ANTARCTIC MEDICINE

25 YEARS AT HALLEY BAY 1956-1980

by W A Freeland
ARMY PERSONNEL RESEARCH ESTABLISHMENT

INTRODUCTION

Occupational Health involves care of the "Total Man"[1]. No where is this more true than when medicine is practised in remote and hostile environments.

A group often forgotten about when considering occupational health care is the scientific community working in Antarctica. Yet as far back as 1772 accounts of the physical manifestations of scurvy in Antarctic voyages were recorded[2]. Many doctors who accompanied those early expeditions documented their medical experiences[3,4,5,6].

Whereas previously man was only a fleeting visitor to Antarctica he has surmounted many difficulties to establish himself there on a permanent basis.

The British Antarctic Survey operate 5 stations in that cold land . Halley Bay, situated on a floating ice shelf,1280 kms from the South Pole is the only base to have had a medical officer permanently on site since it was established in 1956. This paper is a retrospective study of the medical conditions arising at Halley Bay during its first 25 years.

METHOD

The information in this survey was obtained by reviewing the reports submitted by medical officers who wintered at Halley Bay between 1956 - 1980. Diagnoses of illness and injury were coded using the International Classification of Diseases (ICD 1975).

RESULTS

Between 1956 - 1980 a total of 552 men wintered over at Halley Bay. During that time there were 5 deaths, all due to accidents.This gives a crude mortality rate of 9.05/1000. The total number of diagnoses in the reports was 688. There were also 258 dental fillings and extractions.

34.2% of cases were due to Injury and Poisoning. Of these there were 24 fractures; 10 upper limb, 5 lower limb, 2 facial, 3 vertebral and 4 chest fractures. There were 5 dislocations, 10 concussions, 32 sprains/strains and 27 back injuries. In addition 15 men suffered from carbon monoxide poisoning.

14.2% of cases were due to Gastro-Intestinal System diseases. Three cases of acute appendicitis were documented.

11.6% of cases were categorised Skin and Subcutaneous Tissue Diseases, 22 of which were skin infections.

Injury and Poisoning plus Musculoskeletal and Connective Tissue Disorders accounted for 41.6% of those treated. Only one medical evacuation took place (a doctor who sustained a concussion,facial injuries and fractured spine after a fall)[7].No case of serious cold injury was documented although there were 14 cases of snowblindness. Records were insufficiently detailed to allow an estimate of minor cold injuries to be made.

Amongst the more unusual cases was one of Giardia Lamblia, 3 cases of Syphilophobia and one case of vestibular neuronitis.

The doctor at Halley Bay frequently had responsibility for the other 4 British bases. Consultations and treatment were carried out over the radio. From the 1978 medical log compiled by the author 25.3% of consultations were with the other 4 bases.

DISCUSSION

Analysis of the medical records indicated that more attention to detail was necessary. The results are an underestimate of the total cases seen and treated. Between 1956-71, reports included comments such as; "'several' cases of insomnia; indigestion was 'prevalent'; a 'few cases' of backache. This is not unique to British stations[8] . The results presented are similar to those obtained by other nations[8,9,10]. Using the ICD method it was evident that, as with other nations, trauma and musculoskeletal problems formed the bulk of the medical workload.

The absence of serious cold injury may reflect an awareness of the environmental hazard or the fact that man spends only 9-15% of his time outdoors[11].

With the worlds' natural resources dwindling,new and untapped reserves of energy are being sought. It seems likely, however unwelcome that Antarctica is poised for an invasion of workers seeking to exploit the Continents vast reserves. If this happens there will be a need for epidemiological information on the occupational hazards of working there, so that the care of the scientific workers can be improved.

REFERENCES

1. Haraldson, SSR., The Total Man in his Total Environment:
   In ;Circumpolar Health 81, edited; Harvald B,Hart Hanson JP
   Nordic Council for Arctic Medical Research Copenhagen 1981.

2. Foster G. A Voyage Round the World in His Britanic Majesty's Sloop, Resolution, Commanded by Capt James Cook During the Years 1772,3,4 and 5. London 1777; Vol 1 Book 11; 527-55.

3. Roberts B. Chronological List of Antarctic Expeditions.
   Polar Record 1958; 9;97-134

4. Charcot JB . The Voyage of the "Why Not" in the Antarctic. London; Hodder and Stoughton 1911.

5. Wilson EA . Diary of the 'Discovery' Expedition. London; Blandford 1966.

6. Ekelof E. Medical Aspects of the Swedish Antarctic Expedition, October 1901- January 1904.
   J Hyg; London; 1904;4;511

7. Anonymous. Evacuation Flight to Halley Bay. Antarct J of US ;1968;3;14-15

8. Lugg DF. Antarctic Epidemiology; A Survey of ANARE Stations 1947-72; In Edholm OG , Gunderson EKE, Eds,. Human Polar Biology London ;Heineman 1973; 93-104

9. Heblom EE. The Medical Problems Encountered in Antarctica; Milit Med; 1961;126 818-824

10. Matusov AL . Medical Services; In; Ostrekin ME Petrov IG; Tenth Soviet Antarctic Expedition 1965-66. Translated from the Russian. Israel Programme for Scientific Translations, jerusalem 1971.

11. Levack I,. The Physical Effects of Living in Antarctica; MD Thesis - University of Aberdeen, Scotland 1980