragment of the cold war was made safe. The operation was the latest in a series - part of an accelerating scramble to clean up the scattered legacy of nuclear profligacy. In the 50s and 60s, the US and Soviet Union exported HEU-powered nuclear reactors to their allies for power generation and experimentation. When the cold war finally came to an end, deals were done on dismantling the redundant weapons in the former Soviet republics. Under a programme called Megatons To Megawatts, one tenth of America's electricity is generated from uranium from thousands of former Soviet warheads. The Russians blend down HEU in the warheads to Low Enriched Uranium (LEU), which cannot be used in bombs; the Americans transport it to nuclear power stations back home. However, that still left thousands of kilograms of weapons-grade material, mostly HEU, in

civilian reactors at power stations and universities around the world, some with no more security than a watchman and a padlock. As the logic of deterrence and mutually assured destruction recedes from the collective memory to be supplanted by the fears evoked by the September 11 attacks, nuclear terrorism has emerged as the number one threat to western security. The suicidal extremist driving a crude nuclear device into the centre of a major city is now the ultimate nightmare. George Bush and Tony Blair went to war in Iraq with the ostensible aim of preventing Saddam's assumed nuclear stockpile falling into the hands of al-Qaida jihadists. Barack Obama has called nuclear terrorism "the greatest danger we face". The gap between rhetoric and effective action, however, is startling. The US has so far spent \$648bn on the war in Iraq to eliminate a threat that never existed. The amount spent on removing fissile material from countries that actually do have the ingredients for a nuclear device has been paltry by comparison. The Global Threat Reduction Initiative (GTRI), launched in 2004 after previous efforts at eliminating the world's civilian stocks of fissile material had proved ineffectual, has an annual US budget of about \$150m, or roughly what the US military spends in eight hours in Iraq. Britain allocates a respectable £36.5m a year to the programme, most of it on helping to secure nuclear sites in the former Soviet Union, but that still pales in comparison to the £1.7bn cost last year of keeping troops in Iraq. There is no question that the threat of nuclear terrorism is real. As long ago as 1998, Osama bin Laden declared it was a religious duty to acquire nuclear weapons "to terrorise the enemies of God". Just days before the September 11 attacks in 2001, the al-Qaida leader met a Pakistani delegation, including two retired nuclear scientists, in Kandahar. According to accounts of that meeting, Bin Laden expressed keen interest in how to build a bomb and was told it was technically quite simple - acquiring the fissile material was the main obstacle. Al-Qaida has spent years trying to overcome that problem. Western intelligence officials believe the organisation was cheated several times by middlemen claiming to have weapons-grade material for sale. An al-Qaida defector, Jamal Ahmed al-Fadl, has described helping Bin Laden clinch a deal in Sudan, his home country: Bin Laden paid \$1.5m for a 30-inch cylinder supposedly containing South African uranium. The cylinder is widely believed to have been a fake. Ivan Ivanov, a Bulgarian businessman working for a Dubai-based building contractor, claims to have met Bin Laden in Pakistan in April 2001, and to have been approached the day after the meeting by an al-Qaida scientist who proposed a scheme for buying Bulgarian nuclear material. Ivanov says he turned down the deal, but Bulgaria has remained a source of concern for anyone worried about proliferation. The country's post-Soviet nuclear industry has been hit by one safety scandal after another, and the EU has taken the unusual step of cutting off funds because of the hold that corruption and organised crime have on the country's economy. The removal of Bulgaria's HEU last month was therefore more than a technicality. It represented the elimination of a significant threat. Officials at Sofia's Institute for Nuclear Research and Nuclear Energy, where the spent fuel had been stored since its reactor was shut down in 1989, claimed security had been beefed up in recent years, but the Institute was clearly suffering from years of neglect. Feral dogs chased each other through the bushes in the grounds around the reactor. The removal operation was overseen by a two-man American team, who represent the business end of the Global Threat Reduction Initiative. Their job is to fly around the world trying to persuade governments that it is in their long-term interests to part with their stocks of fissile material. The US duo are both immigrants. Andrew Bieniawski, a 41-year-old from South Africa, is in charge of the programme at the National Nuclear Security Administration (NNSA), the part of the US department of energy that is responsible for looking after the US nuclear arsenal, making sure the bombs still work and do not blow up unexpectedly. His deputy, Igor Bolshinsky, a former mine technician from the Ukrainian coal city of Donetsk, has responsibility for repatriating the Soviet-origin material and does most of the travelling and persuading - "Schmoozing for world peace," as Bolshinsky put it. "This is what keeps us on the road 70% of the time," he said. "We see different reactors in different conditions, and we know this removal has to be done very fast. We don't want to give more time to people who are preparing to steal this material." In Sofia, Bolshinsky had been in fine form, cajoling, joking and flattering Bulgarian officials in a mix of Russian and English. He was consequently stunned on the designated day of the uranium's

departure when Bulgarian security - somewhat prickly over the arrival of this ebullient American employee in the nation's inner nuclear sanctum - ordered the uranium convoy to leave the institute an hour earlier than agreed, without bothering to tell Bolshinsky. In the past few years, Bolshinsky has overseen uranium removals from Libya to Vietnam, and has been tailed in the course of his duties by some of the world's most persistent secret policemen, but this stunt stretched his sense of humour to breaking point. "Not good, not good at all," he said emphatically when he turned up at the reactor at dawn to find the car park empty. He jumped into a car for a high-speed chase along a Bulgarian motorway, in pursuit of the missing uranium casks. He finally caught up with the convoy about 32km north of Sofia, parked on the hard shoulder of the motorway. Ivan Gorinov, the head of "physical protection" at Bulgaria's Nuclear Regulatory Agency who appeared to have taken the decision to leave early, was unapologetic. "I don't care about the American taxpayer," Gorinov said defiantly, and a touch sulkily, when he was reminded that the exercise had been US-funded. Nor did he hide his lack of enthusiasm for the presence of journalists, suggesting that we might prefer to see a wet T-shirt competition underway in the nearby town of Kozloduy than observe the casks being loaded on to the giant barge. Gorinov said later he would have been less nervous if the HEU shipment had gone by rail, but the necessary transit agreements would have taken too long to negotiate. It had been decided to take the quicker but riskier option of moving the uranium casks about 180km to the Danube by road, where it was theoretically vulnerable to ambush or protests. "That was a big challenge, from the security point of view, and from the point of view of keeping it secret," Gorinov said, "but we had a constant exchange of information with the Bulgarian security services." A chain-smoker, he began to relax only when technicians in white coats and caps lowered the blue containers into the belly of the 86m barge and slid its long lid over them. "It looks just like any other barge - business as usual on the Danube," he declared triumphantly. As the barge moved off downstream, heading towards Ukraine and a rendezvous with a Russian train, Bulgaria became officially free of HEU. There are two kinds of nuclear bomb. Modern warheads involve an implosion device, in which the fissile material, normally plutonium, is violently compressed by shaped charges until it reaches critical mass, and the process of nuclear fission becomes self-sustaining. This is an extremely hard trick to pull off reliably, and is the province of sophisticated state programmes. However, there is a much cruder form of bomb, which achieves critical mass by firing one chunk of HEU at another. A "gun-type" bomb such as this, Little Boy, was dropped on Hiroshima. As the apartheid government in South Africa discovered, it can be developed by a relatively small team with some basic engineering skills. It is the sort of bomb a terrorist organisation would build. Plutonium is useless for such a device. It requires HEU, which happens to be far more plentiful and much less well guarded. Under the GTRI, a total of 610kg of HEU fuel (both spent and fresh) has now been returned to Russia from countries including Serbia, Romania, Libya, Uzbekistan, Poland, Germany, the Czech Republic, Latvia and Vietnam. More than a third of those shipments took place in 2007, as the urgency underlying the programme has increased. US-made HEU has meanwhile been repatriated from Latin America, Europe and south-east Asia. In fact, at about the same time the uranium convoy was leaving Sofia, secret shipments of HEU and plutonium were on the way to the US from Japan, Sweden, Germany and Denmark. More than 50 HEU reactors around the world have been converted to use LEU. Four reactors have been closed down altogether. Hungary and Kazakhstan are next on Bieniawski and Bolshinsky's visiting list, after which virtually all the fresh HEU fuel being stored at civilian sites around the world will have been dealt with. And almost all the Soviet-origin spent HEU, which can still contain high concentrations of weapons-grade material, is due to be removed from civilian sites around the world by 2010. Bieniawski said every day counts. "We are very concerned about this material. We take this threat to be very real. The information that we have lets us know we have to act as aggressively as possible to remove this material," he said. The programme does not include military stockpiles, which are usually better guarded and are part of a different scheme, nor does it cover "gap" HEU fuel, made in neither the US nor the Soviet Union, but in countries such as South Africa that ran their own nuclear programmes. Ukraine and Belarus are also reluctant to give up all their HEU. There is another, even more troubling,

question hanging over Bieniawski and Bolshinsky's work: could their efforts already be too late? They are, in effect, running a race blindfold. They do not know if their adversaries - the terrorist groups, smugglers and bent officials with whom they work - are behind them, breathing down their necks, or ahead of them, or even whether they have already crossed the finishing line. What is beyond doubt is that they are in the race - and their footprints are all around. Since the end of the cold war, the UN's nuclear watchdog, the International Atomic Energy Agency (IAEA), has logged more than 800 incidents in which radioactive material has gone missing or been seized from smugglers. Eighteen of those cases involved weapons-grade material, HEU or plutonium, mostly of Soviet origin. Another seven cases of weapons-grade theft or contraband have yet to be confirmed by the IAEA, but are considered well-founded. In a recent example, a Russian fish trader and occasional smuggler named Oleg Khinsagov was arrested in Georgia in early 2006. He had about 100g of weapons-grade HEU in his leather jacket, wrapped in a plastic bag, and was under the impression he was about to sell his sample to a Muslim from a "serious organisation" on the market for fissile material. Khinsagov told his customer there were two more kilograms available. The would-be buyer turned out to be a Georgian government agent, and Khinsagov is now sitting in prison in Tbilisi, apparently too terrified of his Russian contacts to name them. At a time when long-standing Russian-Georgian tensions have exploded into conflict, Moscow has been unhelpful in the extreme, implausibly claiming that it is impossible to tell where Khinsagov's HEU came from. Coincidentally or not, an estimated 2kg of HEU went missing when a top-secret former Soviet nuclear laboratory in the Georgian region of Abkhazia fell to Russian-backed separatists in 1993. It simply disappeared into the chaotic underworld of the Caucasus where organised crime thrives on national rivalries, and has not been seen since. Last November, on the other side of the world, two groups of armed men broke into the emergency control centre at South Africa's supposedly high-security Pelindaba nuclear facility, where hundreds of kilograms of HEU are stored - they stumbled on a senior security official who was not supposed to have been there but was keeping his girlfriend company. The intruders shot him and fled. In formal testimony to the IAEA, the South African government admitted the attackers were "technically sophisticated" and had "prior knowledge of the electronic security systems". On the other hand, they insisted the site's fissile material had not been in danger and that only a computer had been taken. There have been no arrests so far. Most of the nuclear thefts located by the IAEA to date have involved small quantities of HEU, far short of the 55kg necessary to build a gun-type bomb, but no one knows how much more has disappeared unnoticed. Matthew Bunn, a proliferation expert at Harvard, has estimated the risk of a nuclear attack on the US in the next decade to be 29%. He was once asked by an investment bank to carry out a similar exercise for London. He will not say what he told the bank, revealing only that he estimated a smaller risk than his US estimate, but still "a real number". James Acton, a nuclear proliferation expert at King's College London, said, "Even if you think that there is a one per cent, or half per cent, chance of there being such a catastrophic event, it's probably worth taking a lot more precautions than we are at the moment." A terrorist group could make do with much less than the 55kg of HEU necessary to achieve critical mass and detonate whatever it had managed to steal or buy on the black market in the form of a "dirty bomb". Acton said radioactive material could also be sprayed like an aerosol across a wide urban expanse, in a stealth attack that could pass unnoticed until it was too late. "If people insist on the same standards [for radioactivity] we have now, we would have to give up large areas of the city. People would ultimately have to get used to the risk of going back to a slightly contaminated part of London," Acton said. It would be so easy to perform and so devastating in its effects, he added: "I really don't know why an attack hasn't happened already." Dhiren Barot, a north London al-Qaida member arrested in 2004 on terrorism charges, had been planning a dirty bomb attack using tiny radioactive particles found in home smoke alarms, which he intended to buy by the thousand. Jacqui Smith, the home secretary, has said the government is taking the threat seriously and a computer simulation of a radiological attack on London was carried out by the Home Office last year. Senior officials in the Bush administration took part in a similar exercise last year, involving three simultaneous dirty bomb blasts, and Spain, another recent terrorist target, carried out a drill

earlier this year. Meanwhile, radiation detectors are being installed in ports around the world, as a last line of defence against a smuggled nuclear device. So far they have produced literally millions of false alarms (a particular potassium isotope in bananas, for example, can set off the sirens). The White House has its own nuclear bomb squad, which it scrambled in 2005 to intercept US-bound ships suspected of carrying a weapon. It turned out they were carrying scrap metal contaminated by illegally dumped radioactive material. This is the emerging battlefield of the 21st century. Western governments have little idea whether they are being overly paranoid or recklessly negligent in their preparations. The potential is so horrifying, there seems little choice but to prepare for the worst.

Μια νέα Διεύθυνση στις αμερικανικές ΕΔ

Πρόκειται για την CYBERCOM που θα είναι πλήρως επιχειρησιακή το 2010 και θα μπορεί να συντονίζει, υπό τον έλεγχο της NSA, πολεμικές επιχειρήσεις απανταχού της γης παρέχοντας παράλληλα υποστήριξη στις κρατικές υπηρεσίες και τους διεθνείς συμμάχους των ΗΠΑ.

The Launching of U.S. Cyber Command (CYBERCOM).



U.S. Defense Secretary Robert Gates signed a memorandum on June 23 that announced the launch of U.S. Cyber Command (CYBERCOM). A scheme by securocrats in the works for several years, the order specifies that the new office will be a "subordinate unified command" under U.S. Strategic Command (STRATCOM). According to the memorandum, CYBERCOM "will reach initial operating capability (IOC) not later than October 2009 and full operating capability (FOC) not later than October 2010." Gates has recommended that this new Pentagon domain be led by Lt. General Keith Alexander, the current Director of the ultra-spooky National Security Agency (NSA). Under the proposal, Alexander would receive a fourth star and the new agency would be based at Ft. Meade, Maryland, NSA's headquarters. Gates' memorandum specifies that CYBERCOM "must be capable of synchronizing warfighting effects across the global security environment as well as providing support to civil authorities and international partners." Ostensibly launched to protect military networks against malicious cyberattacks, the command's offensive nature is underlined by its role as STRATCOM's operational cyber

wing. In addition to a defensive brief to "harden" the "dot-mil" domain, the Pentagon plan calls for an offensive capacity, one that will deploy cyber weapons against imperialism's adversaries. One of ten Unified Combatant Commands, STRATCOM is the successor organization to Strategic Air Command (SAC). Charged with space operations (military satellites), information warfare, missile defense, global command and control, intelligence, surveillance and reconnaissance (ISR), as well as global strike and strategic deterrence (America's first-strike nuclear arsenal), it should be apparent that designating CYBERCOM a STRATCOM branch all but guarantees an aggressive posture. As Antifascist Calling reported in May, the Pentagon's geek squad, the Defense Advanced Research Projects Agency (DARPA) is currently building a National Cyber Range (NCR), a test bed for developing, testing and fielding cyber weapons. In conjunction with "private-sector partners," the agency averred in a January 2009 press release that NCR promises to deliver "'leap ahead' concepts and capabilities." The Armed Forces Press Service reported June 24, that Pentagon Press Secretary Geoff Morrell told journalists that CYBERCOM is "not some sort of new and necessarily different authorities that have been granted." Obfuscating the offensive role envisaged for the command, Morrell told reporters: "This is about trying to figure out how we, within this department, within the United States military, can better coordinate the day-to-day defense, protection and operation of the department's computer networks." Others within the defense bureaucracy are far more enthusiastic, and forthright, when it comes to recommending that cyber armaments be fielded as offensive weapons of war. Indeed, Armed Forces Journal featured a lengthy analysis advocating precisely that. The world has abandoned a fortress mentality in the real world, and we need to move beyond it in cyberspace. America needs a network that can project power by building an af.mil robot network (botnet) that can direct such massive amounts of traffic to target computers that they can no longer communicate and become no more useful to our adversaries than hunks of metal and plastic. America needs the ability to carpet bomb in cyberspace to create the deterrent we lack. (Col. Charles W. Williamson III, "Carpet Bombing in Cyberspace," Armed Forces Journal, May 2008) We have heard these Orwellian arguments before; one can take it for granted that when militarists pontificate on the need for a "deterrent," the bombers are preparing for take off. As with other Pentagon schemes, the technological quick fix may prove as deadly as the alleged threat, particularly where botnets are concerned. A botnet is a collection of widely dispersed computers controlled from one or more central nodes. Often built by cyber criminals to implant malicious programs or code, steal passwords and other encrypted data from targeted systems, botnets are the bane of the Internet. In these endeavors, sophisticated hackers are aided and abetted by the miserable security code or lax practices of Internet Service Providers (ISPs) more concerned with facilitating commerce--and the bottom line--than in providing adequate protection against criminals. Indeed in March, the Electronic Privacy Information Center (EPIC) urged the Federal Trade Commission "to shut down Google's so-called cloud computing services, including Gmail and Google Docs, if the web giant can't ensure the safety of user data stored by these online apps," The Register reported. EPIC's petition in part, was sparked "by a Google snafu that saw the company inadvertently share certain Google Docs files with users unauthorized to view them. Google estimates that the breach hit about 0.05 per cent of the documents stored by the service," according to The Register. Infected computers are referred to as "zombies" that can be controlled remotely from any point on the planet by "master" machines. Unwary users are often "spoofed" by hackers through counterfeit e-mails replete with embedded hyperlinks into "cooperating" with the installation of malicious code. While criminals employ botnets to generate spam or commit fraudulent transactions, draining a savings account or running-up credit card debt through multiple purchases for example, botnets also have the capacity to launch devastating distributed denial of service (DDOS) attacks against inadequately defended computers or indeed, entire networks. As many commentators have warned, the best defense is to write better security programs and exercise a modicum of common sense when using the Internet. The Pentagon however, has something else in mind. Col. Williamson proposes to transform the Air Force's high-speed intrusion-detection systems into an offensive botnet by enabling "the thousands of computers the Air Force would normally discard every year for technology

refresh, removing the power-hungry and heat-inducing hard drives, replacing them with low-power flash drives, then installing them in any available space every Air Force base can find." In other words, creating thousands of zombie machines. "After that," Col. Williamson avers, "the Air Force could add botnet code to all its desktop computers attached to the Nonsecret Internet Protocol Network (NIPRNet). Once the system reaches a level of maturity, it can add other .mil computers, then .gov machines." Underscoring the risks posed by out-of-control military hackers to hold America's, or any other nations' communications infrastructure hostage to a militarized state, Williamson suggests that in order to "generate the right amount of power for offense, all the available computers must be under the control of a single commander, even if he provides the capability for multiple theaters. While it cannot be segmented like an orange for individual theater commanders, it can certainly be placed under their tactical control." In other words, should an "individual theatre commander" desire to suddenly darken a city or wreck havoc on a nation's electrical infrastructure at the behest of his political masters then by all means, go right ahead! A proposal such as this, should it ever be implemented, would in essence, be a first-strike weapon. Other plans for "defending" Pentagon computer networks are even more extreme. STRATCOM commander Gen. Kevin Chilton has even suggested that "the White House retains the option to respond with physical force--potentially even using nuclear weapons--if a foreign entity conducts a disabling cyber attack against U.S. computer networks," according to a disturbing report published by Global Security Newswire. During a Defense Writers Group breakfast in May, Chilton told journalists: "I think you don't take any response options off the table from an attack on the United States of America. Why would we constrain ourselves on how we respond?" ... Should the breaches evolve into more serious computer attacks against the United States, Chilton said he could not rule out the possibility of a military salvo against a nation like China, even though Beijing has nuclear arms. He rejected the idea that such a conflict would necessarily risk going nuclear. "I don't think that's true," Chilton said. At the same time, the general insisted that all strike options, including nuclear, would remain available to the commander in chief in defending the nation from cyber strikes. "I think that's been our policy on any attack on the United States of America," Chilton said. "And I don't see any reason to treat cyber any differently. I mean, why would we tie the president's hands? I can't. It's up to the president to decide." (Elaine M. Grossman, "U.S. General Reserves Right to Use Force, Even Nuclear, in Response to Cyber Attack," Global Security Newswire, May 12, 2009) While Pentagon spokesman Bryan Whitman told The New York Times that CYBERCOM's launch "is not about the militarization of cyber," how else can it be characterized? Indeed, Whitman went on to say that CYBERCOM "is focused only on military networks to better consolidate and streamline Department of Defense capabilities into a single command." How then, should one interpret moves by the Pentagon to "consolidate and streamline" DoD "capabilities" under the purview of STRATCOM? Obviously, an entity defined as a "Unified Combatant Command" as clearly stated by General Chilton's avowal to "leave all options on the table," would combine cyber "defense" with STRATCOM's global strike mission. Antifascist Calling revealed last year, citing a U.S. Air Force planning document, that preparations are already underway to transform cyberspace into an offensive military domain. Indeed, Air Force theorists averred: Cyberspace favors offensive operations. These operations will deny, degrade, disrupt, destroy, or deceive an adversary. Cyberspace offensive operations ensure friendly freedom of action in cyberspace while denying that same freedom to our adversaries. We will enhance our capabilities to conduct electronic systems attack, electromagnetic systems interdiction and attack, network attack, and infrastructure attack operations. Targets include the adversary's terrestrial, airborne, and space networks, electronic attack and network attack systems, and the adversary itself. As an adversary becomes more dependent on cyberspace, cyberspace offensive operations have the potential to produce greater effects. Echoing Air Force strategy, SecDef Gates memo clearly states, since "cyberspace and its associated technologies ... are vital to our nation's security," the United States will "secure freedom of action in cyberspace" by standing-up a unified command "that possesses the required technical capability and remains focused on the integration of cyberspace

operations." Simply put, the Pentagon intends to build an infrastructure fully-capable of committing high-tech war crimes.

Under NSA's Operational Control

Meanwhile in the heimat, CYBERCOM will effectively be under the day-to-day control of the National Security Agency. This is hardly good news when it comes to civil liberties. Leaving aside considerations of bureaucratic trench warfare with the Department of Homeland Security, charged with defending the state's .gov and .com domains, the unprecedented power of CYBERCOM to conduct offensive military and surveillance operations within the United States itself is underlined by the preeminent role NSA will assume. Authorized by the criminal Bush regime to carry out massive electronic surveillance of Americans' private communications in the wake of the 9/11 attacks, various driftnet spying operations continue under Obama's purported "change" administration. As Antifascist Calling has averred many times, the only "change" that's come to the White House has been the color of the drapes hanging in the Oval Office. The New York Times revealed June 17, that the "National Security Agency is facing renewed scrutiny over the extent of its domestic surveillance program, with critics in Congress saying its recent intercepts of the private telephone calls and e-mail messages of Americans are broader than previously acknowledged." According to the Times, "The agency's monitoring of domestic e-mail messages, in particular, has posed longstanding legal and logistical difficulties, the officials said." I take issue with the Times' characterization that such a breach of constitutional norms merely represent "logistical difficulties." As with a Times' report in April which alleged that NSA's driftnet spying under Obama was simply a problem of "overcollection," far from being mere technical issues, first and foremost, these violations represent political decisions made at the highest levels of the national security state itself. Since April, when it was disclosed that the intercepts of some private communications of Americans went beyond legal limits in late 2008 and early 2009, several Congressional committees have been investigating. Those inquiries have led to concerns in Congress about the agency's ability to collect and read domestic e-mail messages of Americans on a widespread basis, officials said. Supporting that conclusion is the account of a former N.S.A. analyst who, in a series of interviews, described being trained in 2005 for a program in which the agency routinely examined large volumes of Americans' e-mail messages without court warrants. Two intelligence officials confirmed that the program was still in operation. (James Risen and Eric Lichtblau, "E-Mail Surveillance Renews Concerns in Congress," The New York Times, June 17, 2009) Last year, congressional Democrats, including Senator now President, Obama, handed the NSA virtually unchecked power to spy on the private communications of Americans. In addition to granting retroactive immunity to telecom grifters who profited from their conspiracy to illegally spy on citizens for the state, the despicable FISA Amendments Act (FIA) gave NSA the legal cover to intercept Americans' communications "so long as it was done only as the incidental byproduct of investigating individuals 'reasonably believed' to be overseas," as the Times delicately put it. CYBERCOM's brief, and its deployment inside NSA with full access to the agency's powerful computing assets, and with a mission to conduct global Intelligence, Surveillance and Reconnaissance (ISR) at the behest of their STRATCOM masters, mean that despite bromides about "privacy concerns," the Pentagon will most assuredly be interested in developing an attack matrix that can just as easily be turned inward. After all as General Chilton asserts, "it's up to the president to decide." "One thing that is pretty clear," Wired reports, "NSA will be leading this emerging command." Indeed, NSA "may also come to dominate the wider government cyber defense effort, as well." As The Wall Street Journal revealed, the Defense Department's 2010 budget "envisions training and graduating more than 200 cyber-security officers annually." In contradistinction to DoD, "the Department of Homeland Security has 100 employees dedicated to civilian cyber security, with plans to reach 260 next year," the Journal reports. In other words, right from the get-go NSA will be assuming operational control of CYBERCOM. This is driven home by the fact that the Pentagon is already receiving the vast majority of appropriations for state cybersecurity initiatives and have thousands of cyberwarriors across all branches of the military, including

outsourced private contractors who labor for DoD, ready, willing and able to staff the new command. As Antifascist Calling revealed in April, with billions of dollars already spent on a score of top secret cyber initiatives, including those hidden within Pentagon Special Access or black programs, the issue of oversight is already a moot point. Defense analyst William M. Arkin in his essential book, *Code Names*, described some three dozen cyberwar programs and/or exercises, currently being pursued by the Pentagon. Since the book's 2005 publication, many others undoubtedly have come on-line. While NSA Director Alexander has explicitly stated that he does "not want [NSA] to run cybersecurity for the United States government," CYBERCOM's stand-up, and Alexander's near certain appointment as commander, all but guarantees that the agency will be a ubiquitous and silent gatekeeper answerable to no one.

Ανίχνευση άνθρακα – γρήγορα και αξιόπιστα

Η συσκευή χειρός Ceeker™ μπορεί να ανιχνεύει σπόρια άνθρακα γρήγορα και αξιόπιστα μέσα σε λίγα λεπτά χωρίς να απαιτείται χρονοβόρος εκπαίδευση.

Novel Handheld Device Detects Anthrax With Outstanding Accuracy And Reliability

Veritide Ltd., a developer of innovative biological identification and detection solutions,



Reliable biological detection

today reported that new independent data to be presented at the Biodetection Technologies 2009 conference confirm the exceptional accuracy of its Ceeker™ (pronounced "seeker") portable bacterial detection device in discriminating between anthrax spores and similar-looking hoax substances. The data show that in over two weeks of testing at the Midwest Research Institute in Florida, the company's Ceeker scanner accurately identified 100% of the anthrax samples used and was correct in 95% of tests involving hoax substances. These test results are consistent with similar results produced last year by a New Zealand forensic testing agency, Environmental Science and Research (ESR). "We knew that our innovative Ceeker is capable of producing outstanding results in distinguishing between anthrax and look-alike hoax substances, and now we have definitive data confirming its performance," said Andrew Rudge, Ph.D., Chief Executive Officer

of Veritide. "Even better, these extraordinary results were generated by a small portable handheld system that requires no special skills or training to operate and that can produce a result within minutes, enabling first responders to rapidly determine whether the situation is a nuisance or a major threat to public health." The Ceeker employs optical detection technology developed at New Zealand's University of Canterbury. It uses ultraviolet light and special algorithms to detect bacterial spores and provides test results within minutes, without the need for wet chemistry or analytic processes that can be difficult to handle in the field. The Ceeker is capable of producing test results from very small amounts of sample and does not consume or destroy the sample being tested, allowing it to be re-analyzed later for forensic applications. In contrast, existing detection approaches require longer and more complex processing to distinguish anthrax from other substances (between 30 minutes and three days), their accuracy is inferior to the Ceeker and the sample is typically destroyed during testing. The new data will be presented on June 26, 2009 at Biodetection Technologies 2009 by Professor Lou Reinisch, an inventor of the Ceeker technology and Professor of Physics and

Department Head at Jacksonville State University in Alabama. Prof. Reinisch noted, "It is gratifying to present these outstanding results from a system that has so much potential to reduce the large costs and losses in productivity and peace of mind caused by our current inability to easily distinguish between anthrax spores and harmless white powder. These new data definitively confirm the validity of the detection concepts underlying the Ceeker and should help fuel its wider use among such first responders as fire and police departments, HazMat teams, postal services, port and airport security, and defense and military authorities." John Delaney is Captain, Arlington County, Virginia Fire Department and Manager, National Medical Response Team-National Capital Region, home to the Pentagon and many other major U.S. government and corporate facilities. Capt. Delaney commented, "With responsibility for helping to ensure the safety of the hundreds of thousands of people who live and work in the Capital Region, my department welcomes the availability of technologically advanced solutions that enhance our ability to carry out our mission. The Veritide Ceeker is an excellent example-it is extremely versatile, easy-to-use and fast-results are ready in minutes. Most importantly, the new test data being presented this week confirm that the Ceeker is very reliable, enabling front-line decision makers to rapidly and confidently validate initial threat assessments that can ultimately have a far-reaching impact on public safety and well-being. The National Capital Region generally receives on average one alert a day or more regarding the potential presence of anthrax, so this device can only enhance our first responder capabilities and accuracy." The Ceeker has also been previously validated by forensic laboratory ESR, which conducted multiple rounds of testing using anthrax simulants and hoax substances. The successful U.S. test results have triggered significant sales from U.S. customers who had pre-ordered the Ceeker but were waiting for positive direct anthrax testing results before proceeding. Dr. Rudge added, "Achieving these results represents a significant milestone and positions Veritide as the first company to offer proven technology capable of accurately and reliably detecting lethal anthrax spores, and to do so without destroying the sample. These new testing results are expected to unlock large potential markets for Veritide in North America and around the globe. We currently are in the process of identifying potential partners and additional investors to ensure this important technology is available worldwide."

Καιρός ήταν !

Η Ρωσία ανακοίνωσε ότι θα αυξήσει τα πέτρα ασφαλείας στις περιοχές αποθήκευσης και καταστροφής χημικών όπλων. Προς τούτο θα χρησιμοποιηθούν μονάδες με σύγχρονο ατομικό εξοπλισμό και εξοπλισμό επιτήρησης στις περιοχές Bryansk, Kirov, Kurgan, Penza και Udmurtia. Η Ρωσία σχεδιάζει να καταστρέψει το 2009 περίπου 6.000 μετρικούς τόνους χημικών όπλων έχοντας ήδη καταστρέψει 12.000 τόνους.

Russia Boosts Security at Chemical Weapons Sites

Russia has placed additional security personnel at its chemical weapons storage and destruction sites. "Military guards and paramilitary security units with special gear and guard dogs will be in charge of our facilities," said Russian chemical weapons official Nikolai Khlebnikov. "Antiterror forces, armed with automatic weapons, grenade launchers and sniper rifles, have been formed to tighten the defense in line with the General Staff's instruction." The sites are also to be placed under continuous watch through use of security technology, he said. Khlebnikov ruled out the possibility of "unauthorized entry ... into the storage facilities." Russia did not report any security breaches or other emergencies at its chemical weapons storage or treatment sites last year, according to Interfax. The nation holds its remaining chemical arsenal in six facilities across its Bryansk, Kirov, Kurgan, Penza and Udmurtia regions (Interfax I, June 26). The Kirov region's Maradykovsky destruction site is expected to eliminate more than 230 metric tons of chemical-weapon agents in 2009, the area's government announced. In total, Russia plans to destroy 6,054 metric tons of chemical warfare material this year, according to the announcement. "The capacities of chemical arms destruction facilities in the Kirov and Penza regions are expected to be increased in order to

achieve this goal. The Maradykovsky facility will dispose of 232.6 [metric tons] of chemical agents, mostly ammunition containing sarin" nerve agent, the government said in its statement. Russia has already destroyed 12,000 metric tons of the deadly chemicals in its stockpile, and it is obligated to increase that total to 18,000 tons -- 45 percent of its total original stockpile -- by the end of the year, according to Interfax.

Το παρασκήνιο μιας αιματοβαμμένης επίθεσης

Λεπτομέρειες πίσω από την πολύνεκρη τρομοκρατική επίθεση στην οικονομική πρωτεύουσα της Ινδίας (2008). Κρίσιμες λεπτομέρειες που θα μπορούσαν να αλλάξουν τη ροή των γεγονότων – εάν κάποιος έδινε την απαιτούμενη προσοχή. Δυστυχώς για μια ακόμη φορά, τα κενά ασφαλείας ήταν πολλά, ο ανθρώπινος παράγοντας πρωταγωνιστής και οι τρομοκράτες και πάλι ένα βήμα μπροστά από τους διώκτες τους...

Mumbai: What really happened



A man with a gun was spied at the Chatrapathi Sivaji terminal railway station Photo: AP

As the last light ebbed from the sky, ten heavily armed men coaxed their dinghy towards the fishing shacks at Badhwar Park. Cutting the Yamaha outboard engine they drifted into shore. The jetty was silent except for the roll of the waves washing the city's flotsam ashore. It was 26th November: the men who would terrorise Mumbai over the next 59 hours had arrived. A local fisherman watched as they unloaded their bags. Their well groomed, youthful appearance and neat western clothes stood out, as did their modern inflatable dinghy and heavy bags. Two men stayed with the dingy, pushing back out to sea. Their targets were the five star Trident and Oberoi hotels at Nariman Point, a short journey by boat. The remaining eight split into pairs. Walking up the jetty they shoved an inquisitive fisherman out of the way, ignoring his challenge, and fanned out across the city. Each man carried a large rucksack containing an AK47 assault rifle, 500 rounds of ammunition, a pistol, eight hand grenades and improvised explosive devices – enough firepower to outgun the police for three days. They attacked the main railway station, five star hotels and a popular café, killing 166 people and injuring hundreds more. With guests cowering in hotels some of the horror was played out live on television. For those planning the assault, the propaganda value could not be surpassed. I travelled to Mumbai to investigate the background to these attacks and to re-trace the

gunmen's steps across the city. I was also following in the footsteps of western intelligence agents and counter terrorism police officers who have been in Mumbai to learn the lessons from 26/11 so they can assess the vulnerabilities of their own cities. There is acute concern that similar deadly attacks could be launched by Al Qaeda in western capitals including London. I started my journey at the Leopold Café in Colaba, one of the oldest commercial districts in Mumbai. It was another busy night for Eric Anthony, the young general manager, dressed in designer t-shirt and jeans. All his tables were full and the café resounded with laughter. Bowing his head he brushed a hand past his right ear to show me a bullet graze. "If I'd been any slower my brain would have been split in two". Eric explained that on the night of 26/11 Eric had seen two young men pause on the busy street outside, deep in conversation on mobile phones. With their heavy rucksacs they looked no different from the scores of travellers who throng the café every evening, soaking up the atmosphere, drinking beer. Yet at 9.35pm precisely they pulled out their AK47s from their rucksacs and entered the café through separate doors, spraying bullets before them. "Everyone sitting here died", Eric explained, pointing to the back right of the café where the terrorists had rolled grenades. "It was terrible, blood and flesh covered the floor. We lost two of our waiters, one died before my eyes." Eric now welcomes visitors who want to inspect the battle scars. A 4cm deep hole in the far wall, discreetly covered by a framed picture, betrays the path of an AK round. A perfectly spherical dip in the concrete floor marks a grenade explosion – ten were killed here. Within minutes the terrorists were gone, walking down the crowded lane towards the world renowned Taj Mahal hotel, firing as they moved, killing another thirteen bystanders. At the Taj, they met with another terrorist team who had already left improvised explosive devices outside. Entering the hotel they raked the reception area with automatic fire and climbed to the upper floors searching for hostages. New cctv images reveal them calmly walking through corridors and the lift area, AK47s in hand, rucksacs on their backs. They may have been dressed in casual clothes but this was a professional commando operation in every other respect. Mumbai's police headquarters lies in a crumbling, dusty compound not far from the tourist district of Colaba. I arrived with an appointment to see Deven Bharti, one of the senior officers in Crime Branch. Tiers of rickety verandas drew my eye up to the fifth floor of this old colonial building where he was waiting in the cool of his air conditioned office, one of the very few in this creaking complex. The Mumbai police have faced severe criticism for their response to the attacks, even though many officers died bravely. They were heavily outgunned, initially confronting the terrorists with archaic rifles and sticks. Then there was command and control: it took 12 hours to get elite commandoes to the scene. Beyond the failures of the police response, there is the broader question of what the investigation has revealed about the attack. Deven Bharti says his team of 54 detectives has turned up incontrovertible evidence that all roads lead back to Pakistan. "The evidence clearly points to the conspiracy hatched within the territorial limits of Pakistan and the ten terrorists launched from their soil", Bharti explained. I was led into the investigation room. Twelve officers sat at wooden desks piled high with paper files, preparing case notes and sifting evidence on laptop computers. Fans whirred overhead, cutting through the saturated, pre-monsoon air. Some 11,000 pages of evidence have been prepared for the trial of the only surviving terrorist, Ajmal Kasab. And prosecutors want to make the most of this. After suffering years of terrorist attacks from Islamist militants, they have finally captured a Pakistani terrorist alive. Forensic evidence has been gathered and analysed with the help of Scotland Yard and the FBI. It is impressive. The terrorists hijacked an Indian fishing vessel, the MV Kuber, several days before arriving in Mumbai. They had intended to scupper the boat four nautical miles offshore, after they launched their dinghy to make the final journey. In a rare failure, they left the MV Kuber afloat leaving vital evidence to be discovered. A Global Positioning System device was analysed by the FBI. The police evidence dossier states it showed 100 track back marks in Karachi, they believe the terrorists practised with the device there. Foodstuffs and household goods were recovered from the boat bearing Pakistani company names. The serial number of the Yamaha outboard motor was traced; it was imported by a firm in Lahore. Unexploded grenades recovered from the attacks bore the mark of the arms company Arges but they were made under licence by a Pakistani arms firm in Rawlapindi; the pistols carried a

manufacturer's stamp 'Peshawar'. Furthermore, Ajmal Kasab has named his leader as Zaki ur Rehman, a suspected leader of Lashkar e-Taiba who has been put under arrest in Pakistan. Of most interest, however, is the way the ten terrorists were communicating with their leaders who were directing events minute by minute on mobile phones. They were routing all calls over the internet. During the attacks on Mumbai, Indian intelligence officers managed to intercept calls made using this internet account. As we discovered, these intercepts, some of which we obtained, are crucial to the police investigation, especially in relation to the attack against the Jewish centre at Nariman House. Nariman House was run by an orthodox Jewish couple, Rabbi Holtzberg and his wife Rivka. Rivka was five months pregnant at the time of the attack. On the night of the 26th November, two terrorists entered the maze of back alleys which lead to Nariman House and opened fire. Bullets were ricocheting off cement walls, glass was raining down. They quickly entered the building and took Rabbi Holtzberg and his wife hostage. It is astonishingly clear from these calls that the terrorist leaders, said to be in Pakistan, knew every move the police were making as the hostage crisis unfolded. Here's one exchange we translated from the tape: (Terrorist in Nariman House) "Is there anyone in our building?" (Terrorist controller) "Look at the terrace at the back – the police are there. There's a building under construction, they're on top of that building and there's a lot of police on the main road. You know the Merchant House? They're sitting behind the protruding rear wall and firing shells. You talk to them and God willing they'll leave." In other disturbing telephone calls which Newsnight will broadcast the terrorist leader cynically consoles the Rabbi's wife suggesting she will live to celebrate the Sabbath if she cooperates by passing on demands to the Israeli consulate. Hours later he gave the order for their murder. So how did the leaders know the police positions in such detail? Mumbai police say they were watching live TV in Pakistan. But these instructions seem remarkably precise for that. I know the kind of live-shots used in these situations and they would be unlikely to yield that kind of detail. It is far more likely that they had spotters on the ground who were feeding back information to their leaders about the police movements. If this is true then it means a Lashkar e-Taiba cell in Mumbai which played a crucial role in the attacks which is still undiscovered. Additional Commissioner Deven Bharti denies this. I asked him whether he thought there were other logisticians in Mumbai who have yet to be caught. He replied: "No I don't think so. This investigation has reached a logical conclusion and we have verified and cross checked each and every fact available to us. This was a totally independent module of ten terrorists who were launched from the territorial limits of Pakistan like a commando group." Politically, of course, it would be very damaging for India to discover that local Indian Muslims were involved. One man has been arrested and charged with providing video and maps of targets but he was in custody for another offence at the time of the attack. The police are adamant this was a wholly Pakistani operation, and for now at least, it seems as if their investigation is closed.

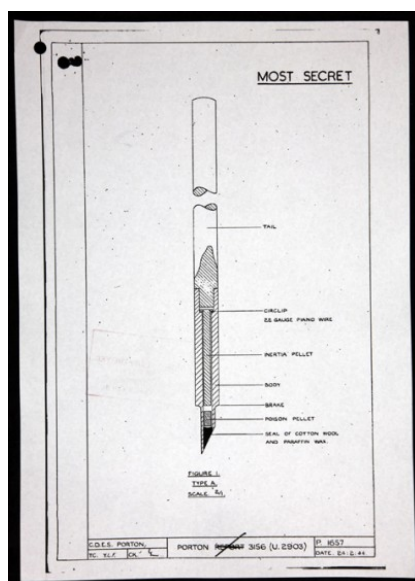
Ιστορίες από το παρελθόν

Συνήθως οι σύγχρονη επιστημονική κοινότητα μας εκπλήσσει με τις σκέψεις και τις εφαρμογές της ακόμη και όταν πρόκειται για νέα όπλα και πυρομαχικά. Όμως η αναδρομή στην ιστορία αποκαλύπτει επίσης συχνά ότι η φαντασία είναι άρρηκτα συνδεδεμένη με την επιστημονική σκέψη. Κατά τη διάρκεια του 2^{ου} ΠΠ, βρετανοί επιστήμονες είχαν αναπτύξει ένα εξαιρετικά θανατηφόρο μυστικό όπλο με την ονομασία «βομβοβελόνες» (needle bomb). Η εν λόγω βόμβα μετά την έκρηξη της απελευθέρωνε ένα νέφος βελονών εμβαπτισμένων σε δηλητήριο!

Revealed: WWII's Secret Sewing Needle Bomb

During World War II, British scientists developed a new and extremely lethal secret weapon: a bomb which released a cloud of sewing needles, tipped with deadly poison. The weapon is disclosed in the latest release of declassified documents from the UK's National Archive. It was developed at Porton Down, which is now home to Defence Science and Technology

Laboratory — but remains notorious for testing chemical and biological weapons on unsuspecting troops during the Cold War. Work on the darts was carried out with the assistance of Canadian and American researchers. Each dart consisted of a hollow steel needle with a paper tail. The tip of the needle was filled with toxin and a dense ‘inertia pellet’ above it.



When the needle struck a target, the pellet kept going and forced the toxin out of the needle. Breaking the skin was enough to inject a lethal dose. The needles were tested on sheep and goats under “realistic” conditions, sometimes covered with two layers of clothing and protected by trenches. Researchers concluded that if a needle “penetrat[ed] into the flesh, it will cause death if not plucked out within thirty seconds.” Even if the needle was removed, it would cause “cause disablement by collapse.” Media reports (including the BBC) claim that the chemical agent was mustard gas; this is extremely unlikely as the dose required would be much too high. Realistically, it would be one of the new nerve agents that were first fielded during WWII. The lethal dose for Sarin is 30 micrograms per kilogram of body weight, so three milligrams would kill most people. For Mustard gas, the dose needed would be about two hundred times higher. The effects reported on animal subjects (twitching and convulsions followed by death)

also strongly suggest a nerve agent. The program called for the production of thirty million darts. This would require a large number of specially-made needles; the head of the British project contacted the obvious source: the Singer Sewing Machine Company, in a letter apologizing that: “It is a little difficult to explain what I want sewing machine needles for...” The reply from Singer was helpful, if baffled: “From your remarks it would seem the needles are required for some purpose other than sewing machines. In any case, we should like to help you, if at all possible.” The weapon never went into production, possibly because the darts had very little penetrating power. As soon as its effects were known, scientists said that people would start to take cover under trees or in buildings or vehicles, which would make the rain of darts ineffective. The report also notes that the dart bomb would have been a “highly uneconomical weapon.” That may have sealed its fate. These days, nobody in a western military would dream of using poison darts. But darts filled with a nonlethal “calmative” agent are another matter. British researchers were looking at non-lethal dart guns for crowd control back in 1972 ; it wouldn’t take much imagination to turn that into a non-lethal artillery round. I wonder if they still have the quote from Singer?

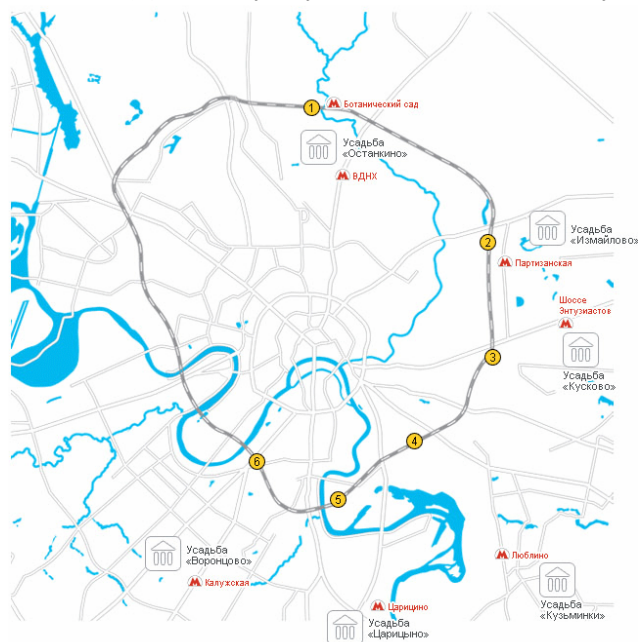
Απειλή τα τοξικά απόβλητα για τους Μοσκοβίτες

Οποιος έχει επισκεφτεί την Μόσχα έχει αναμφίβολα θαυμάσει τα τεράστια πάρκα της που κατακλύζονται από πλήθος κατοίκων και τουριστών, Όμως λίγοι γνωρίζουν ότι πολλά από αυτά αποτελούσαν στο παρελθόν πεδία δοκιμών χημικών και βιολογικών όπλων καθώς και ότι υπολείμματα των δοκιμών αυτών εξακολουθούν να υφίστανται θαμμένα εκεί. Ένα τέτοιο πάρκο είναι το Πάρκο Kuzminki που σύμφωνα με τους ειδικούς έχει μουστάρδα λίγα μόνον εκατοστά από την επιφάνεια του.

Millions of Muscovites at risk of toxic waste poisoning

Crowds of Muscovites are flocking city parks, but few are aware that a popular place of leisure used to be a testing ground for chemical and biological weapons and remnants from those experiments are still buried there. Thousands visit Moscow's Kuzminki park each day for a scenic walk or a good catch, and it doesn't look like a toxic graveyard at all. But Dr. Lev Fyodorov, a leading chemical weapons expert, knows better. “There is mustard gas

everywhere here. The smell is overpowering. There are tons of chemical weapons just inches beneath my feet,” says Fyodorov, Chemical Safety Association president. Dr. Fyodorov says



visitors are already at risk of poisoning. He claims a major leak is inevitable, and will affect millions of Muscovites living within a few miles. For years, the authorities refused to admit there was anything buried underneath this ground. But recently, a warning sign did go up. Still, there seem to be no plans afoot to resolve the situation once and for all. Despite its location, after World War I, Kuzminki was set up by the Soviets to test their newest chemical and biological weapons. When the authorities decided to move it further out in the 1940s, the clean-up operation was rudimentary at best. “I was fifteen and a volunteer. We were told to bury the toxic waste in the ground. There were test tubes,

barrels, special suits. We dug out a 1.5 meter-deep trench, and just flung them in,” says Boleslav Grokholsky, a former waste-removal volunteer. Some of the waste was dug up again and removed, but most was never found. A quarter of a century later the park was opened to the public. The removal of toxic chemicals would be expensive – an operation on a similar site in the US in 2005 cost over half a billion dollars. “We need a study to evaluate the exact level of risk in order to understand what the exact risk of contamination is, and what we should do next,” says Efim Brodsky from the Institute of Ecology and Evolution. So far, no such official study has been published. In the meantime, Moscow’s park-goers will just have to hope that the only burns they get are from the summer sun, while below them lies an artifact from history they’d rather not learn about.

Νέος τρόπος κατασκευής αισθητήρων τοξικών χημικών

Επιστήμονες από το Ohio State University ανέπτυξαν μια νέα μέθοδο κατασκευής εξαιρετικά μικρών (5 nanometers) μεταλλικών νανο-σωματιδίων για αισθητήρες που θα ανιχνεύουν βιομηχανικά χημικά και βιολογικές πολεμικές ουσίες.

New Way to Make Sensors that Detect Toxic Chemicals

Ohio State University researchers have developed a new method for making extremely pure, very small metal-oxide nanoparticles. They are using this simple, fast, and low-temperature process to make materials for gas sensors that detect toxic industrial chemicals (TICs) and biological warfare agents. The researchers described their work in a recent issue of the journal *Materials Chemistry and Physics*. Patricia Morris, associate professor of materials science and engineering at Ohio State, leads a team of researchers who develop solid materials that can detect toxic chemicals. The challenge, she said, is to design a material that reacts quickly and reliably to a variety of chemicals, including TICs, when incorporated into a sensor. “These are sensors that a soldier could wear on the battlefield, or a first responder could wear to an accident at a chemical plant,” Morris said. The material under study is nickel oxide, which has unusual electrical properties. Other labs are studying nickel oxide for use in batteries, fuel cells, solar cells, and even coatings that change color. But Morris, along with Ohio State doctoral student Elvin Beach, is more interested in how nickel oxide's electrical conductance changes when toxic chemicals in the air settle on its surface. Beach applies a thin coating of the material onto microelectro-mechanical systems (made in a similar fashion to

computer chips), with a goal of identifying known toxic substances. The design works on the same general principle as another, much more familiar sensor. "The human nose coordinates signals from hundreds of thousands of sensory neurons to identify chemicals," Beach said. "Here, we're using a combination of electrical responses to identify the signature of a toxic chemical." The key to making the sensor work is how the nickel oxide particles are made. Beach and Morris have devised a new synthesis method that yields very small particles -- which give the sensor a large surface area to capture chemical molecules from the air -- and very pure particles -- which enable the sensor to detect even very small quantities of a substance. Each particle of nickel oxide measures only about 50 atoms across -- that's equivalent to five nanometers (billionths of a meter). Beach described the synthesis method in very simple terms. "Basically, you mix everything together in a pressure vessel, pop it in the oven, rinse it off and it's ready to use," he said. Of course, for the process to go smoothly, the researchers have to meet specific conditions of temperature and pressure, and leave the material in the pressure cooker for just the right amount of time. For this study, they set the pressure cooker to around 225 °C. They found they can make the particles in as little as 12 hours, but no more than 24 hours. "Too short a time, and the nickel oxide doesn't form -- too long and it reduces to metallic nickel," Beach explained. After he removes the nickel oxide from the pressure cooker, he washes it in a common solvent called methyl ethyl ketone to free up the nanoparticles. At that point, the material is ready to use. Most other synthesis methods require another additional step -- a high-temperature heat treatment. Starting with a microsensor silicon chip array provided by collaborators at the National Institute of Standards and Technology (NIST), Beach adds a layer of particles using a device called a picoliter drop dispenser. A picoliter is a trillionth of a liter. He describes the dispenser as a kind of inkjet printer that places a droplet of a liquid suspension containing particles onto a surface -- in this case, the chips. According to Morris, this is the first time that nickel oxide nanoparticles have been applied in this way. But to Beach, the most important "first" to come out of the study is their discovery of the reaction pathway -- that is, the various chemical steps that take place inside the pressure cooker during the synthesis of the material. Now that the researchers know the reaction pathway, they can devise ways to add chemical dopants to the nanoparticles. Dopants would change the function of the sensor -- for instance, to speed up the response rate. A one-gram batch of nickel oxide nanoparticles costs about \$5.00 to make; one chip carries four nanograms (billionths of a gram) of material, so each sensor costs only pennies to fabricate. Other applications could include exhaust or pollution monitoring and air quality monitoring. Collaborators on the project include Steve Semancik and Kurt Benkstein at NIST. Study coauthors include: Krenar Shqau, an Ohio State postdoctoral researcher; Samantha Brown, then an undergraduate student visitor from Northwestern University who will return to Ohio State this fall to pursue her doctorate in Chemistry; and Steven Rozeveld at Dow Chemical Co., who helped Beach produce electron microscope images of the nanoparticles.

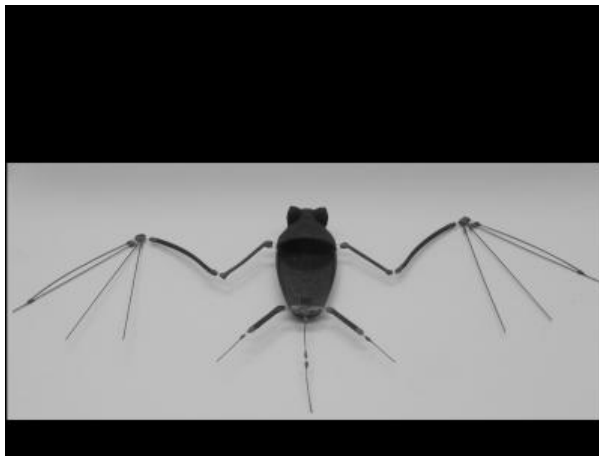
Νέο στρατιωτικό UAV με πρότυπο τη νυχτερίδα

Βασισμένο στη νυχτερίδα το νέο αμερικανικό μη επανδρωμένο αεροπλάνο θα διαθέτει πτέρυγες που θα ανεβοκατεβαίνουν όπως στην πραγματική νυχτερίδα. Και όχι μόνον αυτό, αλλά θα έχει την ικανότητα να ανιχνεύει την παρουσία βιολογικών όπλων

Robo-bats with metal muscles - the next generation of remote control flyers

The skeleton of the robotic bat uses shape-memory metal alloy that is super-elastic for the joints, and smart materials that respond to electric current for the muscular system. Credit: Gheorghe Bunget, North Carolina State University. Tiny **flying machines** can be used for everything from indoor surveillance to exploring collapsed buildings, but simply making smaller versions of planes and helicopters doesn't work very well. Instead, researchers at North Carolina State University **are mimicking nature's small flyers - and developing robotic bats that offer increased maneuverability and performance.** Small flyers, or micro-aerial vehicles (MAVs), have garnered a great deal of interest due to their potential applications where maneuverability in tight spaces is necessary, says researcher

Gheorghe Bunget. For example, Bunget says, "due to the availability of small sensors, MAVs can be used for detection missions of biological, chemical and nuclear agents." But, due to their size, devices using a traditional fixed-wing or rotary-wing design have low maneuverability and aerodynamic efficiency. So Bunget, a doctoral student in mechanical



engineering at NC State, and his advisor Dr. Stefan Seelecke looked to nature. "We are trying to mimic nature as closely as possible," Seelecke says, "because it is very efficient. And, at the MAV scale, nature tells us that flapping flight - like that of the bat - is the most effective." The researchers did extensive analysis of bats' skeletal and muscular systems before developing a "robo-bat" skeleton using rapid prototyping technologies. The fully assembled skeleton rests easily in the palm of your hand and, at less than 6

grams, feels as light as a feather. The researchers are currently completing fabrication and assembly of the joints, muscular system and wing membrane for the robo-bat, which should allow it to fly with the same efficient flapping motion used by real bats. "The key concept here is the use of smart materials," Seelecke says. "We are using a shape-memory metal alloy that is super-elastic for the joints. The material provides a full range of motion, but will always return to its original position - a function performed by many tiny bones, cartilage and tendons in real bats." Seelecke explains that the research team is also using smart materials for the muscular system. "We're using an alloy that responds to the heat from an electric current. That heat actuates micro-scale wires the size of a human hair, making them contract like 'metal muscles.' During the contraction, the powerful muscle wires also change their electric resistance, which can be easily measured, thus providing simultaneous action and sensory input. This dual functionality will help cut down on the robo-bat's weight, and allow the robot to respond quickly to changing conditions - such as a gust of wind - as perfectly as a real bat." In addition to creating a surveillance tool with very real practical applications, Seelecke says the robo-bat could also help expand our understanding of aerodynamics. "It will allow us to do tests where we can control all of the variables - and finally give us the opportunity to fully understand the aerodynamics of flapping flight," Seelecke says.

Το νοσοκομείο του μέλλοντος

Μπορεί το παρακάτω άρθρο να μην εμπίπτει στη θεματολογία του Newsletter όμως δεν μπόρεσα να αντισταθώ στον πειρασμό να το παραθέσω, κυρίως για να δείξω ότι κάπου στον κόσμο υπάρχουν άνθρωποι που εξακολουθούν να θέλουν να βελτιώσουν την κατάσταση στα νοσοκομεία και που δεν έχουν περιπέσει σε βαλτώδη απραξία βλέποντας απλά τις ημέρες και τα χρόνια να περνούν χωρίς να προσθέτουν ούτε ένα λιθαράκι στις εγκαταστάσεις, στον τρόπο λειτουργίας και στις παρεχόμενες υπηρεσίες που παραμένουν οι ίδιες με ελάχιστες βελτιώσεις από τότε που κατασκευάστηκαν για πρώτη φορά.

High-Tech Hospital of the Future

Katherine Thomas doesn't remember much about the 19 days she spent in the intensive care unit at Methodist Hospital in Houston. Recovering from emergency surgery to remove part of her colon, Thomas, 63, drifted in and out of consciousness. But one vision stands out: the 5-foot robot that stopped in for a visit. "I thought it was something from outer space," she recalls. Piloted remotely by her doctor from a command center on another floor, her alien—which looked like an oversize carpet cleaner with a computer monitor stuck on top—allowed

her medical team to do their rounds, "seeing" how she was doing and "reading" her vital signs, without unsettling her or the other extremely ill patients in intensive care. Doctors at Methodist Hospital in Houston conduct morning rounds remotely with input from their robot. Surgeons increasingly will operate robotically, manipulating a computer rather than a scalpel.



Robots that glide through hospital halls may offer the most visually arresting example of the future of patient care. But they're just one of many dramatic advances changing how hospitals function. Radio-frequency ID tags that track every doctor, nurse, and piece of equipment in the hospital in real time, for example, can enable a faster emergency response. "Smart" beds that automatically transmit patients' breathing and heart rates to their charts can alert nurses to developing problems more quickly. One day in the not-too-distant future, any doctor in the country may have access to the complete medical history of an unconscious trauma patient—perhaps through an identifier implanted under the skin. According to industry analyst Datamonitor, spending on telemedicine, which now entails everything from remotely monitoring patients to analyzing medical images from afar and someday could even include long-distance surgery, will reach \$2.4 billion this year and nearly triple to

\$6.1 billion by 2012. The investment hospitals are making in change has basically two goals: to improve clinical care and slash error rates, and to reduce patient stress, encouraging healing. Ironically, one of the most anticipated developments is that technology will allow hospitals to do a better job of keeping people out of them. "By 2015, home will be the hub of care," predicts Naomi Fried, vice president of the innovation and advanced technology group at Kaiser Permanente's Sidney R. Garfield Health Care Innovation Center in San Leandro, Calif. Five years ago, when Kevin Reynolds of Corona, Calif., developed congestive heart failure (the No. 1 reason for hospitalization and readmission), he at first was in and out of the ER or urgent care center nearly every month, plagued by shortness of breath and dizziness. Now, doctors at Kaiser Permanente Riverside Medical Center can check his vital signs with the aid of a device the size of a clock radio connected to a scale and other monitoring equipment in his home. He weighs himself each morning and checks his heart rate, blood pressure, and blood oxygen levels; the data are sent in automatically. If Reynolds's weight is up, indicating he's retaining fluids, he'll get a call from a nurse suggesting a diuretic. Once, when his blood pressure dropped too low, the nurse called him to the hospital immediately, but overall, Reynolds's time at the medical center is way down. "It's helped me with discipline and with taking care of myself," he says.

Remote diagnosis. In rural areas, where specialist coverage is sparse, telemedicine's contribution grows ever more sophisticated. Take ultra-time-sensitive stroke management, for example. In Michigan, 31 hospitals in far-flung locations now use robots identical to the one in Houston to allow a remote specialist to rapidly diagnose stroke and determine, before a patient's very narrow window of opportunity closes, whether he or she is a good candidate for tPA, a drug that dissolves clots. A neurosurgeon at St. Joseph Mercy Oakland Hospital in Pontiac can observe and talk to patients using the robot's video camera, as well as review the CT scan and other lab results.



"After one year, 18 hospitals had administered the drug tPA that had never done so before," says Yulun Wang, the chairman and CEO of InTouch Health, which developed the robot. Robots are increasingly making their mark in the operating room, too. Originally approved for

general abdominal procedures like gallbladder removal, robotic surgery—the surgeon manipulates computer controls rather than a scalpel—is now used for heart and prostate cancer surgery, gynecologic procedures, and bariatric surgery, among others. With the help of a tiny camera inserted through an incision "port," a surgeon can see the surgical field onscreen as he sits at a console in the operating room, from which he guides the robot's instruments, also inserted through ports. Someday, the doctor guiding the robot could be sitting at a console literally across the world from the patient. If remote surgery eventually becomes commercially available, many lives might be saved in hard-to-reach locations, from remote islands to battlefields. Proponents of robotic surgery note that the robot's "hands" are steadier and have a wider range of motion than human hands and that the instruments are more flexible than traditional laparoscopic instruments. This can lead to less pain and blood loss, and potentially better clinical outcomes, they say. But results of studies on outcomes are mixed, says Richard Satava, a professor of surgery at the University of Washington. "If it costs more to do the same operation with the robot, that will slow down the adoption somewhat," he says.

Records reform. Meanwhile, a slow but sure transformation in the way patient records are gathered and stored gained momentum last winter when the economic stimulus package set aside \$19 billion for healthcare information technology. Currently, just 1.5 percent of private hospitals can claim a comprehensive electronic medical records system in all clinical units, according to a study published in the *New England Journal of Medicine* in April. An additional 7.6 percent have a basic system in at least one unit. But putting patient records into digital form and into the massive national database envisioned by President Obama has the potential, assuming it happens, to provide a wealth of information about which treatments work and which don't—and to speed diagnosis and medical care and curtail unnecessary tests and procedures. A number of institutions offer a hint of what is possible. In the emergency department at Kaiser Permanente's Oakland Medical Center, doctors and nurses carry flat computer tablets about the size of a piece of paper that can access every Kaiser patient's entire medical record. If a patient has previously visited any Kaiser Permanente facility, ER staff can immediately call up his or her medications and any recent test results. They can also sit down next to a bed and show patients an X-ray, say. When Palomar Medical Center West near San Diego opens in 2012, patients will sleep on "LifeBeds" covered in "smart" fabric that records their heart rate, pulse, and respiration and sends the info directly to their medical record. On a medical/surgical unit at the University of Pittsburgh Medical Center, a flat-screen monitor is mounted on the wall near the foot of every bed. Hospital staffers wear ultrasound ID tags, and as soon as they walk into the room, their name and job title pop up. The system then makes the appropriate chart information available onscreen—a phlebotomist would see what blood draws to do, for example, while a nursing assistant might see what medications are due. The patient has access to the information as well. "Everyone's engaged, sharing the same information," says Tami Minnier, chief quality officer for UPMC. That's important, say experts. Whereas medical practice has traditionally tended to be paternalistic, practitioners now believe that the sense of empowerment that patients get from being engaged in their care can lead to better outcomes. It's the "I think I can" approach. Besides engaging people in decisions about their own care, hospital administrators are exploring ways that physical structure and environment can ease anxiety and promote wellbeing. "Evidence-based design" is inspired by studies suggesting that patients heal better if they have access to nature, natural light, and artwork, for example. In one oft-cited study, researchers found that surgical patients whose rooms looked out on trees used less heavy medication, suffered fewer minor complications, and went home nearly a day sooner than patients whose rooms looked out on a brick wall. The plans for Palomar Medical Center West call for a plant-filled central atrium and gardens at each end of every floor, and rooms with floor-to-ceiling windows looking out on the mountains, furnished so that family members can stay overnight.

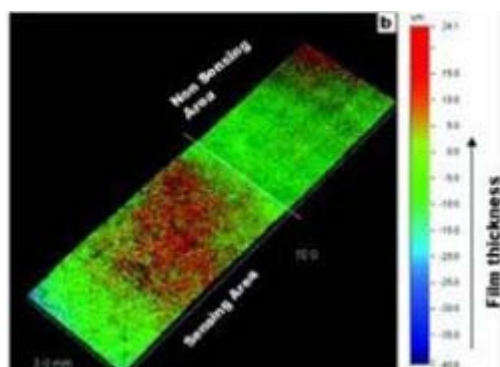
Room change. Palomar's rooms will also be "acuity adaptable," meaning that as the patient's condition changes, the room can, too—becoming an intensive care unit temporarily, say.

Studies show that moving patients less frequently results in fewer falls and medication errors. The traditional centralized nursing station will be replaced by stations outside rooms, where a nurse checking in can see the patient. Some design changes and concepts speak more to hospitality than healthcare: plush furnishings, parking spaces near the door, a self-serve kiosk check-in system that—like a global positioning system—instructs you where to go ("take 10 steps forward and turn right down the corridor labeled 'east wing' "). Such a focus on comfort "creates a healing environment and helps people feel like they have some control," says Bruce Schroffel, CEO of the University of Colorado Hospital. (Skeptics note it may also give facilities a competitive edge in attracting affluent patients with good insurance.) One day soon, patients may be able to order meals, adjust the room temperature and lighting, surf the Internet, and videoconference with family using a remote control in bed. Or it may take a little bit longer than anticipated. According to an April survey by the American Hospital Association, nearly 8 in 10 hospitals report that they have stopped, postponed, or scaled back facility upgrades or information technology projects because of the economy's recent woes. "The recession is clearly slowing construction projects down," says James Bentley, a senior vice president at the AHA. "How much, we'll see." At whatever pace, though, change is coming.

Χάρτινοι βιο-αισθητήρες

Η ερευνητική ομάδα του John Brennan από το McMaster University επινόησαν μια μέθοδο που βασίζεται στην τεχνολογία των εκτυπωτών inkjet για την κατασκευή βιολογικών αισθητήρων που θα ανιχνεύουν τοξίνες τυπωμένων πάνω σε χαρτί. Η εφαρμογή θα είναι ιδιαίτερα χρήσιμη για περιστατικά δηλητηριάσεων αλλά και βιοτρομοκρατικών παραγόντων.

Paper-Based Biosensors



This is topography of inkjet-sprayed PVAm, and AChE (50 U/mL) and DTNB doped sodium silicate (SS) thin films on paper. (Credit: McMaster University)

Researchers use inkjet printer technology to produce toxin-detecting biosensors on paper to help detect toxins that cause food-poisoning or those used in bioterrorism agents. If that office inkjet printer has become just another fixture, it's time to take a fresh look at it. Similar technology may soon be used to develop paper-based biosensors that can detect certain harmful toxins

that can cause food poisoning or be used as bioterrorism agents. In a paper published in the July issue of *Analytical Chemistry*, John Brennan and his research team at McMaster University, working with the Sentinel Bioactive Paper Network, describe a method for printing a toxin-detecting biosensor on paper using a FujiFilm Dimatix Materials Printer. The researchers demonstrated the concept on the detection of acetylcholinesterase (AChE) inhibitors such as paraoxon and aflatoxin B1 on paper using a "lateral flow" sensing approach similar to that used in a home pregnancy test strip. The process involves formulating an ink like the one found in computer printer cartridges but with special additives to make the ink biocompatible. An ink comprised of biocompatible silica nanoparticles is first deposited on paper, followed by a second ink containing the enzyme, and the resulting bio-ink forms a thin film of enzyme that is entrapped in the silica on paper. When the enzyme is exposed to a toxin, reporter molecules in the ink change color in a manner that is dependent on the concentration of the toxin in the sample. This simple and cost-effective method of adhering biochemical reagents to paper is expected to bring the concept of bioactive paper a significant step closer to commercialization. The goal for bioactive paper is to provide a rapid, portable, disposable and inexpensive way of detecting harmful substances, including toxins, pathogens and viruses, without the need for sophisticated instrumentation. The research showed that the

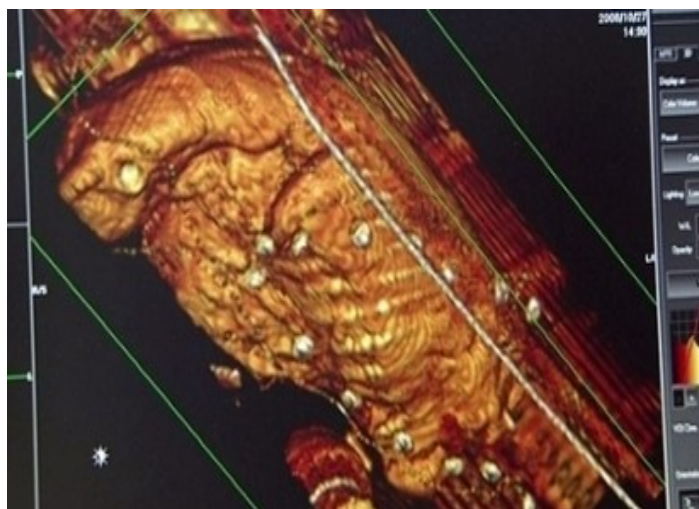
printed enzyme retains full activity for at least two months when stored properly, suggesting that such sensor strips should have a good shelf life. Portable bio-sensing papers are expected to be extremely useful in monitoring environmental and food-based toxins, as well as in remote settings in less industrialized countries where simple bioassays are essential for the first stages of detecting disease. Applications for bioactive paper also include clinical applications in neuroscience, drug assessment, and pharmaceutical development.

Ραδιομόλυνση ; Κάνε μια αξονική τομογραφία

Επιστήμονες στο Dundee University ψάχνουν τρόπους χρήσης της αξονικής τομογραφίας για την αναγνώριση σωμάτων που έχουν μολυνθεί από ραδιενέργεια μετά από έκρηξη βρώμικης βόμβας ή πυρηνική καταστροφή. Αναμφισβήτητα πρόκειται για ιδιόμορφη εφαρμογή και η επιστημονική κοινότητα αναμένει με περιέργεια τα συμπεράσματα της ερευνητικής προσπάθειας που τελεί υπό κυβερνητική εποπτεία.

Terrorist attacks subject of Dundee scientist research

A method of identifying victims of a dirty bomb attack or nuclear disaster is being developed by scientists in Dundee. Experts at Dundee University are looking at ways of using CT scans to identify bodies which have been contaminated. The work has been ordered by the Home



Office so the UK is prepared should such an incident take place. The Dundee University team have just been boosted by a £7,000 donation from three charitable trusts. Dr Roos Eisma said: "What the Home Office has decided to try is to scan the remains using a CT scanner, so only a small number of people will go into the disaster area. "They will bag the remains and scan them. Everybody else stays at a safe distance and instead of looking at the material directly we will receive the images and

look at them instead." George Mathieson of the Aberbrothock Skea Trust said: "This is such an unusual application which came to the trust. It fired, stirred the imagination of the trustees and without any hesitation decided to give what we felt was a reasonable grant to them. "I was particularly interested, having been a lawyer and forensic science was one of my subjects, in following up, finding out exactly what they are doing and these people are doing a tremendous job."

Ναρκο-υποβρύχια

Ένα άρθρο που πραγματεύεται μια μέθοδο που χρησιμοποιούν τα καρτέλ των εμπόρων ναρκωτικών (ιδίως των κολομβιανών) για να διακινούν λαθραίως τα προϊόντα τους από χώρα σε χώρα. Εντοπίστηκαν για πρώτη φορά το 1993 και ουσιαστικά πρόκειται για ημι-βυθισμένα σκάφη (δεν μπορούν να καταδυθούν) από fiberglass που ουσιαστικά δεν μπορούν να ανιχνευτούν από συστήματα ραντάρ, σόναρ ή υπερύθρων. Οι αμερικανικές αρχές εκτιμούν ότι με την μέθοδο αυτή, το 2008 σε 85 περιπτώσεις μεταφέρθηκαν πάνω από 340 τόνοι κοκαΐνης στις ΗΠΑ!

Narco submarine

A **narco submarine** (also called **narco sub**, **drug sub**, **Big Foot submarine** and **Self-Propelled Semi-Submersible (SPSS)**) is a home-made marine vessel built by drug traffickers to smuggle their goods. They are especially known to be used by Colombian drug cartel members to export cocaine from Colombia to the United States. First detected in 1993, they are popularly called submarines though strictly speaking they are semi-submersibles because they cannot dive and most of the craft glides under the water with little beyond the cockpit and the exhaust tubes above the water. In other words, a narco sub is a surface vessel with a very low freeboard. Due to their low profile and fiberglass construction, they are nearly undetectable with radar, sonar, and infrared systems.

Cocaine smuggling sea vessels

[Drug smuggling submarine seized by the U.S. Navy.](#)



During the 1980s, fast, powerful go-fast boats became notorious as the drug smuggling boat of choice in many parts of the world. Due to more effective radar coverage, Colombian drug cartels are now adapting to semi-submersible use. Some of the vessels, with whimsically shaped fins, and ducts and pipes sticking out, bring to mind the Confederate H. L. Hunley and Captain Nemo's Nautilus from Jules Verne's novel. Others are cigar-shaped, narrow and hydrodynamic, not unlike the World War I German U-boats. The first time the U.S. Coast Guard found one, authorities dubbed it 'Big Foot' because they had heard rumours that such things existed, but nobody had actually seen one. It was late 2006 when a 'Big Foot' was seized 145 kilometres (90 miles) southwest of Costa Rica carrying several tons of cocaine. In 2006, American officials say they detected only three; now they are spotting an average of ten per month, but only one out of ten is seized, as their crew scuttles them upon interception. Little is known about who is behind the new semi-submersibles. One theory is that is part of an effort by Colombian cocaine producers to win back from their Mexican rivals-partners a bigger slice of the profits from drugs. In the 1990s most cocaine began to enter the United States across its southern land border, rather than across the Caribbean. That allowed Mexican gangs to oust Colombians from much of the lucrative distribution business in American cities. Another theory by the U.S. Navy says there is evidence that the Revolutionary Armed Forces of Colombia (FARC) is collaborating with trafficking groups to fund its armed activities.

Construction

Colombia's Pacific coastline, where muddy rivers loop into the ocean, has long been a smugglers' paradise. Behind the jagged cliffs that jut into the ocean is a vast jungle, laced with mangrove-fringed coves and virtually thousands of miles of waterways, apt for clandestine shipyards. A Colombian Navy Commander stated that it is most striking to notice the logistical capacity of these criminals to take all this material into the heart of the jungle, including heavy equipment like propulsion gear and generators. Sometimes they are put together in pieces and then reassembled in other locations under the jungle canopy, in camps outfitted with sleeping quarters for workers. The narco submarines can cost up to \$1 million USD and take nearly a year to build. They were considered by officials to be an oddity until 2000, when Colombian police discovered a 24-metre (79 ft) submarine, half-built with the help of North American and Russian engineers, in a warehouse outside Bogota. The double-hulled vessel could have traveled 2,000 nautical miles (3,700 km), dived 330 feet (100 m) and carried 150 tons of cocaine.

Narco submarine moments before interception by the U.S. Coast Guard in August 2007.



Now it seems the traffickers have perfected the design and manufacture: they are faster, more seaworthy, and capable of carrying bigger loads of drugs than earlier models. A 60 feet (18 m) long narco submarine can reach speeds of 11 miles per hour (18 km/h) and carry up to 10 tons of cocaine. They are typically made of fiberglass, powered by a 300/350 hp diesel engine and manned by a crew of four. With enough cargo space to carry two to ten tons of cocaine, they also carry large fuel tanks, giving them a range of 2,000 miles (3,200 Km).

Because much of its structure is fiberglass and it travels nearly below the sea surface, the vessel is virtually impossible to detect via sonar or radar. Narco submarines also have an upper lead shielding to minimize their 'heat signature' and throw off infrared sensors. In most cases, this means enforcement agencies must spot them from the air, though they are painted blue and produce almost no wake. Even here, the traffickers alter their methods, travelling slowly during the day so their wake is small. They also have ballast tanks to alter the vessel's buoyancy and are equipped with satellite global positioning system to aid navigation. Experts estimate 25 to 40 semi-subs departed South America in 2007 laden with cocaine, and they expected that figure would double in 2008. There is no head and the operating space is cramped. The craft have ventilation systems though with the engine rumbling just two feet away, naval engineers theorize the heat must be nearly unbearable; however the crew is motivated by profit.

Routes and seizures



A narco submarine being seized by a Mexican Navy helicopter unit. July 16, 2008

A narco sub being seized by the U.S. Coast Guard off the Coast of Guatemala on September 17, 2008. The western Colombian shore topography is near ideal for transporting the cocaine produced in clandestine laboratories in nearby Nariño department. About a third of the 600 tons of cocaine coming out of Colombia each year, leaves via the Pacific coast and a significant amount is being carried in semi-submersibles. The U.S. Homeland Security estimates that drug submarines now account for 32 percent of all maritime cocaine flow between Latin America and the United States. While the subs are most frequently used from the Pacific coast of Colombia, they are showing up elsewhere as well. The Coast Guard says drug runners have devised a complete logistics system, with fishing

boats stationed along the way to warn the crews against patrols and provide them with food and water and resorting to putting refueling vessels far offshore so drug-carrying boats can avoid coastal areas. For traffickers, reaching the U.S.A., is well worth the trouble as a 10-ton load can fetch nearly \$200 million USD wholesale. Fishermen hired specifically for the task are often at the controls, and those who complete the trip successfully are paid more than \$100,000 USD (€64,000). Smugglers normally unload their cargo onto fast power boats for the final leg to shore and the semi-submersible is scuttled. None have been sighted unloading at North American ports or beaches. In 2006, a 10 meter long sub was found abandoned on the northern coast of Spain, where the authorities suspect the crew had unloaded a cargo of cocaine before fleeing. In March 2006, the Calabrian mafia ('Ndrangheta) ordered a shipment

of 10 tons of cocaine to be transported by a narco submarine from Colombia to Italy, but the vessel was discovered by the Colombian police while it was still under construction. During 2007, thirteen of the vessels were seized on Colombian dry land or stopped at sea by Colombian or U.S. patrol boats, more than in the previous 14 years combined, but arrests are rare. When clandestine shipyards have been discovered, the workmen have escaped into the jungle. In some instances, the semi subs are towed behind other vessels and are scuttled if they are detected. Authorities are investigating reports that some semi-submersibles are unmanned and are operated remotely. In the first six months of 2008, the U.S. Coast Guard along with the U.S. Navy have detected 42 drug subs headed north towards the United States and off the coast of Central America, but they are rarely seized. The service estimates that 85 individual events will bring in about 340 tons of cocaine by the end of 2008. The U.S. Coast Guard is currently adjusting its underwater acoustic sensors to 'listen' to a narco sub's engine over a large distance. On July 16, 2008, the Mexican Navy intercepted a 10 metres (33 ft) long narco submarine travelling about 200 kilometres (120 mi) off the southwest of Oaxaca, Mexico; in a daring raid, Mexican Navy Special Forces rappelled from a helicopter on to the deck of the narco submarine and arrested four smugglers before they could scuttle their vessel. The vessel was found to be loaded with 5.8 tons of cocaine and was towed to Huatulco, Oaxaca by a Mexican Navy patrol boat. On September 12, 2008 the U.S. Coast Guard captured a semi-submersible about 563 kilometres (350 mi) west of Guatemala; it was carrying seven tons of cocaine. The 18 metres (59 ft) long, steel and fiberglass craft was detected by a U.S. Navy aircraft as part of Operation Panama Express and was intercepted by two speedboats launched from the USS McInerney. Five days later, a 60-foot (18 m) semi-submersible was seized by the Coast Guard cutter Midgett about 322 kilometres (200 mi) south of Guatemala.

Laws

When semi-submersibles have been stopped at sea, their crew usually scuttle them, sending boat and cocaine to the bottom. With no evidence of trafficking against them and in accordance with maritime law, the crew must be rescued and, lacking of evidence of wrongdoing, released without criminal charges. To address this legal loophole, the Congress worked with the U.S. Coast Guard and introduced a proposed bill on June 28, 2008 to make it illegal to be aboard an unflagged semi-submersible, regardless of seizure of narcotics inside their scuttled vessel. The Drug Trafficking Vessel Interdiction Act of 2008 was enacted in September 2008. The bill makes it a "felony for those who knowingly or intentionally operate or embark in a self-propelled semi-submersible (SPSS) that is without nationality and that is or has navigated in international waters, with the intent to evade detection." The bill does not impact researchers, explorers or others who may be operating a flagged semi-submersible. Some alleged narco sub smugglers are now facing criminal charges for operating an unflagged semi-submersible. The crime carries a 20-year prison term in the U.S.

Φύλακας των πυροσβεστών

Η συχνότερη μεμονωμένη αιτία θανάτου για τους πυροσβέστες – σε ποσοστό 50% - είναι τα αιφνίδια καρδιακά επεισόδια. Παρόμοιους κινδύνους φαίνεται ότι αντιμετώπιζουν και οι πρώτοι ανταποκριτές που επιχειρούν με στολές επιπέδου Α. Βασική παράμετρος του προβλήματος φαίνεται ότι είναι η έντονη αφυδάτωση που βιώνουν – κάτι που γνωρίζουν μόνον όσοι έχουν επ' έργω προσωπική εμπειρία με εξοπλισμό αυτού του είδους. Η αμερικανική εταιρεία Cantimer κατασκεύασε την ομώνυμη συσκευή που καταγράφει το επίπεδο ενυδάτωσης με μόνο μια σταγόνα σάλιου που τοποθετείται στη συσκευή. Τα αποτελέσματα είναι διαθέσιμα σε λιγότερο από ένα λεπτό. Η συσκευή θα είναι εμπορικά διαθέσιμη στο τέλος του έτους.

Non-Invasive Hydration Measurement Saves Lives

Despite the risk of burns, smoke inhalation or building collapse, the single largest cause of death in the United States, and the source of nearly half of all firefighter deaths, is sudden cardiac events. First responders in disciplines that require heavy personal protective



equipment (PPE), such as HAZMAT encapsulating suits or bunker gear, also suffer the consequences. According to the United States Fire Administration, these stress- and exertion-related deaths double those caused by vehicle collisions – the next leading cause of death in the nation. The National Fire Protection Agency has issued standards for field rehab, including replacing lost fluids as a key to preventing cardiac events. Measuring hydration levels could significantly reduce the number of deaths. But the question remains: how can you know when the responder has been drinking enough water? “Dehydration is a problem on the fireground and for many first responders,” said Dr. Denise Smith, Professor of Exercise Science at Skidmore College and Research Scientist at Illinois Fire Service Institute (IFSI). “It leads to fatigue, greater thermal strain, and greater cardiovascular strain.” Smith has studied the markers for the physiological stress of firefighting at IFSI, including the effects of fluid loss and changes in plasma volume. At the same time, a California-based company called Cantimer has been developing a hydration sensor using a polymer formulation. Working with a Small Business Innovation Research (SBIR) grant from the U.S.

Army, the company knew that both the military and firefighters were concerned about heat exhaustion and heat stroke associated with dehydration. “People working in extreme-temperature environments, wearing heavy clothing, or carrying heavy equipment, can lose as much as a liter of fluid every twenty minutes, and that puts them at risk,” said Robin Stracey, CEO of Cantimer. With inadequate hydration, the body’s core temperature rises, increasing cardiovascular stress. “First responders were interested in having a reliable, convenient, non-invasive way to determine how dehydrated an individual is in the field,” he said. Cantimer’s device is a little larger than the average cell phone, with a handheld reader and cartridges. The concept is similar to a glucometer, where the user pricks his or her finger and places a drop of blood on the cartridge to determine blood-sugar levels. Cantimer’s device measures body hydration levels by having the user put a drop of saliva on the cartridge. The reader produces results in less than one minute. Cantimer responded to a broad agency announcement put out by the Technical Support Working Group (TSWG) expressing an interest in studying dehydration in first responders. Cantimer was awarded a competitive contract and identified Smith’s team in his proposal to benefit from someone doing physiological testing on an actual training ground. “We let them know we had several methods of measuring dehydration by looking at blood, urine output, etc.,” said Smith. TSWG is also funding the research. Smith began a controlled lab study at Skidmore College with individuals wearing PPE during a two-hour protocol. “We were looking at the underlying principle that saliva is a body fluid that can track or measure acute dehydration,” she said. In the controlled study, Smith had subjects walk 10 minutes and rest 10 minutes, while she tracked changes in their body weight until the subjects lost three percent of their body weight. “Since we knew how much they lost, we measured their saliva throughout that period to see if saliva could track the change, and in fact we found it was a sensitive indicator of an acute change in body weight,” said Smith. Next,

Smith took her testing to IFSI, where firefighters were undergoing training. This time she used both the Cantimer device and a Fiske Osmometer, which measures osmolality, or how much solute or dissolved salt (electrolytes and minerals), are in the saliva. She took saliva samples in the morning and recorded subjects' body weight, then took samples and weights again three to four hours later. The Fiske unit is large and designed for use in a laboratory, whereas the small Cantimer unit is designed to be portable and used in the field. The saliva was measured using both the Cantimer and Fiske devices and both measured exactly the same under sealed conditions. Stracey said the Cantimer device will primarily be used by EMS personnel or paramedics who assist victims and first responders on scene. For example, when firefighters' tanks are out of air, they are supposed to go to a rehab station to be checked out by a paramedic. "The paramedic will use the device to judge whether or not they can go back to the fire," Stracey said. He also said the device could be used in ambulances for athletes, the elderly, and other groups who are at risk for dehydration. The device could be available later this year.

Νέα πιο άνετη στολή προστασίας από επικίνδυνα υλικά

Η εταιρεία Blauer Manufacturing Co χρησιμοποιεί το νέο υλικό Gore Chempak Selectively Permeable Fabric για την κατασκευή στολών XBPII προστασίας με χρόνο προστασίας τις 8 ώρες.

Breathable Suit Protects Users From Hazardous Materials



Gore Chempak Selectively Permeable Fabric has been chosen by Blauer Manufacturing Co. for its single-piece chemical, biological, radiological and nuclear protective suits. The breathable material permits law enforcement and other first responders to stay active on site for up to eight hours. The new XRT suit "is a single mission coverall that can be donned and doffed multiple times in the event of false alarms," says a spokesman from W.L. Gore & Associates in Elkton, Md. He points out that the fabric was "engineered from an intrinsically stable, non-carbon based membrane that does not absorb chemicals or degrade over time."

Σκάφανδρα διαφυγής για το προσωπικό των μυστικών υπηρεσιών

Οι αμερικανικές μυστικές υπηρεσίες εξελίσσουν σκάφανδρο διαφυγής της βρετανικής Avon προκειμένου να το ενσωματώσουν στον εξοπλισμό που έχει μαζί του κάθε πράκτορας. **Να επαναλάβουμε για πολλοστή φορά την πρόταση για το προσωπικό κρίσιμων υποδομών στην χώρα μας; Γιατί όχι! – ούτε μελάνι δεν ξοδεύουμε! Ζητήστε τα από τις υπηρεσίες σας: δεν κοστίζουν ακριβά, φοριούνται σε δευτερόλεπτα, παρέχουν προστασία για περίπου 20 λεπτά, αποθηκεύονται για χρόνια και ΜΠΟΡΕΙ ΚΑΠΟΤΕ ΝΑ ΣΩΣΟΥΝ ΜΙΑ ΖΩΗ! Για τους μάχιμους αστυνομικούς, το προσωπικό ασφαλείας, τους συνοδούς VIPs, το προσωπικό του ΕΚΑΒ και των ΤΕΠ, τα κέντρα επιχειρήσεων, τα ραντάρ και όπου αλλού υπηρετεί νυχθημερόν προσωπικό σε κρίσιμες θέσεις. Υποχρεώστε τους να σας ακούσουν! Τουλάχιστον ας τα μελετήσουν ή ακόμη και να τα βελτιώσουν!**

Secret Service Hopes Use of New Escape Mask Proliferates

The U.S. Secret Service is developing a pocket-sized escape hood designed to protect agents and the president from chemical and biological attacks. Agents have a good deal of equipment in their vehicles and pre-positioned in rooms where the president and others they are protecting visit. However, there was concern about how to provide protection from chemical or biological attack during those fleeting moments between

the motorcade and the building, said Tony Chapa, deputy assistant director of the service's office of protective research. Agents on security detail only wear suits, and carry a weapon and radio. They don't have room to carry a traditional gas mask under the suit, he said at the conference. The Secret Service's technical security division sent out a broad agency announcement through the Department of Homeland Security's science and technology directorate seeking ideas from vendors for an escape hood "they could conceal in their suit, and pull out and provide them the opportunity to go from [a contaminated area] back to a secure area." Unlike traditional gas masks, escape hoods are intended for short-term use — about 10 to 15 minutes. The directorate settled on a design proposed by a British company, Avon Protection Systems Inc., which had provided similar systems to help London police escape the city's subway system in the event of an attack. The service now has a prototype that fits inside a suit coat



pocket. It is 4.25 inches wide and 8.5 inches long. Thin carbon filters scrub the air of smoke, gas or biological agents. The hard part was a nose cup that would provide adequate protection and fold inside the pouch. "It's very easy to design a nose cup that is hard and gives you protection, but to have one that collapses was a big invention," Chapa said.

Ινδία – Παγκόσμιος Στρατιώτης

Μετά τις τελευταίες πολύνεκρες τρομοκρατικές επιθέσεις στην Ινδία και με ορατή την απειλή για ανάγκη επιχειρήσεων σε μελλοντικό ΧΒΡΠΠ περιβάλλον, οι ινδικές ένοπλες δυνάμεις αρχίζουν να σχεδιάζουν νέο εξοπλισμό για τον στρατιώτη του μέλλοντος (κάτι που κάνουν σχεδόν όλοι οι στρατοί του κόσμου). Ας δούμε τις ιδέες τους για τον Παγκόσμιο Στρατιώτη.

India gets its Universal soldier



Remember Jean-Claude Van Damme as the indestructible soldier armed with self-injectable energy boosters from the Hollywood flick Universal Soldier? Now, some parts of the thriller are ready to be replicated at our borders. With the rising threat of nuclear and biological warfare in a terrorised world, the country's defence forces are gearing up to deal with fatal chemical attacks.

Chemical Ali

The Defence Research and Development Organisation (DRDO) has developed two self-injectable chemicals that will be carried by soldiers to save themselves from chemical contamination. "We have developed two auto-jet injectors which will keep soldiers safe from the ill-effects of chemicals during a war. One of the antidotes works against nerve damages, while the other one saves a soldier from blister-causing agents. Both can be administered by the soldier himself right in the battlefield," said Dr W Selvamurthy, chief controller, Life Sciences,

DRDO. These two drugs have already reached the forces and industrial partners have been roped in for their production.

Miracle dope

Another miracle drug that is being developed can protect a person from **cyanide poisoning**. "Laboratory tests have been conducted successfully and the next step of human trials will begin shortly," Selvamurthy said. Interestingly, the anti-cyanide poisoning drug **Alpha Ketoglutarate** is banned in the sporting world due to its performance enhancement qualities. "Cyanide poisoning affects human cells by cutting the oxygen supply to them. Alpha Ketoglutarate is the only antidote against it. Animal trails have proved its capabilities and we are hopeful it will be made available to the defence forces very soon," said Selvamurthy. DRDO officials also informed the drug can help firemen, who are often exposed to deadly fumes. "In case of a fire, the fumes are more dangerous than the blaze. The smoke can not only hamper rescue operations, it can kill a person as well. This medicine is an effective antidote to fume poisoning," said a senior DRDO official, wishing anonymity. The drug has civil uses as well. "It can be used in cases of intentional or accidental poisoning," said the official.



Makers

The antidotes are being prepared by Gwalior-based Defence Research and Development Establishment (DRDE), which has applied to the Drug Controller General of India for approval.

Taboo for some

The anti-cyanide poisoning drug Alpha Ketoglutarate is banned in the sporting world due to its performance enhancement qualities.

Army 2020

The Army has envisaged a concept called **Future Infantry Soldier as Combat System** that aims at enhancing the capability of infantry personnel by adding special gadgets to the uniform. The project, which is still at its concept stage, is expected to become a reality by 2020. The uniform will have special gadgets which will help the soldier guide the fighter aircraft to the enemy target. Palm top data receivers attached to the uniform. The device will get charged from the uniform. Guns will be more lethal with under barrel rocket launchers. **The clothing will be modified to act as an antiseptic adhesive to heal skin and bone injuries**. Fireproof combat uniform to protect the soldier in the battlefield. Uniform will have special communication devices attached to it for better coordination between troops

Suit to live

DRDO has incorporated vials of these miracle drugs in the Nuclear-Chemical-Biological **(NBC) suit** that will be worn by our soldiers in the near future. The suit is the primary protection layer against chemical contamination and special tests are being carried out to equip it with life-saving mechanisms. "This is not mere clothing but can carry several life-saving medicines and gadgets that can save lives during a war," said a DRDO official.

Νέο φάρμακο κατά της τοξίνης του άνθρακα

Το νέο φάρμακο *raxibacumab* στοχεύει εξειδικευμένα τις τοξίνες που παράγουν τα βακτήρια όπως εκείνα του άνθρακα. Η δράση του είναι διαφορετική από εκείνη των αντιβιοτικών και δρα ταχύτερα από τα εμβόλια – ουσιαστικά αποτελεί συμπλήρωμα τους. Τα αποτελέσματα μελετών που δημοσιεύθηκαν σε πρόσφατο τεύχος του έγκριτου *New England Journal of Medicine* ήταν ιδιαίτερα εντυπωσιακά.

New Drug Fights Anthrax Toxin

Scientists report that experiments in animals show that a new, monoclonal antibody drug might safely cure anthrax poisoning in humans. Although antibiotics can kill the anthrax bacteria, they are not effective in killing the toxins produced by the bacteria. The new drug, raxibacumab, specifically targets those toxins once they enter the bloodstream. After an anthrax attack, people may not know they are infected until the toxins are circulating in their blood, and it may be too late for antibiotics alone to be effective, the researchers explained. "This drug strengthens America's arsenal against bioterrorism that would work in the face of antibiotic-resistant anthrax bacterium," said lead researcher Sally Bolmer, senior vice president of development and regulatory affairs at Human Genome Sciences Inc., the company that developed raxibacumab. The drug works differently than antibiotics, Bolmer noted. "It [also] acts more quickly than vaccines. So, it is complementary to both of those," she said. "If we administered it at the time the animals were exposed to anthrax or even waited until their symptoms developed, we could improve survival in rabbits and monkeys," she said. The same doses of the drug were given to humans and the drug was well-tolerated, Bolmer added. The report is published in the July 9 issue of the *New England Journal of Medicine*. In the study, researchers showed that a single dose of raxibacumab was an effective treatment for inhalation anthrax in both rabbits and monkeys. The drug provided a significant survival benefit to animals showing signs of the disease. The animals were exposed to a dose of anthrax approximately 200 times the lethal dose, the researchers said. In addition, raxibacumab was safe when given to human volunteers and could be used in a clinical setting in cases of life-threatening inhalation anthrax disease, Bolmer said. Under a contract with U.S. Biomedical Advanced Research and Development Authority, the company has delivered 20,000 doses of raxibacumab to the U.S. Strategic National Stockpile for emergency use. Approval of the drug by the U.S. Food and Drug Administration is pending, Bolmer said. Mingtao Zeng, an assistant professor in the department of microbiology and immunology at the University of Rochester Medical Center, said this study has provided solid data to support raxibacumab as a new candidate drug for biodefense and public health. "The most encouraging finding is that raxibacumab appeared to be safe and well-tolerated, with reasonably high doses in the phase 1 human clinical trial, which had 333 healthy human volunteers," Zeng said. "I anticipate that raxibacumab can be used as a short-term prophylactic agent for protection against anthrax or as a therapeutic drug in combination with antibiotics for effective treatment of anthrax." Dr. Gary Nabel, director of the Vaccine Research Center at the U.S. National Institute of Allergy and Infectious Diseases and author of an accompanying journal editorial, said the paper shows that the antibody can block infection in animals and similar levels of the drug can be safely given to people. "It therefore satisfies the criteria of the animal rule, a regulatory guideline used to approve drugs for diseases that can't be tested for efficacy in humans," Nabel said. This antibody provides a new tool to control anthrax infection and "if approved, could be stockpiled as a countermeasure against this potential public health threat," he said. "This paradigm of drug approval for biodefense agents provides a new way to address such threats, though questions remain about how and when to use such drugs and how to incentivize industry to produce them," Nabel said.

Φάρμακα από το στόμα κατά της ραδιομόλυνσης

Ερευνητές από το Boston University School of Medicine (BUSM) ανακάλυψαν και

ανέλυσαν μια νέα σειρά φαρμάκων με την ονομασία «EUK-400 series» (συνθετικά αντιοξειδωτικά) που θα μπορούν να χορηγηθούν από το στόμα και τα οποία μια μέρα θα χρησιμοποιηθούν για την πρόληψη της ακτινικής νόσου που ενδέχεται να εκδηλώσουν οι απώλειες υγείας μετά τρομοκρατική ραδιολογική προσβολή (βρώμικη βόμβα).

New oral agents may prevent injury after radiation exposure

Researchers from Boston University School of Medicine (BUSM) and collaborators have discovered and analyzed several new compounds, collectively called the "EUK-400 series," which could someday be used to prevent radiation-induced injuries to kidneys, lungs, skin, intestinal tract and brains of radiological terrorism victims. The findings, which appear in the June issue of the Journal of Biological Inorganic Chemistry, describe new agents which can be given orally in pill form, which would more expedient in an emergency situation. According to a press release by EurekAlert, these agents are novel synthetic "antioxidants" that protect tissues against the kind of damage caused by agents such as "free radicals." Free radicals, and similar toxic by-products formed in the body, are implicated in many different types of tissue injury, including those caused by radiation exposure. Often, this kind of injury occurs months to years after radiation exposure. The BUSM researchers and their colleagues are developing agents that prevent injury even when given after the radiation exposure. This paper describes a newer class of compounds, the "EUK-400 series," that are designed to be given as a pill. According to the researchers, experiments described in their paper prove that these agents are orally active. They also show that the new agents have several desirable "antioxidant" activities, and protect cells in a "cell death" model. These same BUSM researchers and collaborators had previously discovered novel synthetic antioxidants that effectively mitigate radiation injuries, but had to be given by injection. "We have developed some of these agents and have studied them for over 15 years beginning with our work at the local biotechnology company Eukarion," said senior author Susan Doctrow, PhD, a research associate professor of medicine at BUSM's Pulmonary Center. "These injectible antioxidants are very effective, but there has also been a desire to have agents that can be given orally. A pill would be more feasible than an injection to treat large numbers of people in an emergency scenario," she adds. Future studies will focus on the EUK-400 compounds' effects in various experimental models for radiation injury. Data showing their benefits in models for radiation injury in blood vessel cells have been presented at two major scientific conferences and will be the topic of future publication. More broadly, beyond the potential for treating victims of radiological terrorism, these compounds could also be useful drugs against a variety of diseases where an effective antioxidant has potential benefits, for example, various neurological, pulmonary, cardiovascular, and autoimmune disorders. Previously, Doctrow's lab and others have published studies showing that the injectible versions of these compounds are beneficial in models for several such diseases.

Η περιπέτεια μιας ευσυνείδητης νοσοκόμας

Θέλησε να εμβολιαστεί κατά της ευλογιάς για να βοηθήσει την πατρίδα της και τα μελλοντικά θύματα μιας βιοτρομοκρατικής προσβολής. Όμως τα πράγματα δεν πήγαν κατ' ευχή και η ζώης της μετατράπηκε σε κόλαση. Μπορεί να συμβεί και σ' εμάς ;

Nurse fights hospital over smallpox

Professionally and patriotically, emergency room nurse Amy Alexander thought at the time, it was the right thing to do - taking, at her boss' request, the smallpox vaccine so she could join a bioterrorism response team at Good Samaritan Hospital that would be ready if America's enemies ever tried to spread the deadly disease. Six years later, she sees it as perhaps the worst decision of her life - a depressing notion that seeps into her thoughts daily as pain and numbness crawl up her legs and arms, as she reaches for the walker she needs to go any farther than room to room, and as she copes with a litany of other health woes doctors traced

to a seriously adverse reaction to the vaccine. Multiple two-foot-high stacks of medical bills and insurance forms line the wall in her dining room and are another constant reminder, as are photos of her sailing, swimming, riding motorcycles - activities she will never enjoy again. Perhaps the most depressing thought of all, Alexander said, is that Good Samaritan, "a place I held in high regard and felt very fortunate to work at," has hardly lived up to its name in its dealings with its former employee. For years, the hospital and its insurers have fought Alexander over the costly treatments and medications her doctors insist are needed to minimize her pain and keep her various health problems in check, denying many requests and grudgingly approving others only after protracted delays. As the dispute heads toward a scheduled court date this fall, hospital representatives, Alexander said, "have acted like there's nothing really wrong, that it's all in my head." In that, there may be some truth, because Alexander's doctors have detected 23 lesions on her brain stemming from her body's reaction to the smallpox vaccination. "I'm afraid this is just the way it is today in the hospital and insurance industries," said Alexander, 47, her eyes reddening during an interview in the College Hill house of a friend who took her in after she was forced to sell her own home in Covington at a loss amid medical bills and lost wages totaling more than \$250,000. Good Samaritan officials declined to comment, citing the lawsuit and worker's compensation claim filed by Alexander. The suit, which seeks more than \$5 million in damages, is scheduled to go to court in November, while the worker's compensation claim is to be heard next month. In court filings and other documents, the hospital's attorney primarily has raised legal procedural objections without directly addressing the merits of the case, arguing the state constitution offers Good Samaritan, the insurance companies and a claims adjuster named as defendants immunity. Some of Alexander's complaints, the filings add, have previously been rejected by state administrative boards. For Alexander, the nightmare began in early 2003, when the Bush administration pushed to vaccinate 450,000 doctors, nurses and other health-care workers to build a nationwide team ready to combat a smallpox outbreak spread by terrorists, a scenario the administration identified as a top post-9/11 bioterrorist threat. A 1985 graduate of the Good Samaritan School of Nursing - a wall plaque names her as that year's outstanding student nurse - Alexander in late 2002 returned to the hospital to work in the emergency room after running her own home-care nursing business for seven years. When her supervisor asked her to be vaccinated for smallpox to join the hospital's bioterrorism response team, she had



some initial misgivings, heightened by pamphlets and presentations outlining the potentially dangerous side effects. Although the disease has not surfaced in the United States since the 1940s and was eradicated worldwide in 1980, the vaccine is not without risk, with brain inflammation, blindness, even death possible for an infinitesimally small percentage of those receiving it. Within a few weeks of being vaccinated on March 17, 2003, Alexander began experiencing fatigue, tingling in her hands and feet, dizziness and weakness that made it

difficult for her to push patients on stretchers. Always especially proficient at inserting intravenous tubes, she soon "couldn't insert an IV to save my soul." At first, she thought it was nothing more than the occasional extreme tiredness that comes from working 12-hour shifts under stressful circumstances, something likely to go away after a restful June vacation in San Francisco. "I never made the connection" to the recent smallpox vaccination, she said. The vacation, however, did not erase the unsettling symptoms. About an hour into her shift on her first day back at work, Alexander, told a co-worker "I think I'm going to pass out" just before collapsing. "And that was the last hour I worked," she said. She was admitted to Good Samaritan for four days, but was discharged without a clear diagnosis. Her family physician,

however, had a worrisome suspicion after learning of the smallpox inoculation. He referred her to the Cincinnati Health Department, where a doctor determined that she was suffering



from post-vaccination syndrome. Subsequent examinations in Cincinnati and at the Cleveland Clinic reinforced the diagnosis, finding that Alexander was suffering from encephalomyelitis, an inflammation of the brain and spinal cord, and tachycardia, an abnormal heartbeat, along with other ailments. In her case, doctors said, the smallpox vaccine's very small statistical risk may have been increased by a hepatitis B vaccination she had received a month earlier - and that also had been administered by Good Samaritan. It did not take long for Alexander to question how the hospital she loved as an employee was treating her now that she was a patient and unable to work. According to Alexander's Hamilton County Common Pleas Court lawsuit and her Ohio Bureau of Workers Compensation claim, Good Samaritan officials monitored her for only five days after the inoculation, not the 21- to 28-day period recommended by the Centers for Disease Control and Prevention (CDC). The hospital also did not adhere to a CDC recommendation calling for serious adverse reactions to the smallpox vaccine to be

reported within one week, the lawsuit charges. Alexander has spent much of the past six years embroiled in often acrimonious wrangling with the hospital and its insurers over treatments, payments and other matters - a process she says has exacerbated the depression she suffers because of her various physical problems. Even after the Ohio Industrial Commission in February 2005 allowed for the finding of post-vaccination syndrome, Good Samaritan resisted reimbursing Alexander for her growing out-of-pocket medical expenses, doing so just before a scheduled hearing to address that issue, the lawsuit says. "In the broad picture, it all boils down to how they can save the company money," said Margo Grubbs, one of Alexander's attorneys. "By denying or delaying claims - even in the face of orders to pay them - that's what they've done." Alexander alleges that the insurers' hardball tactics have sometimes crossed the line. She claims, for example, that a form from her doctor requesting monthly treatments for a year - intravenous medication to control inflammation without which, she says, she would be "on the couch about 10 hours a day" in pain - was altered to make it appear that the treatment was for only a single month. She also contends that a company that helps handle Good Samaritan's workers' compensation benefits staked out her home and placed her under surveillance, a charge the firm denied - at least initially. "We do not currently have a PI watching her, but if we did that is not against the rules and regulations," a claims adjuster wrote in an 2008 e-mail cited in the lawsuit. The crucial word in that denial, however, may be "currently," because a deposition in the case makes it clear Alexander was under surveillance at some point. A report from the person conducting the surveillance stated that while Alexander sometimes walked with a limp, she "walked normally (and) climbed stairs" at other times. Alexander, who has been classified as totally disabled by Social Security, made another discovery last year. Had her health difficulties been reported to federal authorities within one year of the vaccination, all of her medical and related expenses would have been covered under the Smallpox Emergency Personnel Protection Act of 2003, established specifically to compensate health professionals who put themselves at risk. Good Samaritan, however, never informed her of the program, and there is no appeal for missing the filing deadline, she said. Medical exams ordered by Good Samaritan or its insurers paint a different picture. A 2007 exam, for example, concluded that Alexander "exhibited no evidence of medical impairment" and was able to return to her "prior job activity without restriction or limitation." Anne Ketzer, a Good Samaritan nurse who has known and worked with Alexander for nearly two decades, said she encouraged hospital officials more than a year ago to do right by her former

colleague, whom she describes as "an excellent nurse very good for the hospital." "I brought it to their attention that she was not receiving compensation or proper attention from the insurance companies," Ketzner said. "I also told them that this wasn't going to get any prettier, that it would get uglier if she wasn't taken care of. I mean, her name's on the wall as one of the outstanding graduates. Good Sam's a wonderful place to work and I don't think they're trying to hurt Amy. I just think this issue has fallen between the cracks." Today, Alexander, who is single and has a 28-year-old daughter living in Chicago with a grandchild on the way, says she can stand for no more than about 10 minutes. Her trips outside the home are governed by a progressive scale of walking aids - a walker for short excursions, a wheelchair for the mall, a scooter for the grocery store. She has not worked since June 2003 because of her health problems. "I've worked since I was 17," she said. "It's very difficult to not be able to do that and to be dependent on others. "I lost a career that I loved. I lost my identity. I lost my independence. I have been made out to be a malingerer, a fraud, by my employer. I have spent most of the past six years ... trying to be heard." As she awaits the day in court that will give her that chance, Alexander says one question constantly nags at her. "I'm left wondering why Good Samaritan hasn't been a good Samaritan to me," she said. "I wish I knew."

Νέα Hazmat συσκευή για δύσκολες καταστάσεις

Η νέα συσκευή χειρός StreetLab Mobile λειτουργεί με laser και μπορεί αξιόπιστα να προειδοποιήσει για χημικές απειλές (στερεές, υγρές ή σκόνες). Μπορεί να απολυμανθεί και μπορεί να λειτουργήσει με τηλεχειρισμό.

New Hazmat device can solve suspect substances

Portsmouth firefighters and members of the Southside Regional Hazmat Team use the



StreetLab Mobile, a device that identifies chemical substances, during a training session in Portsmouth. When you don't know what you've got - harmless powder? deadly anthrax spores? - you don't want to pick it up, no matter how many gloves you're wearing, or cart it to a lab, no matter how careful a driver you are. You instead want something like the bright yellow StreetLab Mobile. It looks a lot like a cordless drill that has been lifting weights, but it's a laser tool that emergency workers can place on or near a suspicious substance and get an on-the-spot chemical analysis of what they're facing. And the Southside Regional Hazardous

Materials Response Team - composed of fire-department specialists from Portsmouth, Norfolk, Virginia Beach and Chesapeake - is the first in the country to get one. "This we can take to the product," said Capt. Larry Regula of Portsmouth Fire, Rescue and Emergency Services. At a training session this month in a classroom at Fire-Rescue Station 4, a firefighter set the business end of the analyzer on a clear, plastic packet containing a white powder. An instructor from GE Security, which manufactures the device, led the dozen class members through a standard checklist, such as checking for an identifying label or determining whether the material dissolves in water. The device works on solids, powders or liquids. Buttons are oversized so firefighters can manipulate them even in bulky protective garments. Information can be sent wirelessly to a computer at a nearby command post. The device can be operated remotely or set on delay, so firefighters can leave for safety. If taken into a contaminated "hot zone," it can be cleaned. Faster analysis also helps minimize disruptions, such as when a public building might be closed, said Capt. Paul Hoyle, Portsmouth Fire-Rescue spokesman. The analyzer costs \$35,000, but GE Security offered a discount and hopes to obtain constructive feedback, fire and GE officials said. A homeland-security grant paid for it, fire officials said. "Now, we're basically going to try and break it," Hoyle said. "Learn to use it and break it." GE offered it to South Hampton Roads largely because of its ports and military bases, said Rich Rendon, a national security specialist with GE Security, and because he knew people here. He's a 30-year Coast Guard veteran who served six years in Norfolk and Portsmouth. "They have a busy station, and a very high-risk AOR - area of responsibility -... and they need to be prepared," Rendon said. The regional haz mat team can expect to get called out three to four times a year and more often after high-profile scares elsewhere, such as the anthrax concerns after the Sept. 11 attacks. "It always depends on what's happening in the world," Hoyle said. And that powder in class? A sugar substitute. Although earlier, the class also tested cocaine, heroin and other drugs brought in by police, illustrating another potential use of the device. Virginia Beach representatives from an earlier training session received a real-life example of the potential usefulness of the new device. They got called out of class to the Christian Broadcasting Network, where a building was shut down much of a day because of a suspicious white powder that turned out to be harmless whey protein, a bodybuilding supplement. It took state Virginia State Police running a sample to a lab in Richmond to determine that.

Νέα θεραπεία για την αιμορραγία μετά πυρηνική έκρηξη

Η εταιρεία ADCTX ανακοίνωσε ότι το φάρμακό της Fibrinoplate-S™ είναι αποτελεσματικό για τη μείωση της αιμορραγίας σε πειραματόζωα που εκτέθηκαν σε υπερβολικές δόσεις ραδιενέργειας. Το εν λόγω φάρμακο μπορεί να αποτελέσει αποτελεσματική εναλλακτική λύση της μετάγγισης αιμοπεταλίων. Εκτιμάται ότι το φάρμακο θα είναι πολύ σύντομα διαθέσιμο στο εμπόριο.

New Treatment for Bleeding After Nuclear Exposure

Advanced Therapeutics & Co. (ADVTX) announced today that Fibrinoplate-S™ has shown efficacy in reducing the bleeding in animals exposed to extreme doses of radiation. Survivors of a nuclear event or a dirty bomb explosion will have similar damage from the ionizing radiation of such bombs. "Acute radiation can severely damage the bone marrow," Richard Yen, Ph.D., M.D., CEO of ADVTX explained. "While existing medications can boost the production of red cells and white cells from the recovering bone marrow, there is no effective treatment for low concentrations of platelets except through platelet transfusion. Donor platelets, however, may not be available or adequately screened for pathogens during times of distress."

Viable Alternative to Platelet Transfusion

ADVTX Fibrinoplate-S, a suspension formulation of human albumin spheres coated with a coagulation factor (fibrinogen), mimics the action of activated platelets. Random clots have not been observed even as bleeding improves after the administration of Fibrinoplate-S. In preclinical trials, Fibrinoplate-S reduced bleeding within 2 hours after a bolus intravenous administration in test subjects with less than 1% of the normal platelet count. The beneficial effects last at least 24 hours. There is no need to match the recipients' blood types. Fibrinoplate-S can be given to a large number of patients quickly.

Availability

ADVTX can scale up its production of Fibrinoplate-S quickly. Government agencies may include Fibrinoplate-S in their emergency response plans by submitting a "pre-EUA" (pre-Emergency Use Approval) to the US FDA. Licensing outside the United States is available.

ΣΣ: Από καρδίας ένα μεγάλο ευχαριστώ στους ΗΡΩΕΣ πιλότους των πυροσβεστικών αεροπλάνων που έσωσαν το χωριό μας (Βαρνάβα Αττικής), στις μεγάλες πυρκαγιές που εκδηλώθηκαν στη ΒΑ Αττική από 22 Αυγούστου 2009 και άγνωστο για πόσες ημέρες ακόμη...





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