perspective to take in all these things. I would like to adapt to this context Blake's marvellous but menacing "Lions of flaming fire raging around and melting the metals into living fluids . . ." and "unnam'd forms, which cast the metals into the expanse"[17]—an image illustrating both the richness of the world and of our making and the need to protect man and the earth from dangerous processes.

References

[1] Doll R, Peto R. The causes of cancer: quantitative estimates of avoidable risks of cancer in the United States today. *J Nat Cancer Inst* (in press —May 1981); also to be published by Oxford University Press.
[2] Holdgate MW. A perspective of environmental pollution. Cambridge: Cambridge University Press, 1979.
[3] Longo LD. Environmental pollution and pregnancy: risks and uncertainties for the fetus and infant. *Am J Obstet Gynecol* 1980;**137**: 162-73.
[4] Barnes JM. Assessing hazards from prolonged and repeated exposure to low doses of toxic substances. *Br Med Bull* 1975; **31**:196-200.
[5] Aldridge WN. Insecticides, past, present and future: practice and the understanding of mechanisms. *Ann Occup Hyg* 1979;**22**:407-9.
[6] Rogan WJ, Bagniewska A, Damstra T. Pollutants in breast milk. *N Engl J Med* 1980;**302**:1450-3.
[6a] World Health Organisation. *Environmental health criteria 2. Polychlorinated biphenyls and terphenyls.* Geneva: WHO, 1976.
[7] Schneider M-J. *Persistent poisons: chemical pollutants in the environment.* New York: New York Academy of Sciences, 1979.
[8] Egan H, Hubbard AW. Analytical surveys of food. *Br Med Bull* 1975; **31**:201-8.
[9] Department of Industry: Laboratory of the Government Chemist. *Report of the Government Chemist 1979.* London: HMSO, 1979: 94-112.
[10] Advisory Committee on Pesticides. *Further review of the safety for use in the UK of the herbicide 2,4,5-T.* London: Ministry of Agriculture, Fisheries and Food (Pesticides Branch), 1980.
[11] Peto R. Distorting the epidemiology of cancer: the need for a more balanced overview. *Nature* 1980;**284**:297-300.
[12] Epstein SS, Swartz JB. Fallacies of lifestyle cancer theories. *Nature* 1981;**289**:127-30.
[13] Cairns J. The origin of human cancers. *Nature* 1981;**289**:353-7.
[14] Anonymous. Two views of the causes of cancers. *Nature* 1981;**289**:431-2.
[15] Pochin EE. The acceptance of risk. *Br Med Bull* 1975;**31**:184-90.
[15a] Committee on Prototype Explicit Analyses for Pesticides. *Regulating pesticides.* Washington: National Academy of Sciences, 1980:1-17.
[16] Newberne PM. Environmental modifiers of susceptibility to carcinogenesis. *Cancer Detection and Prevention* 1976;**1**:129-73.
[17] Committee on the Problem of Noise. *Noise.* Final Report. London: HMSO, 1963. (Wilson Report.)
[18] Carson R. *Silent spring.* Boston: Houghton Mifflin Company, 1962.
[19] Blake W. *The marriage of heaven and hell. c* 1790. London: Oxford University Press/Paris: Trianon Press, 1975: plate 15.

Dealing with the Disadvantaged

Amputees

NORMAN CROUCHER

Amputations of the arm and hand are uncommon. Most amputees have suffered the loss of part or the whole of one or both limbs, and most leg amputees are approaching retirement age or older. Many are diabetic and for this and other reasons amputees are often in poor health. Many leg amputees are older and are therefore new to handicap compared with someone with a congenital handicap or one acquired earlier in life. Amputees are therefore often adjusting to recent loss and learning to cope with the psychological and practical implications.

Practical considerations

Hardly any special allowance need be made for ambulant leg amputees or for arm amputees. A few points are, however, worth mentioning.

(1) For leg amputees non-slip floor surfaces and reasonably high, stable chairs with armrests are desirable.

(2) Many arm and leg amputees will not know what "prosthesis" means, so use the term "artificial limb," "artificial arm," or "artificial leg" instead.

(3) Loss of one or both legs may make it difficult for a patient to visit the surgery, particularly in wet or icy conditions, and especially if the patient is elderly. The sprightly, determined old lady progressing well on her new limbs in September may be virtually housebound if it snows later. Similarly, no matter how determined the patient, when a stump hurts badly he or she can be almost completely robbed of mobility, unless crutches or a wheelchair are available. Those who do not have a car may be particularly restricted.

(4) Advice given at the limb centre may be misunderstood or forgotten, or certain topics may not be discussed, so do not neglect an opportunity to make sure that the patient is as comfortable as possible. The following advice may help.

(*a*) Soft-soled shoes may make walking more comfortable, but crepe soles are slippery on wet pavements.

(*b*) Nylon sheaths obtainable from the limb centre reduce the skin damage brought on by perspiration in hot weather, though some patients do not like wearing nylon next to the skin.

(*c*) It is wise to have a pair of crutches or, in some cases, a wheelchair in reserve at home, even if their regular use has been discontinued.

(*d*) Men wearing thigh corset attachments may find that the leather corset rubs the scrotum painfully in hot weather; underpants which give better support are the solution.

(*e*) With the thigh corset leg, rubbing of the buttock may be a problem if stump socks are too short to protect this region. One solution is to cut off about 25 cm from the top of an old stump sock to wear at the top of the thigh.

Psychological considerations

Several common reactions and attitudes to amputation may be seen, and, though the general practitioner is probably aware of most of these, the following observations may help.

(1) The reaction to the acquirement of a handicap varies a

London W5 2RS
NORMAN CROUCHER, adviser to Disabled Sports Foundation

great deal and is not entirely dependent on its severity. Some people exhibit extreme bitterness, depression, and self-pity, and such reactions are to be expected.

(2) Frequent encouragement may be required, but the reaction to the citing of examples of similarly disabled achievers is varied, and a negative or hostile reaction is common when amputees are told about others who fly or climb, for instance. Some amputees, however, do take comfort and gain inspiration from the more unusual examples, quite often because these indicate that their own lesser aspirations may be realistic. A sensitive approach is needed: the patient's family, friends, or limb-centre doctor, may be able to advise on what the patient's reaction is likely to be.

(3) Similarly, any suggestion of joining a disability group such as a disabled drivers' club or an amputees sports team will meet with a varied response; some are appalled at such a suggestion, while others readily join.

(4) The normal effort of working in a shop or bringing up children may tire an amputee. This will obviously affect his or her attitude to life in general, and, though this may be difficult to arrange, more rest may be necessary.

Lesson of the Week

Enteral feeds contaminated with Enterobacter cloacae as a cause of septicaemia

M W CASEWELL, J E COOPER, M WEBSTER

Artificial enteral feeds are increasingly used for patients with severe catabolic states associated with, for example, bowel pathology, burns, infection, and malignancy. One advantage claimed for using this route is the "virtual absence of the risk of infection."[1] Despite our previous study which showed that contaminated enteral feeds were a source of *Klebsiella* spp for intensive care patients,[2] a recent *Drugs and Therapeutics Bulletin* on enteral feeding does not mention the hazard of infection.[3] We report on a patient with septicaemia caused by *Enterobacter cloacae* derived from enteral feeds that had been contaminated by a detergent dispenser in a diet kitchen.

Enteral feeds may become contaminated during preparation or when given continuously over several hours at room temperature.

Case report

A 36-year-old woman with a history of narcotic and alcohol addiction was admitted to the intensive care unit with pneumococcal pneumonia and septicaemia. She was treated with benzylpenicillin and required mechanical ventilation. Ten days after admission she developed septicaemia, with *Pseudomonas aeruginosa* derived from her respiratory tract. She was treated with gentamicin, but the organism persisted in contaminated necklines, and treatment was changed to tobramycin and azlocillin. Thirteen days after admission a six-day course of enteral feeding was started, and four days later she developed septicaemia with *E cloacae* serotype 09. She gradually improved and was discharged home three weeks later.

E cloacae was not isolated from the patient's sputum, urine, or central venous necklines, but a sample of enteral feed yielded 10^{5-6}/ml of mixed coliforms. This prompted investigation of the hospital diet kitchen. Ingredients for the feed consisted of Clinifeed (Roussel Laboratories Ltd), Maxijul (Scientific Hospital Supplies Ltd), and distilled water, none of which yielded *E cloacae*. The ingredients were blended with an automatic blender, the head of which was placed in water between uses and washed twice daily with hot tap water and detergent (Brentchem Ltd). The detergent, which was dispensed from a freestanding opened bulk container through a wall dispenser, was sterile when sampled directly from the bulk container but yielded *E cloacae* 09 when sampled from the dispenser. The blended feed was passed through a metal sieve to a polypropylene jug, both of which also yielded *E cloacae* 09. It was concluded that the wall detergent dispenser was the source of *E cloacae*, which contaminated the blender head, enteral feeds, sieve, and jug, and ultimately caused septicaemia in this patient.

Comment

This case illustrates how contaminated enteral feeds provide a source of opportunistic Gram-negative bacilli that may colonise or seriously infect debilitated patients. Such organisms multiply readily at room temperature, and there are thus advantages of using commercially produced bacteriologically clean feeds, which do not require mixing with additives or diluents in the hospital environment, and disadvantages of continuous infusion of mixed feeds over several hours at room temperature. We suspect that other hospitals are similarly contaminating enteral feeds during their preparation and suggest that the unsuspected, but avoidable, infection hazards of this common form of treatment should be more widely recognised.

We thank Mr P Smith for technical help and Dr C W Bartley for permission to study his patient.

Department of Microbiology, St Thomas's Hospital Medical School, London SE1 7EH
M W CASEWELL, MD, MRCPATH, senior lecturer
J E COOPER, MA, BCHIR, assistant lecturer
M WEBSTER, SRN, nursing officer infection control

References

[1] Lee HA. Why enteral nutrition? *Research and Clinical Forums* 1979;**1**:15-24.
[2] Casewell MW, Phillips I. Food as a source of *Klebsiella* species for colonisation and infection of intensive care patients. *J Clin Path* 1978;**31**:845-9.
[3] Enteral feeding. *Drugs and Therapeutics Bulletin* 1980;**18**:77-80.

(*Accepted 2 December 1980*)