Endnotes

An Alternative Perspective, Weitzel [from page 10]

- Gilbert Laurin, "Should the Ottawa Convention Banning Anti-personnel Landmines Be Fully Implemented? Pro," International Debates: Vol 2 (4), April 2004, p. 112.
- We are also drawn to the issue by the impassioned pleas of high-profile celebrities such as the late Princess Diana. Of course, the celebrities who lend their endorsements are compassionate people who believe they are doing what they can to help. All the same, nothing about being celebrities per se gives them any insight into international relations, military necessity, the daily lives of those affected by mines, or the logistics involved in improving their living conditions in the long run. An occupational hazard of fame is that it makes people think that they are competent to judge complicated matters when they are no more competent than the rest of us. Imagine if those who advocate some uses of landmines looked to celebrity endorsements as well. What would result is a popularity contest where the only winners are
- the celebrities themselves. Kenneth R. Rutherford, "The Evolving Arms Control Agenda: Implications of the Role of NGOs in Banning Anti-personnel Landmines," *World Politics* 53.1 (2000): p. 91. 3.
- 4. For example, Rutherford quickly dismisses policies advocated by those who believe responsible use in the present and future is compatible with recognizing the problems with landmines that persist from past conflicts as "incoherent." See Rutherford, p. 105.
- 5. Rutherford, p. 89. Rutherford offers numerous examples of inflated statistics.
- Laurie H. Boulden, "A Mine Field, Statistically Speaking: The Dangers of Inflating the 6 Problem," Washington Post, February 8, 1998.
- Consider, for example, how confident you would be about lung cancer research funded and 7. carried out by tobacco corporations. Why should the concerns about accuracy and neutrality not apply here as well? Is it because people who care about landmines are "good" and because tobacco corporations are "evil"?
- 8 International Campaign to Ban Landmines. http://www.icbl.org/. Accessed March 13, 2006.
- International Campaign to Ban Landmines. The Solution. http://www.icbl.org/problem/ solution. Updated Feb. 8, 2005. Accessed March 13, 2006.
- 10. UNICEF. Landmines: A Catastrophe for Children. http://meltingpot.fortunecity.com/ lebanon/254/grant.htm. Accessed March 13, 2006.
- 11. Graeme R. Goldsworthy and Dr. Frank Faulkner. Oct. 13, 2003. "Armed Non-state Actors and the Ban on Anti-personnel Mines." The Journal of Humanitarian Assistance. http:// www.jha.ac/articles/a124.htm. Accessed March 13, 2006.
- 12. Dino Bulsuladzic. Minefields of Sarajevo. Demining Research at the University of Western Australia. http://www.mech.uwa.edu.au/jpt/demining/countries/balkans/sara3.html. Updated February 2000. Accessed March 13, 2006.

A Firm Foothold, Lundberg [from page 13]

1. One kilometer is equal to 0.62 miles.

Opening Roads to Angola's Future, Kempf [from page 15]

- 1. Kuito is the provincial capital of Bie and Menongue is the provincial capital of Cuando Cubango, the southern province on the border with Namibia.
- Funge is a cooked porridge-like dish made from corn or yucca flour mixed with water and 2. seasoned with salt. It is a staple of the Angolan diet in the region the author visited.
- 3. Information provided by HALO Trust in an e-mail interview with Helen Gray, April 23. 2006.

Mines Awareness Trust, Howard [from page 18]

- 1. Mines Awareness Trust has a mission to inform, save and aid those who live in environments infested with mines. MAT focuses primarily on children and utilizes entertaining and amusing ways such as puppet shows or performances in order to educate a younger generation.
- A submunition is similar to a cluster munition (aka cluster bomb unit). It is a piece of ordnance that is discharged from a larger "carrier." Whereas cluster bombs are generally regarded as being dispersed from aircraft, submunitions are delivered via other means, such as a mortar. The M79 is a small submunition that is "carried" in a mortar. There are 60 M79 submunitions "carried" in a 120-mm mortar. The mortar is fired and at the predetermined height, the submunitions are dispensed. The submunition has a cotton loop to the rear; when this is disturbed by the air resistance, it then arms the device.
- Comic Relief is a nonprofit organisation based in the United Kingdom. The mission of Comic Relief is to contribute to organizations battling social injustices and aiding poorer countries.
- As of 10 May 2006, £50,000 equals US\$88,665.
- Ground appreciation is a military term indicating the ability to visualize a map into "real" terrain. Therefore, an individual will look at a map, analyse the information and begin to "appreciate" the terrain that he or she is about to cover. In a mine-action sense, it indicates that the individual was able to plan movement better by understanding the topography of an area.
- Uganda signed the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction on 3 Dec. 1997, ratified on 25 Feb. 1999, and became a State Party to the Convention on 1 Aug. 1999. For more information on the Convention, see http://www.un.org/Depts/mine/UNDocs/ban_trty.htm. Accessed 11 April 2006.
- To view the International Mine Action Standards see http://www.mineactionstandards. 7. org/imas.htm. Accessed 15 Feb. 2006.
- "Seconded" means that they are effectively "on loan" to the Ugandan Mine Action Centre. At some point the military hierarchy will request them back.
- "Life support" means that the Ugandans have to provide vehicles for their newly trained personnel, ambulances, and medical staff for demining and EOD teams, funding for food, water, and fuel for their personnel when they are deployed on operations.
- 10. This situation requires a very delicate diplomacy because MAT does not "own" the Programme. MAT staff is there purely in an advisory capacity. So in theory, the Ugandan Command structure could ignore MAT's advice and do whatever they wanted. MAT is trying to help them develop but also insists that they work to the required safety standards.
- 11. The continued opposition to Joseph Kony's Lord's Resistance Army has caused over 1.4 million Ugandans to become internally displaced persons. They are forced to move into IDP settlements. Rebels continue to terrorize IDPs even though they are living in these settlements.

Picking the Right Tool for the Right Task, Frehsee [from page 21]

- USSR-manufactured stake mine with six rows of fragments. For more information, visit http://www.eng.warwick.ac.uk/DTU/pubs/wp/wp48/appendixcminesandordinance. html. Accessed March 24, 2006.
- American-manufactured plastic AP mine. For more information, visit http://www. eng.warwick.ac.uk/DTU/pubs/wp/wp48/appendixcminesandordinance.html. Accessed March 24, 2006.
- Common and virtually undetectable AP mine. For more information, visit http:// thirdangle.com/viewphoto.asp?perpage=200&area=-1&CurrPage=9&pid=1794. Accessed March 24, 2006.
- Chinese-manufactured, hard-to-detect AP mine. For more information, visit http:// www.eng.warwick.ac.uk/DTU/pubs/wp/wp48/appendixcminesandordinance.html. Accessed March 24, 2006.
- Circular, steel anti-tank mine. For more information, visit http://science.howstuffworks. com/landmine3.htm. Accessed March 24, 2006.
- 6. USSR-manufactured anti-tank mine that can have an anti-handling device. For more information, visit http://www.eng.warwick.ac.uk/DTU/pubs/wp/wp48/ appendixcminesandordinance.html. Accessed March 24, 2006.
- Chinese-manufactured bounding AP mine. For more information, visit http://members.
- iinet.net.au/~pictim/mines/messages/69.html. Accessed March 24, 2006. Griffiths, A. "Machines Can Get the Job Done Faster." *Journal of Mine Action*. Issue 8.2, November 2004. 105-107. Also available online at http://maic.jmu.edu/journal/8.2/rd/ griffiths.htm. Accessed March 24, 2006.

Mine Action in Mauritania, El Hacen [from page 23]

- "Mauritania." Landmine Monitor Report. November 2002. International Campaign to Ban 1. Landmines, http://www.icbl.org/lm/2002/mauritania.html. Accessed March 31, 2006.
- 2 Sometimes known as M-51, a small plastic circular-shaped mine that comes in two types: no metal-content and minimal content.
- Anti-tank and lightweight landmine. Originally from France, made from pressed 3. sheet metal.
- Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-4 Personnel Mines and on Their Destruction, Ottawa, Canada. Sept. 18, 1997; http://www. icbl.org/treaty/text. Accessed March 28, 2006.
- The five Ottawa Convention pillars are clearance, mine-risk education, stockpile destruction, victim assistance and advocacy.
- This mine/UXO clearance was achieved with the help of the following partners: the 6. Mauritanian government and HAMAP deminers (2003-2004).
- Editor's Note: Some countries and mine action organizations are urging the use of the term "mine free," while others are espousing the term "mine safe" or "impact free." "Mine free" connotes a condition where all landmines have been cleared, whereas the terms "mine safe" and "impact free" refer to the condition in which landmines no longer pose a credible threat to a community or country.

Roots of Peace: Angola Project, Wertz [from page 24]

Through the Pro-Rural model program, World Vision and Roots of Peace are striving for 1. farmers' food prosperity instead of simply farmers' food security by carefully marketing farmers' produce and generating more high-value crops. Another goal the two organizations hope to achieve through the Pro-Rural program is HIV/AIDS awareness and increased involvement of women and young people.

Survivor Assistance, Stanton and Reisinger [from page 27]

- Category I is the highest level of training for prosthetic and orthotic professionals recognized by International Society for Prosthetics and Orthotics, equivalent to a Bachelor of Science in prosthetics and orthotics. Category I professionals have the title of Prosthetist or Orthotist.
- Jacobs, N., ed. (1995). "Report of ISPO Consensus Conference on Appropriate Orthopaedic Technology for Developing Countries." ISPO: Phnom Penh. Hughes, J., ed. (2001). "Report of ISPO Consensus Conference on Appropriate
- Orthopaedic Technology for Low-Income Countries." ISPO: Moshi, Tanzania.
- 4. More information on the RERC is available online at http://rerc.cirnetwork.org. Accessed Feb. 10, 2006.
- This work was partially funded by the National Institute on Disability and Rehabilitation Research of the U.S. Department of Education under grant number H133E030017.
- "USAID Global Initiatives: Prosthetics and Orthotics Training and Technologies." Last updated May 5, 2005. http://www.usaid.gov/our_work/humanitarian_assistance/the_ funds/lwvf/tatcot.html. Accessed Feb. 13, 2006.
- "Tanzania." Landmine Monitor Report. October 2004. http://www.icbl.org/lm/2004/ tanzania. Accessed Feb. 10, 2006.
- Hughes, J., ed. (2003). "Report of ISPO Workshop on Prosthetics and Orthotics Training Institutes in Non-Industrial Countries." ISPO: Copenhagen.

- Sudan Launches NMAA, Tariq [from page 30] 1. Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Antipersonnel Mines and on Their Destruction, Oslo, Norway. 18 Sept. 1997; http://www. un.org/Depts/mine/UNDocs/ban_trty.htm. Accessed 26 April 2006. The document was opened for signature in Ottawa, Canada, 3 Dec. 1997, and thus is commonly known as the Ottawa Convention
- 2. After 23 years of civil war, a Comprehensive Peace Agreement was signed on 9 Jan. 2005 between the government of Sudan and the Sudan People's Liberation Army/Movement. As a result of the CPA, two governments were formed in Sudan, the Government of National Unity, which governs the whole country in terms of foreign policy, defense and trade, and the Government of Southern Sudan, which governs 10 of the 26 states of Sudan with a semi-autonomous status. Presently Sudan is one country but with two governments and the President of the GOSS works as the First Vice President of the Republic of Sudan. The CPA has a six-year mandate, after which there will be a referendum. This referendum will decide the status of Southern Sudan either to remain with Sudan or separate from it.
- Dr. Kai-Kai is the Chief of the Disarmament, Demobilization and Reintegration Department of United Nations Mission in Sudan. He spoke on behalf of Mr. Manuel

Aranda da Silva, the Deputy Special Representative to the Secretary General/Humanitarian and Resident Coordinator for UNMIS, who was out of the country

4. The Humanitarian Aid Commission is a department of the Ministry of Humanitarian Affairs, responsible for the coordination and oversight of humanitarian aid to Sudan. The ssioner General of the HAC is Mr. Hassabo Mohamed Abdel Rahman.

Tackling Landmine Problems in Ethiopia, Derebe [from page 31]

- 1. "Ethiopia." Landmine Monitor Report 2005. http://www.icbl.org/lm/2005/ethiopia. Accessed Feb. 13, 2006.
- Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction, Oslo, Norway. 18 Sept. 1997; http://www. un.org/Depts/mine/UNDocs/ban_trty.htm. Accessed 26 April 2006. The document was opened for signature in Ottawa, Canada, 3 Dec. 1997, and thus is commonly known as the Ottawa Convention
- A Rose by Any Other Name, Dugger [from page 42]
- 1. Morale effect is the effect weapons have on morale.

2. Information obtained from internal invoice documents of UXB Balkans and UXB Africa.

- **Tied Campaigns, Collins [from page 46]** 1. Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction, Oslo, Norway. 18 Sept. 1997; http://www.un.org/Depts/mine/ UNDocs/ban_trty.htm. Accessed 26 April 2006. The document was opened for signature in Ottawa, Canada, 3 Dec. 1997, and thus is commonly known as the Ottawa Convention
- 2. Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, Geneva, Switzerland, 10 Oct. 1980. http://www.ccwtreaty.com/ccwtreatytext.htm. Updated May 18, 2006, Accessed July 1, 2006,
- 3. The humanitarian impact argument was well along and the ICBL was established by the time the ICRC held its symposium of military experts (January 1994) and then produced its report Antipersonnel Landmines: Friend or Foe? in March 1996. That statement, because it was a declaration of military professionals, and not NGOs (and was endorsed by the politically neutral ICRC), had a much greater impact than the slimness of its text might suggest. Among its many conclusions, these were some of the most significant:
- "The main characteristic of a mine is that it is designed to be victim-actuated."
- · "Although the military value of anti-tank mines is acknowledged, the value of AP mines is questionable.
- "The limited military utility of AP mines is far outweighed by the appalling humanitarian consequences of their use in actual conflicts."
- 4. "Protocol on Explosive Remnants of War (Protocol V to the 1980 Convention) [see endnote 3], 28 Nov. 2003." International Committee of the Red Cross. http://www.icrc.org/IHL. nsf/FULL/610?OpenDocument. Accessed 5 April 2006.
- "Convention on Conventional Weapons (CCW): Re-focus on Cluster Munitions for 2006." Human Rights Watch. 6 March 2006. http://hrw.org/english/docs/2006/03/06/ global12768.htm. Accessed 5 April 2006.
- 6. Mennonite Central Committee, Human Rights Watch, UK Working Group on Landmines (Landmine Action), ICRC, Campaign Against Landmines-New Zealand and Amnesty nternational were among those who called for strong action on cluster munitions early on.
- 7. "Persian Gulf: U.S. Cluster Bomb Duds a Threat: Warning Against Use of Cluster Bombs in Iraq." Human Rights Watch. 18 March 2003. http://hrw.org/english/docs/2003/03/18/ usint5409.htm. Accessed 5 April 2006.
- 8. The definition of ERW evolved. Currently it incorporates UXO plus stockpiles, with APMs sometimes falling out of the grouping because of their coverage in the Ottawa Convention.
- 9. "Military Utility of Cluster Munitions." Group of Governmental Experts of the States Parties to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to Have Indiscriminate Effects. Prepared by the United Kingdom. Tenth Session, Geneva, 7–11 March 2005. http:// www.mineaction.org/downloads/GGE%20X%20UK%20paper%20on%20military%20u tility%20of%20cluster%20munitions.doc. Accessed 14 April 2006.
- 10. The UK government's reticence about cluster munitions is shadowed by a significant interest by its military in retaining an area-target weapon, as is evident in a background paper presented to the CCW experts' group. "The persistent nature of cluster munitions when they fail to explode forms one of the most

problematic aspects of these munitions. The United Kingdom accepts that its air-dropped cluster bombs have a failure rate that is unacceptably high. This particular weapon will go out of service in coming years and by 2015 all UK submunitions will contain a self-destruct mechanism reducing their failure rate to less than 1 percent."

"Currently cluster munitions represent an essential capacity against area targets, particularly groups of military vehicles. Stringent considerations of the risk of collateral damage are applied each time they are used. In the long term they are likely to be used more sparingly, as new precision weapons come into service, and may one day be removed from service altogether." From "Military Utility of Cluster Munitions." Group of Governmental Experts of the States Parties to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to Have Indiscriminate Effects. Prepared by the United Kingdom. Tenth Session, Geneva, 7-11 March 2005. http://www.mineaction.org/downloads/GGE%20X%20UK%20pape r%20on%20military%20utility%20of%20cluster%20munitions.doc. Accessed 14 April 2006.

- 11. This is documented by Mennonite Central Committee, Mines Advisory Group, the ICRC and the GICHD, among others. See for instance the document CCW/GGE/I/WP.5 at: http:// ccwtreaty.com/KeyDocs/GGE1/CCW-GGE-I-WP5-E.pdf. Accessed May 23, 2006.
- 12. "Explosive Remnants of War (ERW): A Threat Analysis." Geneva International Centre for Humanitarian Demining. 2002. http://www.gichd.ch/fileadmin/pdf/publications/ERW. pdf. Accessed 5 April 2006.
- 13. McGrath, Rae. Landmines and Unexploded Ordnance. London: Pluto Press, 2000.
- 14. King, Colin. Explosive Remnants of War: Submunitions and Other Unexploded Ordnance: A Study. International Committee of the Red Cross, Geneva 2000.
- 15. Smith, Andy. "Submunitions and Fuzes." AVS Website on Humanitarian Demining. Last updated April 2006. http://www.nolandmines.com/index%20mines%20subs%20and%20fuzes. htm. Accessed 17 April 2006.

- 16. Algeria, Austria, Egypt, Lebanon, Mali, Mauritania, Mexico, Norway, Sudan, Sweden Switzerland, Venezuela and Yugoslavia. The 13-state working group paper noted, "These anti-personnel fragmentation weapons tend to have both indiscriminate effects and to cause unnecessary suffering. At detonation a vast number of small fragments or pellets are dispersed evenly covering a large area with a high degree of probability of hitting any person in the area. The effect of such a detonation on unprotected persons—military or civilian—in the comparatively large target area is almost certain to be severe with multiple injuries caused by many tiny fragments. Multiple injuries considerably raise the level of pain and suffering. They often call for prolonged and difficult medical treatment and the cumulative effect of the many injuries increases the mortality risk, ... When the normal weapon effect is so extensive as to cover areas of several square kilometers in an attack by a single aircraft, these weapons are hardly capable of use anywhere without hitting civilians incidentally.
- 17. In the 1960s, the New York Times' Harrison Salisbury described the U.S. carpet bombing strategy directed at civilians in Vietnam as a war crime.
- 18. Fernando Termentini refers to an average 50-percent failure rate of BLU-97 submunitions in two villages in Afghanistan in "From Kosovo to Afghanistan, Cluster Bombs Again." (August 2003) Journal of Mine Action, Volume 7.2, pp. 71-72. http://maic.jmu.edu/ journal/7.2/focus/fernando/fernando.htm. Accessed 7 April 2006. 19. Goose, Steve, personal communication, 12 April 2006.
- 20. A question period is the debate segment of the Canadian Parliament's House of Commons (more or less at the end of each day Parliament is in session).
- Indirectly, this might have been a goal of the ICRC's ERW strategy: Peter Herby, a le gal specialist with the ICRC, suggested at a workshop in Ottawa in 1996 that it might be more useful to prohibit a weapon's effects than a narrowly defined weapon itself. Herby was concerned that a single-weapon campaign might mean that every time a new weapon was introduced, a new campaign would need to be launched.
- 22. Commissioned by the International Committee of the Red Cross, August 2000.
- 23. "Explosive Remnants of War: Protecting Civilians through an Additional Protocol to the 1980 Convention on Certain Conventional Weapons." International Committee of the Red Cross. http:// www.icrc.org/Web/Eng/siteeng0.nsf/iwpList282/6F9EDAB90FFC82FEC1256B66005F9B14. Accessed 5 April 2006.
- 24. Knudsen, Kjell. "Landmine Update #6." International Campaign to Ban Landmines. 1 Dec 2001. http://www.icbl.org/news/icbl_news/landmine_update_6. Accessed 14 April 2006.
- 25. In fact, at the Second Prepcom of the 2001 Review Conference of the CCW on 6 April 2001 the ICBL stated that the Campaign "as a coalition has decided not to add issues such as those related to anti-vehicle mines and submunitions to its mandate" and told government delegates, "Do not turn your attention to the humanitarian problem of anti-vehicle mines and submunitions, while still failing to deal with the humanitarian problem of anti-personnel mines."
- 26. ICBL Statement on Cluster Munitions and Explosive Remnants of War. International Campaigr to Ban Landmines. 19 Dec. 2001, Geneva, Switzerland. http://www.icbl.org/news/archive/ old/137. Accessed 1 July 2006.
- 27. The US Defense Science Board Task Force on Munitions System Reliability report continues: "The available data is inconsistent, largely anecdotal, and often from questionable sources. Area attack munitions in particular—designed to produce dispersed battlefield effects—can be highly effective in combat but difficult to analyse afterward. There is no method in place that can systematically determine and document the reliability rates of a broad range of munitions during combat. The largest contributors to the UXO problem are legacy munitions, operational factors and fuze technologies. There is an enormous stockpile of aging munitions that will have to be used 'as is,' retrofitted or demilitarized, but the Department of Defense (DoD) has no comprehensive approach in place to address these legacy munitions. Retrofitting the existing stockpile could easily run into the billions of dollars. Retrofitting is not without other challeng es as well, namely meeting revised safety standards and risking the introduction of new failure points in legacy systems never designed for upgrades. The operational question then becomes one of priorities and the cost-benefit analysis of retrofitting older munitions at the expense of developing and fielding more capable, reliable, safe and effective munitions." It should be noted, however, that "legacy" weapons highlighted in the task force report are not the precise problem Colin King has pointed out in his study of ERW for the Red Cross that it is "neither fair nor accurate to equate all unexploded submunitions with mines." While munitions equipped with problem fusing designs are certainly known to be dangerous, others, like the AO-1SCh fuse, are "inherently safe." From Colin King, Explosive Remnants of War: Submunitions and Other Unexploded Ordnance. International Committee of the Red Cross, Geneva 2000.
- 28. The U.S. military had already recognized that some cluster munitions were problematic because of their impact on U.S. troops in the Persian Gulf and elsewhere. (See: U.S. General Accounting Office, "GAO-02-1003: Military Operations: Information on U.S. Use of Land Mines in the Persian Gulf War," September 2002)
- 29. McCormack, Timothy L.H. Mtharu, P. B. & Finnin, S. Report on States Parties' Responses to the Ouestionnaire: International Humanitarian Law & Explosive Remnants of War, 1 March 2006. http://www.gichd.ch/fileadmin/pdf/CCW/XIIIth_Mtg_Mar06/GICHD_ Critical_analysis_CCW_McCormack_Report.pdf. Accessed 5 April 2006.
- 30. The sole exceptions in the Belgian definition of cluster munition were minor but possibly provide wiggle-room for the military. As of 22 March 2006, the adopted text excluded: "dispensers that only contain smoke-producing material or illuminating material or material exclusively conceived to create electric or electronic counter-measures; systems that contain several munitions only designed to pierce and destroy armored vehicles, that can only be used to that end without any possibility to indiscriminately saturate combat zones, including by the obligatory control of their trajectory and destination, and that, if applicable, can only explode at the moment of the impact, and in any case cannot explode by the presence, proximity or contact of a person."
- The government of Norway committed in 2005 to "work towards an international ban on cluster bombs."
- 32. The LAUK report, Compelling Options, finds that concerns about the reliability and effects of "legacy munitions" has resulted in significant international shifts at the state level.
- 33. One exclusion that has been scrutinized is for individually guided submunitions equipped with self-destruct/self-neutralisation mechanisms.
- 34. In March 2003, Human Rights Watch identified four specific U.S. cluster munitions of concern as likely to be problematic in Iraq due to the Coalition invasion. They called for a suspension and withdrawal of cluster munitions "that have been tested and identified as producing high dud rates." http://www.hrw.org/backgrounder/arms/cluster031803.htm. Accessed 23 May 2006. Colin King listed a range of problem munitions and mechanisms

in his Explosive Remnants of War: Submunitions and Other Unexploded Ordnance: A Study, ICRC, Geneva 2000, Accessed 7 April 2006.

- 35. Several governments, including Canada and the United Kingdom, have argued that in the absence of cluster munitions, they will need to use other weapons with potentially worse impacts on civilians.
- 36. Rappert, Brian. Compelling Options: What is the Case for a Ban on Cluster Munitions? (draft). Commissioned by Landmine Action (UK).

Mines and ERW, Kudyba [from page 49]

- 1. The Temporary Security Zone is a border between Ethiopia and Eritrea. It marks the formal separation between the two parties and is approximately a 16-mile deep buffer zone. The UNMEE monitors the TSZ and limits weaponry carried by officials inside the zone. All the tanks and other military vehicles abandoned in former battle areas in the UNMEE
- have been subsequently stripped of anything of value that can be transported away. 3. The author was an investigating officer into an incident near Senafe town in the TSZ involving eight boys who entered a mined area. A number were killed or injured in a resulting mine
- incident. Interviewing personnel involved in the rescue operation in this incident revealed some of them were extremely emotionally affected by what they had experienced. Due to the time taken to raise the alarm and the subsequent loss of daylight, one boy's body had to be left until the following morning because it rolled farther down into the minefield. A number of personnel agonized over whether he was dead at that time or if he died because the rescue had to be temporarily abandoned and thus they could not reach him in time.
- There are numerous versions of the Chinese Stick Hand Grenade.
- Recent wars have revealed the problems of post-conflict clearance involving such items as depleted-uranium projectiles. Speculation and interest in the potential hazards have resulted in many published articles on the subject, which requires personnel with special training and equipment to complete a clearance task. See Technical Note for Mine Action: 09.30/2: "Clearance of Depleted Uranium Hazards."
- Specialist training is sometimes required to conduct such tasks. The guidance of such pubications as TNMA 09.30/01, relating to clearance of armoured vehicles, should also be adhered to where applicable.
- 7. The UNMEE MACC EOD team has been involved in several intricate operations involving sandbagged walls, rendering safe of fusing systems and partial evacuation of village inhabitants to enable items to be safely removed for destruction at a central demolition point.

A Primer on Explosive Remnants of War, Ressler [from page 54]

- 1. This convention is formally known as The Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to Have Indiscriminate Effects, presently with five protocols. The weapons covered include weapons that leave undetectable fragments in the body (Protocol I); mines, booby-traps and other devices (Protocol II, amended in 1996); incendiary weapons (Protocol III); blinding laser weapons (Protocol IV); and ERW (Protocol V). This convention bans or restricts weapons that may cause unnecessary or indiscriminate suffering for soldiers and civilians. The full text can be found at http://www.ccwtreaty.com/keydocs.html. Accessed March 20, 2006. Updated May 18, 2006.
- 2. IMAS Mine Risk Education Best Practice Guidebook 12: Glossary of Terms and Resources, UNICEF and GICHD, Geneva, 2005. http://www.mineactionstandards.org/guides/MRE_Guidebook_ 12.pdf. Accessed March 27, 2006. Updated May 18, 2006. The IMAS can be found at http:// ww.mineactionstandards.org. Accessed March 27, 2006. Updated May 18, 2006.
- 3. The IMAS continue their definition of explosive ordnance to include "bombs and warheads; guided and ballistic missiles, artillery, mortar, rocket and small arms ammunition, all mines, torpedoes and depth charges; pyrotechnics; clusters and dispensers; cartridge and propellant actuated devices; electro-explosive devices; clandestine and improvised devices; and all similar or related items or components explosive in nature" (IMAS Guidebook 12, 2005, p.12).
- 4. The IMAS define a munition as "a complete device charged with explosives, propellants, pyrotechnics, initiating composition, or nuclear, biological or chemical material for use in nilitary operations, including demolitions. Note: In common usage, 'munitions' (plural)
- can be military weapons, ammunition and equipment' (*IMAS Guidebook 12*, 2005, p.17).
 Herby, P. and A. Nuiten, "Explosive Remnants of War: Protecting Civilians through an Additional Protocol to the 1980 Convention on Certain Conventional Weapons" International Review of the Red Cross, March 2001, No. 841, p.195.
- 6. The IMAS define a submunition as: "any munition that, to perform its task, separates from a parent munition" (IMAS Guidebook 12, 2005, p.20) and a cluster bomb unit as: "a bomb containing and dispensing submunitions which may be mines (anti-personnel or anti-tank), penetration (runway cratering) bomblets, fragmentation bomblets etc." (IMAS Guidebook 12, 2005, p.11). The United Nations Office for the Coordination of Humanitarian Affairs notes that "failed munitions remain on the ground and may explode with the slightest touch, when picked up, stepped on or kicked. These munitions become less stable and therefore more dangerous with each passing year" (p.9). Glossary of Humanitarian Terms: In Relation to the Protection of Civilians in Armed Conflict, United Nations Office for the Coordination of Humanitarian Affairs, New York, 2003. http://www.reliefweb.int/rw/lib. nsf/db900SID/LHON-64UHAE/\$FILE/OCHA_Glossary_2004.pdf?OpenElement. Accessed April 7, 2006. Updated May 18, 2006.
- 7 Explosive Remnants of War: Cluster Bombs and Landmines in Kosova, ICRC, Geneva, 2000. p.8. http://www.icrc.org/web/eng/siteeng0.nsf/htmlall/p0780/\$File/ICRC_002_0780. PDF!Open. Accessed April 5, 2006. Updated May 18, 2006.
- 8. Explosive Remnants of War: Unexploded Ordnance and Post-Conflict Communities, Landmine Action, London, 2002, p.3. http://www.landmineaction.org/resources/Explosive_ remnants_of_war_sum_2.pdf. Accessed April 15, 2006. Updated May 18, 2006.
- Hunger, R. "The Convention on Certain Conventional Weapons: Or, How to Reduce Human Suffering by Prohibiting or Restricting the Use of Certain Conventional Weapons" Strategic Insight, Vol. 2, Issue 3, March 2003, p.3. http://www.ccc.nps.navy.mil/si/mar03/ wmd.pdf. Accessed March 27, 2006. Updated May 18, 2006.
- 10. Protocol V requires each party to an armed conflict to mark and control ERW in territory they control; provide technical, material and financial assistance to facilitate removal of ERW due to party military operations that occurred in area not under party control; take all possible precautions to protect civilians from harm of ERW (including fencing and monitorng of territory and provision of warnings and risk education); and record information of use

of explosive ordnance by armed forces to share after conflict with others engaged in ERW clearance or risk warning programs. See 1980 Convention on Certain Conventional Weapons ICRC overview fact sheet (published March 31, 2004) at: http://www.icrc.org/Web/Eng/ siteeng0.nsf/html/57JNXR/\$FILE/1980_CCW.en.pdf?OpenElement. Accessed March 15, 2006. Updated May 18, 2006. Full Protocol V available at: http://www.ccwtreaty.com/ KeyDocs/MainDocs/Protocol-V-E.pdf. Accessed March 15, 2006. Updated May 18, 2006.

11. Sanders, C. "Contending with Explosive Remnants of War" Arms Control Association, September 2004, p.2. http://www.armscontrol.org/act/2004_09/Sanders.asp?print Accessed March 27, 2006. Updated May 18, 2006.

- 12 As of March 10, 2006, the CCW has 100 States Parties and an additional six states who have signed but not yet ratified. As of June 30, 2006, 23 states have consented to be bound by Protocol V after it comes into force. As of June 30, 2006, the CCW has 100 state parties and an additional six states who have signed but not yet ratified. See the status of these treaties provided by the UN Department for Disarmament Affairs: http://disarmament. un.org/TreatyStatus.nsf. Accessed June 30, 2006.
- 13. CCW, Protocol V, Article 2.1, 2.3 and 2.4. See endnote 10 for link.
- Greenwood, C. "Legal Issues Regarding Explosive Remnants of War" (UN Doc: CCW/ GGE/I/WP.10), May 23, 2000, p.4. http://www.ccwtreaty.com/KeyDocs/GGE1/CCW-GGE-I-WP10-E.pdf. Accessed March 12, 2006. Updated May 18, 2006.
- 15. Landmines are also legally addressed and defined in the separate, more prominent Convention on the Prohibition of the Use, Production and Transfer of Anti-personnel Mines and on Their Destruction, Sept. 18, 1997. This Convention is also known as the Ottawa Convention or Mine Ban Convention. In this Convention, an APM is defined as "a mine designed to be exploded by the presence, proximity or contact of a person and that will incapacitate, injure or kill one or more persons" (Article 2.1). http://www.un.org/Depts/mine/UNDocs/ban_ trty.htm. Accessed Åpril 14, 2006. Updated May 18, 2006.
- Although they are not defined in Amended Protocol II, anti-vehicle mines are (weakly) reg-16 ulated by the Protocol's general rules (Article 3) and a specific rule in Article 6.3. AVMs are mines that are "designed primarily to be detonated by vehicles, and contain a large explosive charge capable of destroying or incapacitating such targets" (p. 7). Humanitarian Impact from Mines other than Anti-Personnel Mines, GICHD, Geneva, October 2004. http://www. gichd.ch/fileadmin/pdf/publications/Humanitarian_Impact_from_MOTAPM.pdf. Accessed May 5, 2006. Updated May 18, 2006.
- 17. AVMs are explicitly excluded from the Ottawa Convention which prohibits anti-personnel mines, but are being presently considered for a potential CCW Protocol addition regarding mines other than anti-personnel mines to achieve stronger regulation (see http://www. ccwtreaty.com). Accessed March 15, 2006. Updated May 18, 2006.
- CCW Protocol II Prohibitions or Restrictions on the Use of Mines, Booby Traps and Other Devices as amended on 3 May, 1996, defines a booby trap as "any device or material which is designed, constructed or adapted to kill or injure and which functions unexpectedly when a person disturbs or approaches an apparently harmless object or performs an apparently safe act" (Article 2.4). "Other devices" are defined as "manuallyemplaced munitions and devices including improvised explosive devices designed to kill, injure or damage and which are actuated manually, by remote control or automatically after a lapse of time" (Article 2.5). Full Protocol II amended available at: http://www.ccwtreaty.com/KeyDocs/MainDocs/ Amended-Protocol-II-E.pdf. Accessed April 18, 2006. Updated May 18, 2006.
- 19. Improvised explosive devices can vary widely as they are created with materials originally manufactured for a different use. GlobalSecurity.org defines an IED as a "'homemade' device that is designed to cause death or injury by using explosives alone or in combination with toxic chemicals, biological toxins, or radiological material" and with the following components: an initiation system or fuse; an explosive fill; a detonator; a power supply for the detonator; and a container. Improvised Explosive Devices (IEDs) / Booby Traps, http://www.globalsecurity. org/military/intro/ied.htm. Accessed May 23, 2006. CCW Amended Protocol II bans IEDs; however, due to the great variation in IED construction as well as their varied application in conflicts, there is a need for clearer understanding of IEDs. Though typically associated with active battle, IEDs have the potential to be a post-conflict threat if failing to explode or remaining rigged. Consequently, depending on their material construction IEDs may interface with Protocol V or Ottawa clearance obligations. Discussion and clarification on this subject is sorely needed to come to terms with these unanswered issues and even address a common definition of an IED.
- 20. Explosive Remnants of War: A "Quick Look" Threat Analysis, Geneva International Centre for Humanitarian Demining, Geneva, 2001, p.4.
- Explosive Remnants of War (ERW): A Threat Analysis, Geneva International Centre for Humanitarian Demining, Geneva, 2002, p.3–19. Direct citations came from p. 3, 5, 11 and 19.
- 22. This list was broadly compiled by this author, from suggestions within numerous publications of what specific munitions and ordnance might be included within the term *ERW*.
- 23. An AFV is defined as a vehicle that "protects crew and passengers from shrapnel and small arms fire, whilst carrying machine guns, cannon or guided missiles to attack enemy vehicles and infantry. Examples of armoured fighting vehicles include tanks and Infantry Fighting Vehicles (IFVs)." http://www.army-technology.com/glossary/armoured-fighting-vehicle. html. Accessed April 24, 2006. Updated May 18, 2006.
- 24. For more information on SALW, see Cranfield University's Compendium of Good Practices on Security Sector Reform, online at http://www.gfn-ssr.org/good_practice.cfm?id=21&p=21. Accessed April 21, 2006. Updated May 18, 2006. Examples of SALW include "pistols, rifles, assault rifles, machine guns, light support weapons, grenade launchers, cannon (>37 mm), light mortars, light anti-tank weapons, shoulder launched surface to air missiles (SAM), high explosive grenades ... and small arms ammunition." Hughes-Wilson, J. and A. Wilkinson Safe and Efficient Small Arms Collection and Destruction Programmes: A Proposal for Practical Technical Measures" UNDP, July 2001 (p. 32). http://www.smallarmsnet.org/ issues/themes/undpdes.pdf. Accessed April 21, 2006. Updated May 18, 2006.
- 25. A stockpile is defined as "a large accumulated stock of weapons and explosive ordnance" (Cranfield online, see endnote 24). A cache is "weapons stored in a remote or concealed, unmanned site" (Greenwood, p. 4, see endnote 14). Neither term has one accepted definition; this article understands the difference between stockpiles and caches to be the actors who have control of them. A stockpile is under official control by state actors while a cache is an accumulation of stored weapons to be used by non-state actors. In this sense, a stockpile under national control would not be legally be considered ERW (though practically it is still an explosive threat), while a cache could be considered ERW if the supply of munitions or ordnance is explosive and abandoned by those who stocked it.

- 26. "Ammunition Depot Explosion in Lagos-Nigeria, January 27, 2002" United Nations Environment Program—Awareness and Preparedness for Emergencies at a Local Level online summary. http://www.uneptie.org/pc/apell/disasters/lagos/home.html. Accessed April 13, 2006. Updated May 18, 2006.
- 27. Military Support to Humanitarian Mine Action Operations, U.S. government document, Joint Chiefs of Staff, January 2005, p.GL-3. http://www.dtic.mil/cjcs_directives/cdata/ inlimit/3207_01.pdf. Accessed March 17, 2006. Updated May 18, 2006. 28. ICRC Kosovo, 2000, p. 23. See endnote 6.
- 29. Defense Science Board Task Force on Munitions System Reliability, U.S. government document, Office of the Under Secretary of Defense for Acquisition, Technology and Logistics, Washington, D.C., September 2005, p.56.

RONCO's Response to ERW, Smith [from page 58]

- 1. Static guards control personnel and vehicle access at designated sites. They engage in full searches, as necessary; verify passes and identification cards; and maintain close control over temporary workers or other uncleared personnel.
- 2. Deminers trained to Level I are qualified to locate, expose and destroy mines under supervision. Level-II deminers may destroy small UXO, including submunitions, grenades and mortar ammunition. Level-III deminers are qualified to destroy large UXO including rocket, tank gun and artillery ammunition. These deminers may remove UXO from its original position to be destroyed at another location.

No Wizards, Weetjens and Kim [from page 62]

- 1. Clicker training is the process of training an animal using a conditioned reinforcer, which indicates to the animal the precise behavior that was correct. The name comes from the fact that the conditioned reinforcer used by many trainers is a small mechanical noisemaker called a clicker. For more information, see http://en.wikipedia.org/wiki/Clicker_training. Accessed April 12, 2006
- The Tuberculosis Project is a study hoping to change the way tuberculosis is diagnosed using the exceptional sniffing abilities of rats. For more information, please see http://news.bbc. co.uk/1/hi/health/3486559.stm. Accessed May 12, 2006.

Medical Challenges in Sudan, Kushner [from page 68]

- 1. A Type-III landmine injury is a mine-handling injury to the upper extremities and face. 2. Appendectomy: Surgical procedure done to remove the appendix. Hernia: Occurs when part of an organ (usually the intestines) protrudes through a weak point or tear in the muscular wall that holds the abdominal organs in place. Surgery is performed to fix the protrusion. Thyroidectomy: Surgical procedure done to remove all or part of the thyroid. Burn contracture release: A burn contracture is the result of a severe burn where the skin and underlying tissue become immobile. It is possible to cut the scar and then release the underlying muscle and tissue and put a skin graft over the wound. Skin graft: Surgical procedure that removes a patch of skin from one area of the body and transplants it to another area. Hemorrhoidectomy: Surgical procedure done to remove hemorrhoids. Psoas abscess drainage: A psoas abscess is a collection of pus that forms in one of the muscles in the back along the spine. It is occasionally seen in patients with tuberculosis or HIV and needs to e incised and drained.
- 3. Ketamine anesthesia is primarily used in veterinary applications as a tranquilizer. It is also used as an anesthetic induction agent for diagnostic and surgical procedures in humans, prior to the administration of general anesthetics. It is occasionally used as a short-acting general anesthetic for children and elderly patients.
- 4. Splenic flexure, or left colic flexure, is part of the colon where the transverse colon meets the descending colon. It is located under the spleen.
- 5. A colostomy is a surgical procedure where a portion of the large intestine is brought through the abdominal wall to carry stool out of the body.
- 6. Cholera is a water-borne disease caused by the bacterium Vibrio cholerae. The disease is transmitted through ingested feces contaminated with the bacterium. Transmission usually occurs when untreated sewage is released into waterways affecting the water supply, any foods washed in the water, and shellfish living in the affected waterway.
- 7. The first children to arrive that day had been referred from the hospital. At the hospital, they were initially assessed and an IV was inserted. Other patients presented directly to the CTC.
- 8. For emergency IV access in children it is possible to start a needle into the upper portion of the tibia, a few inches below the knee. This allows fluid to enter into the marrow cavity.

Tajikistan Mine Action Programme, Rajabov [from page 72]

- 1. Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Antipersonnel Mines and on Their Destruction, Oslo, Norway. 18 Sept. 1997; http://www. un.org/Depts/mine/UNDocs/ban_trty.htm. Accessed 26 April 2006. The document was opened for signature in Ottawa, Canada, 3 Dec. 1997, and thus is commonly known as the Ottawa Convention
- 2. Amended Protocol II (which extended the restrictions of the treaty to include landmines, provided standards of reliability for remotely detonated mines, and prohibited the use on non-detectable fragments in anti-personnel landmines; a failure to agree on a total ban on landmines led to the convening of the Ottawa Convention) of the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects. Geneva, Switzerland. http://www. ccwtreaty.com/ccwtreatytext.htm. Updated May 18, 2006. Accessed July 1, 2006.

The "Poor Man's Weapon," Sjöberg [from page 75]

- 1. Sjöberg, Anki. The Involvement of Armed Non-State Actors in the Landmine Problem: A Call for Action. Executive Summary. Geneva Call (2004).
- 2. Geneva Call (2005). Global Report: Armed Non-State Actors and Landmines. Volume I: A Global Report Profiling NSAs and their Use, Acquisition, Production, Transfer and Stockpiling of Landmines. Text available online at http://www.genevacall.org/resources/testipublications/gc-ansal-oct05.pdf. Accessed March 17, 2006. Hard copies can be obtained by contacting info@genevacall.org. The report is part of a project supported by the Geneva International Academic Network, the Swedish Ministry for Foreign Affairs, the government of Italy, and the continued support of Switzerland. Institutions contributing to the report are the Program for the Study of International Organization(s), the United Nations Mine Action Service, the Geneva International Centre for Humanitarian Demining, the University of Geneva and the Graduate Institute of International Studies, Geneva. Tables

containing landmine information on armed non-state actors were created based on media reports. the Landmine Monitor, interviews, field trips, emails from non-state actors, etc.

- "Mine use" here is referring to the global occurrences of anti-personnel and anti-vehicle mine emplacement by NSAs, whether activated by victims, vehicles or at a distance by command-detonation. This includes factory-made mines as well as booby-traps and IEDs that act in the same way as mines.
- Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Antipersonnel Mines and on Their Destruction, Oslo, Norway. 18 Sept. 1997; http://www. un.org/Depts/mine/UNDocs/ban_trty.htm. Accessed 26 April 2006. The document was opened for signature in Ottawa, Canada, 3 Dec. 1997, and thus is commonly known as the Ottawa Convention.
- The frequency of mine use is related to the number of reported incidents (i.e., mine blasts) allegedly caused by an NSA. However, an NSA could also emplace many mines but have few reported incidents attributed to it. Low reporting of incidents could mean that there are actually not many incidents, due to mined areas being scarcely populated, the population being afraid to go into the area, the population being warned about where mines are, etc. However, it could also mean that incidents that occur are not reported. The lack of reporting could be due to a scarcity of institutions or organizations that gather such information or due to the fear of reprisal if the incident is reported.
- In Madi, Chitwan, a command-detonated landmine was triggered by the CPN-M under a crowded passenger bus, killing 38 people (35 of whom were civilians) and wounding over 70.1 The contact between the CPN-M and the CPI-M appears to have consisted in information
- sharing about arms training, IED production and guerrilla-warfare techniques.² Action 46 of the Nairobi Action Plan states that States Parties in a position to do so will
- "continue to support, as appropriate, mine action to assist affected populations in areas under the control of armed non-state actors, particularly in areas under the control of actors which have agreed to abide by the Convention's norms." Text available online at http://www.gichd. ch/fileadmin/pdf/mbc/MSP/6MSP/Nairobi_Action_Plan.pdf. Accessed March 27, 2006.
- Harpviken, Kristian Berg and Bernt A Skåra. "Humanitarian Mine Action and Peace Building: Exploring the Relationship." Third World Quarterly 24.5 (2003): p. 813.

Power Tillers and Snails, Cepolina [from page 79]

- 1. Professor James Trevelyan of the University of Western Australia estimates total R&D funding for demining at about US\$300 million per year. See http://maic.jmu.edu/journal/4.3/process. htm. Accessed April 21, 2006.
- E.E. Cepolina, C. Bruschini, K De Bruyn, Field Survey Results, EUDEM2 publication EUDEM Web site: http://www.eudem.vub.ac.be/files/FieldSurvey_Results_V1.0.0.pdf. Accessed April 21, 2006.
- J. Sachs, The End of Poverty: Economic Possibilities for Our Time, Penguin Press: 2005. E.E. Cepolina, C. Bruschini, Catalogue of Demining Technologies in Field Use, EUDEM2 publication, EUDEM website: http://www.eudem.vub.ac.be/files/ FieldSurvey_Catalogue_Techn_V1.0.0.pdf. Accessed April 20, 2006.
- End-effector is a name commonly used in robotics to indicate the device or tool connected to the end of a robot arm. It is the tool actually performing the work. Here, end-effector could be substituted with tool or unit.

Geneva Diary, Mansfield [from page 80]

- Formally known as the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, Geneva, Switzerland, Oct. 10, 1980. http://www.ccwtreaty.com/ ccwtreatytext.htm. Accessed 5 June 2006.
- Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Antipersonnel Mines and on Their Destruction, Oslo, Norway. 18 Sept., 1997; http://www. un.org/Depts/mine/UNDocs/ban_trty.htm. Accessed 26 April 2006. The document was opened for signature in Ottawa, Canada, 3 Dec. 1997, and thus is commonly known as the Ottawa Convention.

Minefield as a School Ground, Telefus [from page 82]

- 1. Also known as the Six-Day War, this war was fought between Israel and its neighboring Arab nations: Egypt, Syria and Jordan.
- The funding of mine clearance and the performance of clearance operations were to be done by the same organization/group.
- Belgian-manufactured plastic-cased AP blast mine. For more information, visit http:// www.unsudanig.org/programmes/data/ipf/C_%20Assessment%20of%20Land%20Mine %20Action%20Needs%20for%20developIment.pdf. Accessed April 14, 2006.
- The majority of Iordanian mines were U.S.-manufactured M14 and M18A1 mines M14 mines are pressure-operated blast mines. The M18A1 is a Claymore direction fragmentation mine. For more information on the M14 mine, visit http://science.howstuffworks.com/ landmine2.htm. Accessed April 14, 2006. For more information on the M18A1 mine, visit http://www.fas.org/man/dod-101/sys/land/m18-claymore.htm. Accessed April 20, 2006.

STEMD Detector Trials, Guelle and Lewis [from page 84]

- For interested readers, the interim report for the STEMD project is available at http://ipsc jrc.cec.eu.int/research.php?unit=serac. Accessed May 26, 2006.
- For interested readers, the Lao report is available at http://serac.jrc.it/tethud/ of the JRC, and http://www.itep.ws, homepages for test and evaluation in the area of humanitariandemining equipment. An essentially identical fuse is used in the R2M1 anti-personnel mine and the RSA No.8 anti-tank mine. Both accessed May 26, 2006.
- Ground compensation is a feature of the detector to reduce/eliminate the negative influence of the ground on detector performance. If the detector signals in the absence of metal due to the magnetic properties of the ground/soil, the GC-function will be used. To carry out soil compensation with a metal detector means that a certain procedure described in the detectors manual has to be followed.
- For definitions of each of these munitions, see http://maic.jmu.edu/journal/supplemental/ munitions.htm.
- One inch = 25 millimetres
- An essentially identical fuse is used in the R2M1 anti-personnel mine and the RSA No. 8 anti-tank mine.
- The authors would like to note that this does not only concern detectors without ground compensation.

Mine Action Support Group Update, Davis [from page 91] The full text of this newsletter can be found at http://www.state.gov/t/pm/wra/65501

- htm. Accessed May 17, 2006. 2. Article 7 of the Ottawa Convention addresses existing explosive remnants of war and in-
- cludes a technical annex, which covers recording and provision of information on UXO and abandoned ordnance, plus risk education and the provision of information. Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction, Oslo, Norway. 18 Sept. 1997; http://www.un.org/Depts/mine/ UNDocs/ban_trty.htm. Accessed 26 April 2006.
- Sudan's Comprehensive Peace Agreement was signed in 2005 as an attempt to bring the government of Sudan and the Sudan People's Liberation Movement/Army to gether. For more information visit http://www.unmis.org/english/cpa.htm. Accessed May 17, 2006.
- 4. The incident began as a disagreement between the Coordinator of the HCND and the Vice Director of the Faya Logistics Center, which continued for several hours until someone sent for the Presidential Guard and tanks. Panic surged throughout the community because it was thought this was an attempt to oust the president. Many attempted to escape from Chad to Cameroon. Finally, all the HCND staff were arrested and jailed, but were released after one week. The Coordinator and the Vice Director remained in jail for an additional week. An interim Coordinator for the HCND was appointed by the president and will remain until the Coordinator returns to his position.
- 5. The evaluation of the MRE program in Ethiopia was requested by UNICEF and conducted independently by the Geneva International Centre for Humanitarian Demining. The results of the evaluation were sought to help provide a better plan for the program.

Ottawa Obligations to Victims, Brinkert [from page 91]

- 1. Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Antipersonnel Mines and on Their Destruction, Oslo, Norway. 18 Sept. 1997; http://www. un.org/Depts/mine/UNDocs/ban_trty.htm. Accessed 26 April 2006. The document was opened for signature in Ottawa, Canada, 3 Dec. 1997, and thus is commonly known as the Ottawa Convention
- Rutherford, Ken and Jerry White. "The Role of the Landmine Survivors Network," in To 2 Walk Without Fear: The Global Movement to Ban Landmines, Maxwell A. Cameron, Robert J. Lawson and Brian W. Tomlin, Eds. (Toronto: Oxford University Press, 1998), 114.
- Maslen, Stuart. Commentaries on Arms Control Treaties, Volume I: The Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction. (Oxford: Oxford University Press, 2004), 56.
- 4. "Review of the Operation and Status of the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction 1999-2004." (Part II of the Final Report of the First Review Conference of the States Parties to the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction, 9 Feb. 2005). The First Review Conference recorded 23, not 24, relevant States Parties. Ethiopia subsequently ratified the Convention ecoming the 24 th relevant State Party for this matter.
- 5. "Ending the Suffering Caused by Anti-personnel Mines: Nairobi Action Plan 2005-2009." (Part III of the Final Report of the First Review Conference of the States Parties to the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction, 9 Feb. 2005)
- 6. For example, the International Committee of the Red Cross, through its Special Appeal Mine Action 1999–2003 and Special Appeal Mine Action 2004, generated over CHF 100 million during the period 1999–2004 for curative care and physical rehabilitation.
- SMART is a common acronym in widespread use. A Google search for "SMART objectives" will bring up over 19.6 million hits from organizations ranging from online marketing companies to the Shetland Islands Council to the March of Dimes promoting its use.
- "Zagreb Progress Report." (Part II of the Final Report of the Sixth Meeting of the States Parties to the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction, unofficial version, 2 Dec. 2005)

Japanese Detection Systems, Ishikawa, et al. [from page 102]

- "Church World Service: Emergency Response Program. Revised Landmine Appeal." Center for International Disaster Information. http://iys.cidi.org/humanitarian/hsr/01a/ixl15.html. Accessed May 1, 2006.
- 2. Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Antipersonnel Mines and on Their Destruction, Oslo, Norway. 18 Sept. 1997; http://www. un.org/Depts/mine/UNDocs/ban_trty.htm. Accessed 26 April 2006. The document was opened for signature in Ottawa, Canada, 3 Dec. 1997, and thus is commonly known as the Ottawa Convention
- K. Furuta, "Japan Promises New Technologies to Clear Anti-personnel Landmines," Look Japan, vol. 48, No. 562, January 2003.
- 4 Committee of Experts on Humanitarian Demining Technology, "Promoting R&D for Humanitarian Demining Technology," Ministry of Education, Culture, Sports, Science and Technology of Japan (MEXT), 2002. http://www.mext.go.jp/english/ news/2002/05/020601.htm. Accessed April 12, 2006.
- 5. K. Nonami and H. Aoyama, "Research and Development of Mine Hunter Vehicle for Humanitarian Demining," Proceedings of the IARP International Workshop on Robotics and Mechanical Assistance in Humanitarian Demining (HUDEM2005), pp.76-81, 2005.
- M. Sato, Y. Hamada, X. Feng, F. Kong, Z. Zeng, G. Fang, "GPR using an Array Antenna for Landmine Detection," Near Surface Geophysics, Vol. 2, pp. 3–9, February, 2004.
- 7 S. M. Shrestha and I. Arai, "High-Resolution Image Reconstruction by GPR using MUSIC and SAR Processing Method for Landmine Detection," Proceedings of the 2003 IEEE International Geoscience and Remote Sensing Symposium (IGRASS2003), pp. 505-508, 2003.
- There are 2.54 centimeters in one inch
- Y. Hasegawa, K. Yokoe, Y. Kawai and T. Fukuda, "GPR-based Adaptive Sensing-GPR Manipulation According to Terrain Configurations," Proceedings of the 2004 IEEE/

RSJ International Conference on Intelligent Robots and Systems (IROS2004), pp 3021-3026, 2004.

- 10. T. Fukuda, et al., "Environment-Adaptive Anti-personnel Mine Detection System-Advanced Mine Sweeper," Proceedings of the HUDEM2005, pp. 33–38, 2005.
- E. F. Fukushima, et al., "Teleoperated Buggy Vehicle and Weight Balanced Arm for Mechanization of Mine Detection and Clearance Tasks," Proceedings of the HUDEM2005, pp. 58-63, 2005.
- Y. Tojo, P. Debenest, E. F. Fukushima and S. Hirose, "Robotic System for Humanitarian Demining: Development of Weight-Compensated Pantograph Manipulator," Proceedings 12. of the 2004 IEEE International Conference on Robotics and Automation (ICRA2004), pp 2025-2030, 2004.
- 13. M. Sato, J. Fujiwara, X. Feng, Z. Zhou and T. Kobayashi, "Development of a Handheld GPR MD Sensor System (ALIS)," Proceedings of SPIE Vol. 5794, Detection and Remediation Technologies for Mines and Mine-like Targets X, pp. 1000–1007, 2005.
- M. Tachiki, et al., "Remote Detection of Nitrogenated Substances by Nuclear Quadrupole Resonance," Proceedings of the HUDEM2005, pp. 107–109, 2005.
- K. Yoshikawa, et al., "Research and Development of Humanitarian Landmine Detection System by a Compact DisCharge-Type Fusion Neutron Source," Proceedings of the HUDEM2005, pp. 114–117, 2005.
- T. Iguchi, et al., "Development of Compact Compton Gamma Camera for Anti-personnel 16. Landmine Detection with Neutron Induced Prompt Gamma-ray Imaging," Proceedings of the HUDEM2005, pp. 110-113, 2005.
- J. Ishikawa, M. Kiyota, and K. Furuta, "Experimental Design for Test and Evaluation of Anti-personnel Landmine Detection Based on Vehicle-mounted GPR Systems," Proceedings of SPIE Vol. 5794, Detection and Remediation Technologies for Mines and Minelike Targets X, 2005.
- 18. J. Ishikawa, M. Kiyota, and K. Furuta, "Evaluation of Test Results of GPR-based Antipersonnel Landmine Detection Systems Mounted on Robotic Vehicles," Proceedings of the HUDEM2005, pp. 39–44, 2005.
- The M14 is a small, plastic blast mine. It is hard to detect with metal detectors because it 19 has little metallic content. For more information visit, http://www.hrw.org/reports/1997/ gen2/General2-06.htm. Accessed May 10, 2006.
- 20. The PMN2 is a Russian mine that contains a large amount of explosive. The way it is designed makes it nearly impossible to neutralize. For more information visit http://www. fourmilab.ch/minerats/figures/mines.html, Accessed May 15, 2006.
- 21. One millimeter is equivalent to 0.04 inches.
- 22. The Type-72 is a Chinese-manufactured circular, plastic blast mine. It is designed to damage or destroy a vehicle. For more information, visit http://en.wikipedia.org/wiki/Type_72. Accessed May 15, 2006.
- 23. The Type-72S is a surrogate mine made to be used for the research outlined in this article. 24. K.R. Torrance, C.G. Coffey, A.B. Markov and W.S. Myles, "Surrogate AP Mines for Training Deminers and Evaluating Demining Equipment," Proceedings of the EUDEM2-SCOT2003 (International Conference on Requirements and Technologies for the Detection, Removal and Neutralization of Landmines and UXO), 2003.
- 25. The measurements of water content range from 6 percent to 16 percent for lanes 1 to 5 and 9 percent to 22 percent for lane 6.
- 26. So far the reported detection depth is not used in the judgment, but in considering how to use the information is a future work.
- 27. CEN Workshop Agreement, Humanitarian Mine Action-Test and Evaluation-Metal Detectors, CWA 14747, 2003.
- 28. K. Javaraman, A Statistical Manual for Forestry Research. Food and Agriculture Organization of the United Nations Regional Office for Asia and the Pacific, March 1999. http://www. fao.org/documents/show_cdr.asp?url_file=/DOCREP/003/X6831E/X6831E00.htm. Accessed April 12, 2006.
- 29. Homogeneity of variance is the most important assumption in ANOVA. To keep the assumption, in the case that the observations are proportions or percentages (i.e., probability of detection), derived from frequency data, the observed proportion p may be transformed by angular transformation or logit transformation.
- 30. D. J. Goodenough, K. Rossmann, and L.B. Lusted, "Radiographic Applications of Receiver Operating Characteristics (ROC) Curves," Radiology, vol. 110, pp. 89–95, 1974.
- 31. C. E. Metz, B. A. Herman, and C. A. Roe, "Statistical Comparison of Two ROC-curve Estimates Obtained from Partially-paired Datasets," Medical Decision Making, 18, pp. 110-121, 1998.
- 32. K. M. Simonson, "Statistical Considerations in Designing Tests of Mine Detection Systems: I—Measures Related to the Probability of Detection Test Design," Sandia Report, SAND98-1769/1, Sandia National Laboratories, 1998.
- 33. K. M. Simonson, "Statistical Considerations in Designing Tests of Mine Detection Systems II-Measures Related to the False Alarm Rate Test Design," Sandia Report, SAND98-1769/2, Sandia National Laboratories, 1998.
- 34. One square meter is equivalent to 1.2 square yards.

Success of Multi-tools, Nguyen and Chichester [from page 104]

1. The PMN mine is often fatal due to its large explosive content. It is very difficult to neutralize. http://www.warchild.org/Interactive_Galleries/Landmines/Mines6/mines6.html. Accessed April 12, 2006.

Angolan Road Verification, Durocher and Jansson [from page 108]

- Hess, R.R. 2003. "A Fresh Approach to Road Clearance Operations." Journal of Mine Action. Mine Action Information Center, Issue 7.1, 2003. pp. 12-15. Available online at, http://maic.imu.edu/journal/7.1/focus/hess/htm, Accessed April 24, 2006. One metre is approximately equal to 3 feet.
- The PMN and the PPM-2 are pressure-operated, anti-personnel blast mines. The PMN mines were made in the former Soviet Union and the PPM-2 mines were made in the former East Germany. For more information, visit http://ddasonline.com/index%20mines%20AP %20blast.htm. Accessed May 18, 2006.
- 4. The TM-46 is an anti-tank blast mine made in the former Soviet Union. For more information, visit http://ddasonline.com/minesTM46.htm. Accessed May 18, 2006.
- Position Dilution of Precision is a measure of the quality or accuracy of the GPS posi
- tion fix