CANADIAN FORCES COLLEGE /COLLÈGE DES FORCES CANADIENNES

ADVANCED MILITARY STUDIES COURSE 2

SUSTAINMENT AT THE OPERATIONAL LEVEL

3 DECEMBER 1999

THE EFFECT ON SUSTAINMENT OF STRESS IN OPERATIONS

My mind became a complete blank. I had a feeling as if I had suffered physical hurt though I was not touched[;] the will to do the right thing was for the moment stunned. I could not think at all. I was dazed and at the mercy of those beckoning instincts which until then I had been able to fight.
Lord Moran, writing of his First World War experience under sustained German artillery fire.

By/par Captain(Navy) Richard R. Town

Abstract

Traumatic stress has emerged as a key factor in many Canadian Forces (CF) operational deployments. Its effects have been evident during numerous peacekeeping and peace support operations, in addition to international deployments to the Balkans, the Adriatic, Somalia, Rwanda, Kosovo and East Timor. The paper covers stress manifestations that affect sustainment of military force personnel at the operational level. It examines a range of observed afflictions, including critical incident stress (CIS), combat stress reaction (CSR), and post-traumatic stress disorder (PTSD). As well, it introduces a discussion on the utility of a model of non-combat stress reaction (NCSR) that applies to operations in areas where there is no combat.

Exploring why stress has operational level sustainment implications, the paper presents historical evidence from a variety of sources. It covers data on combat stress results from Canadian experiences in the First and Second World Wars, augmented by information gleaned from recent domestic and international (UN) deployments. Israeli and US national results are provided for comparison purposes. As well, the document introduces a discussion on potential pre-deployment applications of the latest advances in treatment methodology and virtual reality technology. Finally, the argument presented concludes with a recommendation covering the need for a plan to deal with the implications of stress at the operational level.

Of late, traumatic stress has emerged as a key factor in many Canadian Forces (CF) operational deployments. In the Army's view, " . . . specifically related to operations, experience has shown that soldiers on peacekeeping missions are likely to be exposed to multiple events which can be classified as critical incidents or potentially traumatic events."[1] Indeed, other researchers have added weight to that assertion. A 1994 report by Franklin C. Pinch, reviewing Canadian peacekeeping lessons, observed "Post-deployment psychological reactions ranging from mild to severe disturbances, have been conservatively estimated to affect at least ten percent of those CF members who have served in the more unstable situations."[2] Additionally, researchers surveyed CF peace support operations experience in the Balkans in 1992 to 1993--a tumultuous and violent period in the history of that region. Their results indicated " . . . a substantial majority of Canadian peacekeepers were exposed to numerous, potentially psychological traumatic events."[3] International deployments to the Adriatic, Somalia, Rwanda and Kosovo also subjected CF members to stressful situations or events (known as stressors).[4]

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[1] Army Lessons Learned Centre, "Stress Management in Operations," *Dispatches*, http://www.allc.com/website/english/products/dispatch/3-2/dis3-2fe.html, Vol. 3, No. 2, p. 1.

[2] Franklin C. Pinch, "Lessons from Canadian Peacekeeping Experience: A Human Resources Perspective," a report from FCP Human Resources Consulting, August 1994, p. 128.

[3] Greg Passey, M.D. and David Crockett, "Psychological Consequences of Canadian UN Peacekeeping," revised 18 August 1997, p. 7.

[4] For evidence of the conditions encountered *vide*: Canada, Department of National Defence, *Witness the Evil*, a Canadian Forces video, 1998 (Rwanda), Allen Gregory Sens, *Somalia and the Changing Nature of Peacekeeping: The Implications for Canada*, a study prepared for the Commission of Inquiry into the deployment of Canadian Forces to Somalia (Ottawa: Public Works and Government Services Canada, 1997) (Somalia), Rosie DiManno, "Statistics Alone Can't Measure the Evil in Kosovo," *The Toronto Star*, 15 November 1999, http://www.thestar.com/back_issues/ED19991115/news/991115NEW02_CI-DIMANNO15.html (Kosovo). Captain(N) Robert H. Thomas, "The Use of Naval Forces

Although rendered at the tactical level, an extract from *HMCS PROTECTEUR*'s report on humanitarian work in an orphanage ashore in East Timor reveals that the trend has continued:

> Very few of the edifices had roofs, none had windows or doors, and all were completely barren. The day before *PROTECTEUR*'s work party went ashore to help construct roofs and repair walls; the only things to be found in the buildings were corpses. When our first volunteers arrived, the bodies had just been removed and the bloodstains and maggots were still present. Along with CARE Canada representatives, several sailors helped clean and scrub this evidence from the stone floor--an unsettling job for anyone.[5]

Considered collectively, the deployment pattern results have reinforced the contention that stress frequently accompanies operations. Equally significant, the opening statement on stress and the accompanying examples took account of the wide-ranging Canadian involvement in combat or near-combat operational environments during the past decade, including Canada's participation in the 1990-1991 Arabian Gulf War.[6] Furthermore, against the war-fighting backdrop articulated above, Canadian

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in Imposing and Enforcing Sanctions, Embargoes and Blockades" *Maritime Security and Conflict Resolution at Sea in the Post-Cold War Era*, Peter T. Haydon and Ann L. Griffiths, eds. (Halifax: Centre for Foreign Policy Studies, Dalhousie University, 1994) pp. 183-188, covers the Canadian participation in the Adriatic from 1993 in general terms, but as yet no history describes the stressors encountered by crews operating within sight of hostile shores and *VILLE DE QUÉBEC* close aboard observing the shelling along the Dalmatian coast.

[5] *HMCS PROTECTEUR*, "Operation TOUCAN Diary", *HMCS PROTECTEUR* Web-site Home Page, http://www.hmcsprotecteur.com/operatio.htm, 13 November 1999. For journalists accounts of the situation ashore, *vide*: Michael Valpy Martin, "Canadian Troops Hit the Beach In East Timor: Vandoos [sic] Peacekeeping Responsibilities Include Airstrip, Coast and Mountains in Westernmost Part of Territories," *The Globe and Mail*, Friday, October 29, 1999, p. A1 and Regg Cohn, "Bones Give Clues to Massacre," *The Toronto Star*, 31 October 1999, http://www.thestar.com/back_issues/ED19991031/news/991031NEW10_FO-BONES31.html.

[6] Jessica Wolfe, "The Persian Gulf War: New Findings on Traumatic Exposure and Stress," *PTSD Research Quarterly*, Vol. 7, No. 1, Winter 1996.

military personnel also have deployed into some particularly stressful domestic environments. For example, the 1998 search and recovery operation at the Swiss Air Flight 111 crash site was an event in which soldiers, sailors, airmen and women were involved extensively in the gruesome tasks associated with all aspects of the body recovery process.[7] In considering the evidence, one must bear in mind that, to date, it is not known what cumulative effect continued traumatic contact has had on personnel, their effectiveness as a group during operations and their overall ability to sustain operations. Based on past events alone, then, one can expect that CF personnel exposure to traumatically stressful events likely will continue to feature in future operations. Anticipated stressor conditions could include combat or near-combat situations, handling victim's remains, and witnessing atrocities and war crimes. With that grim outlook in mind, clearly there is a need for a structure to deal with the situation.

Accordingly, it is this paper's intention to examine the impact of stress on a military force's sustainment[8] at the operational level. First, the document will explore the unique difficulties of writing on stress in operations. Next, it will investigate the terms

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[7] Of note, the author was the initial On-Scene Commander of the at-sea portion of the operation from 2-11 September 1998. 229 passengers and crew perished as the aircraft crashed into the ocean, immediately south of Peggy's Cove, Nova Scotia.

[8] The more familiar logistical aspects of sustainment are covered adequately elsewhere. *Vide* the following selection: Daniel Hawthorne, *For Want of a Nail: The Influence of Logistics on War* (New York and Toronto: McGraw-Hill Book Company, Inc., 1948), James A Huston, *Guns and Butter, Powder and Rice: U.S. Army Logistics in the Korean War* (London and Toronto: Associated University Press, 1989), General Carter B Magruder, *Recurring Logistics Problems as I Have Observed Them* (Washington, D.C.: Centre of Military History, 1991), Lt. General William G Pagonis, *Moving Mountains: Lessons in Leadership and Logistics from the Gulf War* (Boston, Mass: Harvard Business School Press, 1992), Julian Thompson, *The Lifeblood of War: Logistics in Armed Conflict* (Oxford, UK: Brassey's, Headington Hill Hall, 1991), Martin Van Creveld, *Supplying War: Logistics from Wallenstein to Patton* (Cambridge: Cambridge University Press, 1977).

used in the text, including defining stress reactions in combat and in non-combat operational situations. Following an exploration of the definition of terms, this paper will introduce why the topic has operational level sustainment implications, presenting an historical perspective on combat stress. An examination of factors affecting stress disorder onset follows next and that section is augmented by an examination of stress during the Swiss Air experience. Thereafter, by way of testimony tabled at the ongoing CF Croatia Board of Inquiry, this document will consider Canadian Balkan events in the early 1990s.[9] A short assessment of the latest advances in stress treatment will follow, focused on their application to operational deployment preparation. Finally, the discussion will conclude, introducing a recommendation on the need for a plan to deal with the implications of stress at the operational level.

It is germane to note that writing on stress in operations is a difficult matter for several reasons. Zahava Solomon, an expert in the field from the Israeli Defence Forces Medical Corps, wrote that combat stress is "one of the most elusive of psychiatric disorders. Unlike other emotional disorders, [it] is not defined by any necessary and sufficient combination of symptoms."[10] Equally, another cause of why it is a difficult to address stress impact on a group setting is because it is a very private issue within the human experience; the effects are most clearly felt and expressed in the first person

[9] Transcripts of testimony given before the Croatia Board of Inquiry, Colonel G. Sharpe, Chairman, held at 119 Laurier Avenue, 7th floor conference room, 1999, http://www.dnd.ca/boi/engraph/home_e.asp.

[10] Zahava Solomon, *Combat Stress Reaction: The Enduring Toll of War*, Part of *The Plenum Series on Stress and Coping*, Donald Meichenbaum, series editor, from University of Waterloo, Waterloo, Ontario (New York and London: Plenum Press, 1993), p. 27. Solomon refers to combat stress reaction specifically, a subset of stress that is discussed later in this paper.

singular. For example, a Second World War Canadian subaltern, Donald Pearce, described the uniqueness of his own Second World War battle experience as follows:

> No one else has really been in the same place [in war] as anyone else and I refuse to play the game of comparing experiences. The whole war seems to be a private experience; I mean for everyone. Each man talks about a quite different war from mine, and ultimately everyone is separated from everyone by layers of privacy or egoism.[11]

Hence, it is somewhat counter-intuitive to attempt to deal with stress effects collectively. In short, these factors make this paper's goal a difficult prospect. Having gained an appreciation of the difficulties inherent in addressing stress in operations, though, there needs to be a clear understanding of what constitutes the associated terminology.

There are two general groupings of traumatic stress: acute and chronic. The first of the terms, combat stress reaction, or CSR, is one of two considered in the acute grouping. In accord with its naming, CSR occurs in a combat or near-combat situation. Writing in a Vietnam War context, H.R. Kormos defined the phenomenon as follows: "Combat [stress] reaction consists of behaviour by a soldier under conditions of combat, invariably interpreted by those around him as signalling that the soldier, although expected to be a combatant, has ceased to function as such."[12] Certainly, Kormos's definition fits in with Lord Moran's vivid description at the frontispiece and conveys the deeply felt sense that stress under fire is a soul-destroying experience that can freeze

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[11] Bill McAndrew, "The Soldier and the Battle" in *Military History and the Military Profession*, David A. Charters, Marc Milner and J. Brent Wilson, eds. (Westport, Conn and London: Praeger Publishers, Inc., 1992), p. 58.
[12] H.R. Kormos, "The Nature of Combat Stress" in *Stress Disorders Among Vietnam Veterans*, C.R. Figley, ed. (New York: Brunner and Mazel, Inc., 1978), pp. 3-22, as cited in Solomon, *op cit.*, p. 30.

individual victims in their tracks.[13] However, Shabtai Noy of Israel defined a somewhat different view of CSR, offering that "all soldiers who negotiate evacuation with a reason other than being hit by a direct enemy projectile or explosive are CSR casualties."[14] Relevant to the argument of which of the two definitions to choose, historian Allan English lent his support to the definition provided by Noy because it represented "the definition most often used in the psychological literature . . . and common in the CF."[15] Citing that it "accounts for the most non-physical casualties," English also described the definition as the most comprehensive. Hence, this paper will use Noy's definition.

Unfortunately, by its very nature the restrictive term of CSR leaves a gap regarding traumatic stress encountered in non-combat operations. That void is filled, at least in part, by a "critical incident," the last element of the acute stress grouping. In CF literature a critical incident is defined as "events or circumstances outside the range of normal experience that disrupt one's sense of control and involves the perception of life threat."[16] Therefore, it follows that critical incident stress (CIS) is stress that is brought on by exposure to those types of events. Similarly, the critical incident debriefing (CISD) process follows that occurrence and is designed to prevent the onset of a chronic condition. The treatment under the CISD process is outlined as follows:

> A CISD is a structured psychological and educational process designed to mitigate the impact of a critical incident and to accelerate normal recovery, thus greatly reducing the possibility of long-term distress

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[13] Lord Moran, *The Anatomy of Courage* (2nd ed.; Garden City Park, NY: Avery Publishing Group, Inc., 1966), p. 62.
[14] Shabtai Noy, "Combat Stress Reactions" in *Handbook of Military Psychology*, Reuven Gal and A. David Mangelsdorff, eds. (Chichester: John Wiley, 1991), p. 508.
[15] Allan D. English, "Historical and Contemporary Interpretations of Combat Stress Reaction," a report prepared for the Board of Inquiry-Croatia, presented to the 1999 Conference on Ethics in Defence, Ottawa Congress Centre, 2 November 1999, pp. 1-2.
[16] "Stress Management in Operations," *op cit*., p. 1.

> through ventilation and discussion of thoughts, feelings and reactions relating to the critical incident. Ideally, CISDs are conducted 24 to 72 hours after the occurrence of an incident, away from the scene and separate from any operational debriefing.[17]

Equally important, peer support teams are Service-trained individuals embedded within units who function as facilitators to the debriefing process. Peer supporters are responsible for conducting "another type of intervention called defusings."[18] As the name implies, defusings occur immediately after the critical incident, or as shortly thereafter as possible. Their role is critical to maintaining an individual's ability to continue in operations and has an effect on a unit's ability to maintain its effectiveness in both a critical incident and in operations. In closing off the discussion on the CISD process, one consideration that remains outstanding is whether or not the non-combat stress reactions are fully covered off by the "critical incident" model. In some respects, absent the prerequisite condition of combat--incoming munitions, the Noy definition works in a non-combat operational environment. Certainly, reflections on the prophylactic effect of strong leadership, unit cohesion and morale become much clearer in focus when examining stress using an operational, non-combat model. Hence, although a matter for consideration beyond the scope of this paper, it is a valid question as to whether non-combat stress reaction (NCSR) is a better model for the commander to use than the CISD process. Indeed, that is the state of investigation into NCSR, as researchers in the field

[17] *Ibid*., p. 3.
[18] *Ibid*., p. 2.

have concluded "a great deal of study still needs to be conducted . . .." [19] The jury is out on this issue.

As noted at the start of this paper, CF members deployed on operations can expect to experience stressors. The effects of traumatic stress events can manifest themselves long after the event is over. Therefore, a separate, chronic element of stress included in this paper is the condition known as post-traumatic stress disorder, or PTSD. A Canadian Forces defence ethics report described PTSD as follows:

> A severe form of stress or trauma reaction [sic]. The extreme case is often the result of stressors that are beyond [the] normal range of human experience. [It is] also categorised as an anxiety disorder, which can make a person physically sick, and dysfunctional.[20]

To clarify what constituted PTSD, the American Psychiatric Association adopted clear criteria for it in the *Diagnostic and Statistical Manual of Mental Disorders (DSM)*. Referred to as DSM-III, the criteria are as follows:

> Existence of a recognizable stressor that would evoke significant symptoms of distress in almost everyone.
> Re-experiencing the trauma [following strict descriptive guidelines].[21]
> Numbing of responsiveness to or reduced involvement with the external world, beginning some time after the trauma.[22]

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[19] Tomi S. MacDonough, "Noncombat Stress in Soldiers" in *Handbook of Military Psychology*, Reuven Gal and A. David Mangelsdorff, eds. (Chichester: John Wiley, 1991), pp. 548-549, as cited by English, *op cit*., p. 7.

[20] Department of National Defence, Chief Review Services, *Defence Ethics Programme, Extract of the Ethics and Operations Project, Interim Project Report*, 13 October 1999, p. 5.

[21] American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed.; Washington: American Psychiatric Association, 1980), described the criteria. The patient had to experience or exhibit at least one of the following:

Recurrent and intrusive recollections of the event
Recurrent dreams of the event
Sudden acting or feeling as if the traumatic event were reoccurring, because of association with an environmental or ideational stimulus.

[22] *Ibid*. At least one of the following had to be displayed:

Two of the following symptoms that were not present before the trauma:

- Hyperalertness or exaggerated startle response
- Sleep disturbance
- Guilt about surviving when others have not, or about behaviour required for survival
- Memory impairment or trouble concentrating
- Avoidance of activities that arouse recollection of the traumatic event
- Intensification of symptoms by exposure to events that symbolize or resemble the traumatic event

The list of PTSD criteria was expanded in 1994 to include 17 symptoms and was referred to as DSM-IV. DSM-IV changed the definition of a traumatic stressor and a new criterion was added that required "that the person experience either significant distress or that the PTSD symptoms cause marked impairment in an important area of functioning.[23]

Of considerable importance to this paper, the differentiation between PTSD, critical incident stress (CIS) and CSR is the nature of their condition, i.e. the chronic and acute. Hence, the immediate effect that will be felt at the operational level is the personnel losses caused by CSR and, potentially, CIS. But, PTSD's later chronic impact can be equally debilitating, affecting the supply of replacements or reinforcements. By way of illustration, during the 1982 Lebanon campaign the Israelis experienced the full impact that stress effects can cause on combatants. Occurring on the battlefield, or *in situ*, in the form of CSR, the affliction accounted for almost one-quarter of the war's

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Markedly diminished interest in one or more significant activities
Feeling of detachment or estrangement from others
Constricted effect

[23] Frank W. Weathers and Brett T. Litz, "Psychometric Properties of the Clinician-Administered PTSD Scale, CAPS-1" *PTSD Research Quarterly*, Vol. 5, No. 2, Spring 1994, pp. 5-6.

Israeli casualties. Years later, delayed PTSD effects more than doubled those numbers.[24] Similarly, the Americans learned of PTSD's power and delayed incapacitating impact from their experience in Vietnam and the 1991 Gulf War.[25] Moreover, Canadian experience in more recent operations suggests CIS and PTSD could affect similar proportions of personnel in domestic operations in a comparable manner. To wit, William Davidson, a CISD trained practitioner at the Maritime Forces Atlantic Operational Trauma, Stress and Support Centre, reported that to date ten to fifteen per cent of those military personnel involved in the September 1998 Swiss Air Flight 111 tragedy off Nova Scotia have experienced stress reactions. He expanded that these figures are consistent with what previous research has indicated.[26]

Canadian experience in the Second World War combat situation revealed comparable results.[27] Describing the advance on Ortona, Italy, McAndrew related how Canadian commander General C. Vokes portrayed the situation where "heavy physical

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[24] *Ibid*., p. vii. Emphasis added.

[25] Douglas F Zatzick, "Posttraumatic Stress Disorder and Functioning and Quality Of Life Outcomes in a Nationally Representative Sample of Male Vietnam Veterans," *The American Journal of Psychiatry*; Washington; Dec 1997, Vol. 154, Issue 12, pp. 1690-1695, is but one example of a rich field of literature on the subject. One M.D. estimated that 30 percent of all US servicemen and women who served in Vietnam suffer from PTSD. If accurate, that equates to a staggering 479,000 afflicted with the disorder. *Vide* Chuck Mosley, "The Invisible Scars of War," *Peace Review*, September 1998, Vol. 10, No. 3, p. 463. As well, the National Center for Post-Traumatic Stress Disorder, *PTSD Research Quarterly*, available at http://www.ncptsd.org/RQ_List.html, devotes a significant percentage of its space to combat-related PTSD research matters, including the Gulf War.

[26] William Davidson interview with the author, 23 November 1999.

[27] Bill McAndrew, "The Soldier and the Battle," *op cit*., pp. 60-61, cites A.M. Doyle, "Report of Survey of Canadian Soldiers under Sentence in the CMF," National Archives (NAC), RG 24, vol. 12631. In spring of 1945, Doyle tallied 1,600 "battle exhaustion" and disciplinary non-effectives of 18,000 in theatre. McAndrew amplified the findings indicating, "Medical and disciplinary behavioural explanations merged because . . . it was

and psychiatric casualties wore out his 1st Division."[28] Elsewhere, the situation that transpired in the Canadian Army campaign immediately following the Normandy invasion is germane. McAndrew reported that, overall, a ratio of over one in four non-fatal casualties succumbed to stress-related "battle exhaustion," the term used during the Second World War to describe CSR-type effects. Yet, Canadian operational level commanders ascribed the problem to malingering. The prevailing attitude of the day was evident in the missive that General Simonds wrote: "Medical officers may be inclined to take a lenient view to so-termed 'battle exhaustion' cases. It requires the close attention of commanders to see that malingering is not only discouraged, but made a disgraceful offence and disciplinary action taken to counter it."[29] Not surprisingly, despite Simonds lofty admonitions, a crisis in manpower arose. McAndrew attributed part of the cause for the crisis as a direct result of stress in combat--battlefield exhaustion.[30] The Canadian operational commander's failure to understand the problem only exacerbated the situation. McAndrew drove this point home by comparing July 1944 rates of Canadian soldiers returning to the battlefront with those obtained from the US First Army during the same period. Despite treating double the incidence of stress cases relative to any other month in 1944, the First US Army data indicated that over three-quarters of stress patients were returned to duty.[31] Although McAndrew indicated that accurate Canadian

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difficult to define a reasonable line between them." Over 19 months in Italy the total stress casualties reached 5,000 spread between some 36,000 Canadian troops in theatre.

[28] *Ibid*., p. 65.

[29] Terry Copp and Bill McAndrew, *Battle Exhaustion: Soldiers and Psychiatrists in the Canadian Army, 1939-1945* (Montreal and Kingston: McGill-Queen's University Press, 1990), pp. 126 and 134. Simonds was the Canadian Corps Commander.

[30] *Ibid*., p. 128.

[31] *Ibid*., p. 129. McAndrew cautions that later follow-up studies indicated that fully one-third of those returned to combat later succumbed to "neuropsychiatric disabilities."

figures were "impossible to report," his deduction from the number evacuated to England versus the number returned revealed that Canadian results were dramatically less successful than the US programme. McAndrew attributed the difference to the US policy of treating patients as far forward as practical. Given the Canadian command attitude to the problem, it may also be a factor that, in the main, the US leadership treated the patients as casualties and not as cowards.[32] Of particular note, the stress victims represented Canadian troops that were desperately needed during the campaign.[33] Such losses to CSR effects reflected Canadian results in earlier wars.

Desmond Morton, the renowned Canadian historian, observed that in the First World War Canadian Army Medical Corps doctors discharged about 10,000 soldiers for psychiatric reasons.[34] Moreover, he provided a revealing perspective on the combat experience that surgeons endured when working in the battlefield areas. He wrote that doctors' war conditions emulated those of the men: "Like all soldiers [combat surgeons] had to accustom themselves to moments of acute, body-wrenching stress, alternated with

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[32] Calvin S. Drayer and Albert J. Glass, "Introduction: Patton Incident" in *Neuropsychiatry in World War II*, *Volume II: Overseas Theaters*, William S. Mullins and Albert J. Glass, eds. (Washington: Office of the Surgeon General, Dept of the Army, 1973), p. 21-22, describe an incident wherein General Patton struck a psychiatric evacuee in San Stefano, 10 August 1943, during the Sicily campaign. Drayer and Glass expressed the belief that Patton's treatment revealed much about the leadership view that, as in Canada, some believed that battlefield exhaustion was a sign of cowardice. They also add: "The Patton incident focused widespread [US] attention upon the causes of emotional problems in combat and aided in establishing their legitimacy."

[33] Copp and McAndrew, *op cit*., pp. 113-114, 128-135, and esp. footnote 29, pp. 217-218. Comparative US data are available in Lloyd J. Thompson, Perry C. Talkington and Alfred O. Ludwig, "Neuropsychiatry at Army and Division Levels" in Mullins and Glass, *op cit*., p. 286.

[34] Desmond Morton, *When Your Number's Up: The Canadian Soldier in the First World War* (Toronto: Random House of Canada Ltd, 1993) p. 198. John Keegan, *The Face of Battle* (2nd ed., New York: Barnes & Noble, Inc, 1993) esp. pp. 269-279 "The Will to Combat," covers soldier's self-inflicted wounds.

long interludes of stultifying routine and discomfort." He went on to describe the shattered bones, pulped flesh and destroyed bodies that they and the soldiers confronted in the 20th century battleground. Needless to say, the doctors reacted with revulsion to their first exposure.[35] Such reactions were normal.

But what separated those responses from "normal," and imparted the characterizations of CSR, CIS and later, PTSD, was the extent to which the reactions were taken. In amplification of that aspect, later US Gulf War field studies and surveys on this point lead researchers to deduce that a correlation existed between the severity of the stressor the individual undergoes and the incidence of PTSD. One should recall, though, that PTSD represents the higher level of stress disorder arising from trauma situations such as combat or operations. Jessica Wolfe, from the United States National Center for PTSD and Tufts University School of Medicine, reported, "Most importantly, body recovery and identification--two gruesome tasks--showed the strongest association with PTSD as an outcome, confirming that exposure to highly stressful event components is especially noxious."[36] Separately, researchers discovered a similar finding when investigating data regarding 355 military health care workers caring for victims of air disasters. One of the key conclusions reached was "exposure to grotesque burn injuries" was one of four key variables that correlated with much higher rate of PTSD incidence. The other three predictors were as follows:

lower levels of education,
stressful life events following exposure, and

[35] Morton, *op cit.*, pp. 190-194.
[36] Jessica Wolfe, *op cit.*, p. 1.

feelings of numbness following exposure.[37]

A point that was noted earlier, Wolfe's US results exhibited consistency with the extreme feelings and behaviours that Solomon contended distinguish CSR victims from others who coped with their experience. This observation lends important credence to the argument that the non-combat stress reaction (NCSR) parallels the CSR situation. As well, the CSR typology helped separate "normal responses to the stress of combat from pathological ones." Furthermore, Solomon observed the following:

> The soldier who finally sustains a combat stress reaction is so anxious and vulnerable that he feels he can no longer function effectively. His fear is intense enough to impair his judgement, paralyze his limbs, make him lose consciousness, or cause him to engage in counterphobic activities that lead to unnecessary risk taking. His psychic numbing is so pervasive that it blocks not only pain, horror and grief but also the perceptions needed to make realistic judgements. His fatigue, depression, and withdrawal impair effective action and make him dangerous to himself and his fellow fighters.[38]

On the obverse side of the equation that shows predictors to CSR, there are many factors that, potentially, impart an ability to continue on in the face of stressors and avoid succumbing to CSR, CIS or PTSD. The list includes strong unit cohesion, effective leadership, hard, realistic combat training, stress briefings and careful selection, to name a few.[39] Although these elements deserve further study, a full discussion of these factors goes beyond the scope of this paper. But, the key phenomenon that the studies point towards is the fact that exposure to extreme

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[37] Richard S Epstein, Carol S Fullerton and Robert J Ursano, "Post-Traumatic Stress Disorder Following an Air Disaster: A Prospective Study" *The American Journal of Psychiatry*, Washington, July 1998, Vol. 155, No. 7, pp. 934-938.
[38] Solomon, *op cit.*, p. 38.
[39] Hans Binneveld, *From Shell Shock to Combat Stress: A Comparative History of Military Psychiatry* (Amsterdam: Amsterdam University Press, 1997), pp. 161-177 and English, *op cit*., pp. 5-9.

stressors, such as body recovery or handling, causes an increased incidence of PTSD. Of great importance, indeed, may be the direct parallel that aspect has with the observation that CSR rates climb dramatically as the intensity of combat increases.[40]

Certainly, the exposure to human remains was intense during the Swiss Air operation.[41] That fact undoubtedly contributed to the CIS and PTSD rates experienced in the operation--an overall stress casualty rate of ten to fifteen percent.[42] However, the incidence rate of evacuees was minimal despite an extended amount of time on station for large numbers of personnel working at sea and along the shoreline. Bearing in mind that although the currency of the operation could affect future data as other cases emerge, those return rates are fairly consistent with results for low to mid-intensity combat. Of relevance, the CISD procedures that were followed included the following measures: senior shipboard leaders, augmented by local critical incident teams, monitoring stress manifestations in the crew; peer support sessions; defusing sessions; and more complete CISD debriefing sessions on return to port.[43] The one element that did not follow

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[40] Copp and McAndrew, *op cit*., pp. 109-127, and Richard Gabriel, *No More Heroes: Madness & Psychiatry in War* (New York: Hill and Wang, 1987), p. 122.

[41] All boats' crews in the initial stages had to deal with this aspect of work at the crash site, as well as members of the deck sorting crew and temporary shipboard morgue staff. In assessing the scale of the tragedy the embarked RCMP officers and the Chief Medical Examiner, independent of each other, commented to the author that the evidence of extreme devastation they witnessed coming aboard surpassed anything they had ever encountered in their collective ninety years of experience. Given the nature of their work versus that of a naval and military officer, one can understand the immediate concerns their commentary conjured up for the mental welfare of my crew and all those working on-scene. Hence, procedures to cope with stress aboard were put in place from the outset and are spelt out in the text below.

[42] Davidson interview.

[43] Author interview with George Robertson, Coxswain *HMCS PRESERVER*, 6 December 1999.

established guidelines was the long delay between the time of the incident and the CISD sessions.[44] However, given the horrendous conditions under which the recovery crews worked over an extended period of time, the reduced incidence of stress cases indicates that the CISD process apparently managed to cope with the situation. The implications at the operational level are that existing CF procedures need to be followed and that the issue of stress must be assessed and addressed at the operational level as part of the deployment planning process. That has been the Army and Navy's plan for those personnel proceeding on UN duties where exposure to stressors has become the norm.[45]

Somewhat surprisingly, even while on UN missions, Canadian troops have come under fire disturbingly frequently, as Colonel Jim Calvin, the Commanding Officer of the Canadian Forces Second Battalion Princess Patricia's Canadian Light Infantry, related to the Croatia Board of Inquiry. Describing events that took place in 1993, he stated "there wasn't a day that went by in Sector South that somebody wasn't shelling somebody."[46] A sobering assertion, particularly when matched with his recounting of an incident to the Board. His description of the shelling his troops endured appeared to corroborate his declaration later on that the shelling and the stress appeared related to the illnesses of his personnel. He described the incident as follows:

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[44] Greg Passey and David Crockett, "Stress Disorders in UN Peacekeeping" undated, p. 13. Passey and Crockett refer to the Mitchell model, "which suggests that the debriefings occur 24-72 hours after the CIS."

[45] George Shorey, "Selection & Training of Military Observers: Lessons Learned from the Naval Experience," Maritime Command technical note 1/94 (Halifax: Maritime Command Headquarters, 1994), pp. 16-20, and "Stress Management for Operations," *op cit*., pp. 2-5.

[46] Colonel Jim Calvin, transcript of testimony given before the Croatia Board of Inquiry, Colonel G. Sharpe, Chairman, held at 119 Laurier Avenue, 7th floor conference room, 16 September 1999, Vol. VII, pp. 79-80.

> At one point one shell fell no farther away than the length of this table from the corner of that bunker . . .. When that round hit -- and I am not certain whether it was a 120-mm mortar or whether it was an artillery shell. It hit right on the corner and both sides of that bunker, every sandbag was shredded and the sand was pouring out of it. I am not certain how many soldiers were inside it but, you know, I would imagine 10 or 12 soldiers. They were knocked out of their bunks, you know, the sand coming down from the roof. All of those effects were taking place. Now, that affects you a lot when you come that close to a direct hit on your bunker.[47]

His narrative gave weight to his assertion "that there are people who were not ill at the start of the tour who are ill at the end of the tour. Although I can't pinpoint particularly why that occurred, I have no doubt that the tour contributed somewhat to some of the illnesses . . .."[48] Clearly, Calvin made a now familiar connection with the conditions his men endured and the fact that they returned from their mission suffering from unknown or unidentified illnesses. He explained, "certainly the degree of stress that the unit as a whole was put under is moot to how [the Board] proceeds with what medical problems people may be suffering."[49]

Recently, through a spate of initiatives, the CF has acknowledged the importance of managing and controlling the effects of combat stress. Convening the Board of Inquiry investigating the occurrences in Croatia conveyed a message that stress in the operational environment has become a higher priority in the Canadian Forces. The video *Witness the Evil*, featuring Major-General Romeo Dallaire and his Rwandan experience is another example. To that end, a Department of National Defence report in the *Defence Ethics Programme*, addressed stress awareness, managing the manifestations of stress,

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[47] *Ibid*., p. 78.
[48] *Ibid*., p. 13.
[49] Calvin testimony, *op cit*., p. 11.

and post-deployment follow-up.[50] As a concomitant part of that process, the report fixed on the requirement for training in a variety of areas, including awareness training, coping mechanisms and stress management teams. It is this area that has considerable potential to ameliorate the potential losses that would result from CSR, CIS and PTSD. Some new reports on research activities have covered innovations in training technologies and mechanisms to deal with the stress problem and its deleterious implications for sustainment.

Barbara Olasov Rothbaum and Edna B. Foa reported on an encouraging development in exposure therapy. They reported on patients placed in a controlled setting being exposed to images that recreate a trauma setting particular to the individual. According to their paper, the clinician then administered relaxation techniques designed to improve the patient's ability to cope with the effects.[51] Interestingly, exposure therapy builds on Foa's previous study (1995)[52] and demonstrates that "fear activation during reliving of the traumatic memory [via 'imaginal exposure'] promotes a successful outcome."[53] The clinching argument that provides one of the more applicable lessons for CF pre-deployment training and education came from their conclusion, which stated: "The mechanisms most salient during *in vivo* exposure are the correction of erroneous probability estimates of danger and habituation of fearful responses to trauma relevant

[50] Chief Review Services, *op cit.*, p. 5.
[51] Barbara Olasov Rothbaum and Edna B. Foa, "Exposure Therapy for PTSD," *PTSD Research Quarterly*, Vol. 10, No. 2., Spring 1999, p. 1.
[52] Edna B. Foa, D. Hearst-Ikeda and K.J. Perry, "Evaluation of a Brief Cognitive-Behavioral Program for the Prevention of Chronic PTSD in Recent Assault Victims," *Journal of Consulting and Clinical Psychology*, Vol. 63, pp. 948-955, abstract included in Foa and Rothbaum, *op cit.*, p. 3
[53] Foa and Rothbaum, *op cit.*, p. 3

stimuli."[54] Moreover, their article also covered an exciting new development termed Virtual Reality Exposure. The device recreated a virtual environment for the user, complete with a "a computer generated view of a virtual world that changes in a natural way with head motions."[55] The early results with Vietnam veterans were encouraging, but its more relevant potential application is in pre-deployment training on stress coping mechanisms. Given the flexibility inherent in virtual technologies the development may permit effective preparation for difficult domestic contingencies as well. What is required, however, is an overall plan and approach that could take advantage of that capability and implement an operational level training process that would match up with the technology's potential. Based on the experience of one maritime UN military observer, the prospective value that such training can be inferred from his comments:

> I think I originally laughed at the idea of stress management . . . then, dealing with dead bodies, dealing with people who'd had their heads hacked off with bayonets . . . breaking the news, [sic] you know one lady we had to tell her that every male member in her family had been massacred. She just went completely to pieces in the room with us . . .. I mean we had a number of very, very, very stressful situations and I don't laugh at stress management anymore.[56]

In conclusion, there is a vast body of academic and scientific literature surrounding the topic area of stress. This paper has covered only the smallest portion of that material, and examined some of the implications that stress will exert at the operational level. Its considerable effects on sustainment are abundantly evident in the Canadian wartime experience, the Balkans peacekeeping effort and in domestic operations. Certainly, as evidenced by the emerging priority devoted to CSR, CIS and

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[54] Foa and Rothbaum, *op cit.*, p. 3.
[55] *Ibid.*, p. 3-4.
[56] Shorey, *op cit.*, pp. 15-16.

PTSD, considerable progress has been made in the academic research into understanding the dynamics at work with stress in a military operating environment. But, much of the work activity needs to be progressed further, focused on the operational level, in order to devise a truly successful plan that could cope effectively with stress in the future. This paper has introduced the position that new technologies and procedures may help support a concerted effort to prepare personnel for the eventualities they may face in operations. Moreover, as historical evidence has shown, the commander's policy and attitude in-theatre can influence the results of stress treatment and, ultimately, the return rate of personnel back into a fit state for operations. Therefore, the final conclusion derived from this analysis is that the operational level commander fulfils a pivotal role in establishing the priority to be applied to stress management and training. The commander needs to ensure that a viable plan is in place to deal with stressors that likely will arise in some form during the deployment. Failure to complete this aspect of preparation could well affect the military force's ability to sustain combat or operational effectiveness.

BIBLIOGRAPHY

a. BOOKS

Binneveld, Hans. *From Shell Shock to Combat Stress: A Comparative History of Military Psychiatry*. Amsterdam: Amsterdam University Press, 1997.

Gabriel, Richard. *No More Heroes: Madness & Psychiatry in War*. New York: Hill and Wang, 1987.

Copp, Terry and Bill McAndrew. *Battle Exhaustion: Soldiers and Psychiatrists in the Canadian Army, 1939-1945*. Montreal and Kingston: McGill-Queen's University Press, 1990.

Hawthorne, Daniel. *For Want of a Nail: The Influence of Logistics on War*. New York and Toronto: McGraw-Hill Book Company, Inc., 1948.

Huston, James A. *Guns and Butter, Powder and Rice: U.S. Army Logistics in the Korean War*. London and Toronto: Associated University Press, 1989.

Keegan, John. *The Face of Battle*. 2nd ed. New York: Barnes & Noble, Inc, 1993.

Magruder, General Carter B. *Recurring Logistics Problems as I Have Observed Them*. Washington, D.C.: Centre of Military History, 1991.

Moran, Lord. *The Anatomy of Courage*. 2nd ed. Garden City Park, NY: Avery Publishing Group, Inc., 1966.

Morton, Desmond. *When Your Number's Up: The Canadian Soldier in the First World War*. Toronto: Random House of Canada Ltd, 1993.

Mullins, William S. and Albert J. Glass, eds. *Neuropsychiatry in World War II*, *Volume II: Overseas Theaters*. Washington: Office of the Surgeon General, Dept of the Army, 1973.

Pagonis, Lt. General William G. *Moving Mountains: Lessons in Leadership and Logistics from the Gulf War*. Boston, Mass: Harvard Business School Press, 1992.

Solomon, Zahava. *Combat Stress Reaction: The Enduring Toll of War*. Part of *The Plenum Series on Stress and Coping*. Donald Meichenbaum, series editor. New York and London: Plenum Press, 1993.

Thompson, Julian. *The Lifeblood of War: Logistics in Armed Conflict.* Oxford, UK: Brassey's, Headington Hill Hall, 1991.

Van Creveld, Martin. *Supplying War: Logistics from Wallenstein to Patton.* Cambridge: Cambridge University Press, 1977.

Williams, Mary Beth and John F. Sommer, Jr. *Handbook of Post-Traumatic Therapy* Westport, Conn and London: Greenwood Press, 1994.

American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*. 3rd ed. Washington: American Psychiatric Association, 1980.

_____. *Diagnostic and Statistical Manual of Mental Disorders*. 4th ed. Washington: American Psychiatric Association, 1994.

b. ARTICLES IN BOOKS

Kormos, H.R. "The Nature of Combat Stress." *Stress Disorders Among Vietnam Veterans*. C.R. Figley, ed. New York: Brunner and Mazel, Inc., 1978. Pp. 3-22.

McAndrew, Bill. "The Soldier and the Battle." *Military History and the Military Profession*. David A. Charters, Marc Milner and J. Brent Wilson, eds. Westport, Conn and London: Praeger Publishers, Inc., 1992. Pp. 57-72.

Noy, Shabtai. "Combat Stress Reactions." *Handbook of Military Psychology*. Reuven Gal and A. David Mangelsdorff, eds. Chichester: John Wiley, 1991.

Thomas, Captain(N) Robert H. "The Use of Naval Forces in Imposing and Enforcing Sanctions, Embargoes and Blockades." *Maritime Security and Conflict Resolution at Sea in the Post-Cold War Era*. Edited by Peter T. Haydon and Ann L. Griffiths. Halifax: Centre for Foreign Policy Studies, Dalhousie University, 1994.

c. ARTICLES IN JOURNALS OR MAGAZINES

Epstein, Richard S., Carol S Fullerton and Robert J Ursano. "Post-Traumatic Stress Disorder Following an Air Disaster: A Prospective Study." *The American Journal of Psychiatry*. Vol. 155, No. 7, July 1998, pp. 934-938.

Foa, Edna B., D. Hearst-Ikeda and K.J. Perry. "Evaluation of a Brief Cognitive-Behavioral Program for the Prevention of Chronic PTSD in Recent Assault Victims." *Journal of Consulting and Clinical Psychology*. Vol. 63, pp. 948-955.

Mosley, Chuck. "The Invisible Scars of War." *Peace Review*. Vol. 10, No. 3, September 1998.

Passey, Greg M.D. and David Crockett. "Psychological Consequences of Canadian UN Peacekeeping." Revised 18 August 1997.

_____. "Stress Disorders in UN Peacekeeping." Undated.

Pinch, Franklin C. "Lessons from Canadian Peacekeeping Experience: A Human Resources Perspective." A report from FCP Human Resources Consulting, August 1994

Rothbaum, Barbara Olasov and Edna B. Foa. "Exposure Therapy for PTSD." *PTSD Research Quarterly*. Vol. 10, No. 2., Spring 1999, pp. 1-4.

Weathers Frank W. and Brett T. Litz. "Psychometric Properties of the Clinician-Administered PTSD Scale, CAPS-1." *PTSD Research Quarterly*. Vol. 5, No. 2, Spring 1994, pp. 5-6.

Wolfe, Jessica. "The Persian Gulf War: New Findings on Traumatic Exposure and Stress." *PTSD Research Quarterly*. Vol. 7, No. 1, Winter 1996, pp. 1-6. http://www.ncptsd.org/RQ_List.html.

Zatzick, Douglas F. "Posttraumatic Stress Disorder and Functioning and Quality Of Life Outcomes in a Nationally Representative Sample of Male Vietnam Veterans." *The American Journal of Psychiatry*. Vol. 154, Issue 12; Dec 1997, pp. 1690-1695.

Army Lessons Learned Centre. "Stress Management in Operations." *Dispatches*. http://www.allc.com/website/english/products/dispatch/3-2/dis3-2fe.html, Vol. 3, No. 2, pp. 1-6.

d. ARTICLES IN NEWSPAPERS

Cohn, Regg. "Bones Give Clues to Massacre."

e. ARTICLES ON THE INTERNET

HMCS PROTECTEUR. "Operation TOUCAN Diary." *HMCS PROTECTEUR* Web-site Home Page, http://www.hmcsprotecteur.com/operatio.htm, 13 November 1999.

f. GOVERNMENT DOCUMENTS

Shorey, George. "Selection & Training of Military Observers: Lessons Learned from the Naval Experience." Maritime Command technical note 1/94. Halifax: Maritime Command Headquarters, 1994.

Department of National Defence. Chief Review Services. *Defence Ethics Programme, Extract of the Ethics and Operations Project, Interim Project Report*, 13 October 1999,

e. TESTIMONY, GOVERNMENT COMMITTEES AND INVESTIGATIONS

Calvin, Colonel Jim. Transcript of testimony given before the Croatia Board of Inquiry. Colonel J. Sharpe, Chairman. Held at 119 Laurier Avenue, 7th floor conference room, 16 September 1999, Vol. VII, pp. 79-80.

English, Allan D. "Historical and Contemporary Interpretations of Combat Stress Reaction." A report prepared for the Board of Inquiry-Croatia. Presented to the 1999 Conference on Ethics in Defence, Ottawa Congress Centre, 2 November 1999.

Sens, Allen Gregory. *Somalia and the Changing Nature of Peacekeeping: The Implications for Canada*. A study prepared for the Commission of Inquiry into the deployment of Canadian Forces to Somalia. Ottawa: Public Works and Government Services Canada, 1997.

g. VIDEOS

Department of National Defence, Canada. *Witness the Evil*. A Canadian Forces video. 1998