


**Epidemiology of anthrax**

There is no more delightful chapter in the annals of infectious disease than Christie's account of anthrax and the 57 varieties of spread of anthrax spores by the discharges of animals and their carcasses. The hide becomes leather, the hair and wool are converted to clothing or brushes, the hooves and horn to fertilizer and the bones to glue or gelatine. The hide becomes leather, the hair and wool are converted to clothing or brushes, the hooves and horn to fertilizer and the bones to glue or gelatine. Christie, 1974). Bone meal fertilizer was recently responsible for the abrupt onset and rapid progression of fatal pulmonary anthrax in an amateur gardener, who inhaled *Bacillus anthracis* from the bone meal which he had used liberally, while continuing to smoke (Severn, 1976). He presented with a fulminating bronchopneumonia with radiological evidence of a mediastinal mass and a pleural effusion. He had been treated with penicillin, but unfortunately this infection proved to be due to a rare penicillin-resistant organism. Just as fertilizer seemed innocent to an unsuspecting gardener, so are there suspect items of clothing, gifts and souvenirs brought home from overseas holidays by well-meaning friends.

Beware of imported goatskin handicrafts from Haiti. The Center for Disease Control (C.D.C.), Atlanta, Georgia (*Morbidity Report*, 1976a), isolated *Bacillus anthracis* from 96 of 368 (26%) goatskin products examined, including rugs, bongo drums, voodoo dolls, mosaic pictures and purses. Rugs were the most prolific source for positive cultures occurred in 45 of 58 (78%) including one which was still infected 3 years after it had been bought. Attention had been focused on this source of infection because a young United States visitor to Haiti developed what was regarded as severe conjunctivitis with periorbital pain and oedema, eventually progressing to a blue-black upper eyelid. *Bacillus anthracis* was isolated from an aspirate of the eyelid and she recovered after large doses of penicillin and a short course of corticosteroids. She had contracted the infection from goat-hide bongo drums she had bought in Port-au-Prince, some of which, unwittingly, she had gift-wrapped and posted to her parents and friends (Lancet, 1976a).

Anthrax may also visit do-it-yourself enthusiasts using imported yarn. A 32-year old Californian doing home-weaving recently died from infection contracted from contaminated yarn which had originated in Pakistan. Like the gardener who inhaled the bone meal, the weaver developed pulmonary anthrax with a pleural effusion and mediastinal lymphadenopathy and complicating meningitis.

There is no more delightful chapter in the annals of infectious disease than Christie's account of anthrax and the 57 varieties of spread of anthrax spores by the discharges of animals and their carcasses. The hide becomes leather, the hair and wool are converted to clothing or brushes, the hooves and horn to fertilizer and the bones to glue or gelatine. Christie, 1974). Bone meal fertilizer was recently responsible for the abrupt onset and rapid progression of fatal pulmonary anthrax in an amateur gardener, who inhaled *Bacillus anthracis* from the bone meal which he had used liberally, while continuing to smoke (Severn, 1976). He presented with a fulminating bronchopneumonia with radiological evidence of a mediastinal mass and a pleural effusion. He had been treated with penicillin, but unfortunately this infection proved to be due to a rare penicillin-resistant organism. Just as fertilizer seemed innocent to an unsuspecting gardener, so are there suspect items of clothing, gifts and souvenirs brought home from overseas holidays by well-meaning friends.

Beware of imported goatskin handicrafts from Haiti. The Center for Disease Control (C.D.C.), Atlanta, Georgia (*Morbidity Report*, 1976a), isolated *Bacillus anthracis* from 96 of 368 (26%) goatskin products examined, including rugs, bongo drums, voodoo dolls, mosaic pictures and purses. Rugs were the most prolific source for positive cultures occurred in 45 of 58 (78%) including one which was still infected 3 years after it had been bought. Attention had been focused on this source of infection because a young United States visitor to Haiti developed what was regarded as severe conjunctivitis with periorbital pain and oedema, eventually progressing to a blue-black upper eyelid. *Bacillus anthracis* was isolated from an aspirate of the eyelid and she recovered after large doses of penicillin and a short course of corticosteroids. She had contracted the infection from goat-hide bongo drums she had bought in Port-au-Prince, some of which, unwittingly, she had gift-wrapped and posted to her parents and friends (Lancet, 1976a).

Anthrax may also visit do-it-yourself enthusiasts using imported yarn. A 32-year old Californian doing home-weaving recently died from infection contracted from contaminated yarn which had originated in Pakistan. Like the gardener who inhaled the bone meal, the weaver developed pulmonary anthrax with a pleural effusion and mediastinal lymphadenopathy and complicating meningitis.
Leading articles

Products made from yarn at present under review by the C.D.C. include blankets, purses and wall hangings (Morbidity Report, 1976b). Anthrax is probably underdiagnosed. Now that native home products from exotic corners of the earth have become highly fashionable, this is just about the right time to remind ourselves of the dangers of contaminated products and to reread Christie's travels to Carbonaria.

D. G. JAMES
The Royal Northern Hospital
London, England

References

Chemoprophylaxis in chronic bronchitis

About 30,000 people die each year from chronic bronchitis in England and Wales. Besides this death-toll the disease causes many workers to be unable to attend to their jobs because of illness, and it has been estimated that the order of 40 million man working days may be lost to British industry each year due to exacerbations of chronic bronchitis. The prevention of such exacerbations therefore has obvious importance. Patients with chronic bronchitis produce sputum throughout the year. During the winter months, however, this becomes purulent (often following an upper respiratory tract infection) and acute exacerbations occur. During these the commonest organisms that can be isolated from the sputum are *Haemophilus influenzae* and *Streptococcus pneumoniae*. The treatment of such acute exacerbations will obviously include the administration of an antibacterial agent and the role of such agents here is well established.

The use of prophylactic antibiotics is more controversial, however. Differences of opinion still exist about the values of chemoprophylaxis largely due to the apparently conflicting results obtained in previous trials. Full details of all such trials cannot be considered but two are worth discussing briefly. The Medical Research Council (M.R.C., 1966) reported the results of a collaborative trial in which 373 male bronchitics received prophylactic oxytetracycline or placebo from mid-September to mid-April during 5 successive winters. During the first 3 the dose was 0.5 g a day, but this was increased to 1 and 2 g a day respectively during the last 2 winters of the trial. Exacerbations occurring during the trial period were treated with chloramphenicol, sulphonamide, oral penicillin or placebo. During the 5-year period 1214 separate exacerbations occurred. The smallest number of exacerbations occurred in the group receiving oxytetracycline prophylaxis and active treatment of exacerbations. This reduction of the total number of exacerbations was statistically significant compared with the other groups. This decrease occurred mainly in a group of men who normally had frequent infective episodes with many exacerbations. The number of days off work amongst the group receiving prophylaxis was only significantly reduced if one particular statistic was used. The rate of decline of the FEV was not altered by treatment. This trial is often quoted as demonstrating that chemoprophylaxis in chronic bronchitis is ineffective. A truer interpretation might have been that the trial suggested some possible benefit, but was inconclusive. A 5-year prophylactic trial was also carried out by a Scottish group (Johnston et al., 1969). They included 74 patients who each received one of the following regimes during the winter months:

(1) placebo for 5 years,
(2) tetracycline 500 mg b.d. for 2 years then placebo for 3,
(3) placebo for 2 years then tetracycline for 3,
(4) tetracycline for all 5 winters.

In addition all patients had exacerbations treated with tetracycline. The results were rather similar to the previous trial namely that chemoprophylaxis only produced a significant reduction in the number of exacerbations in those patients who had more frequent attacks (more than one each winter). There was no overall statistically significant reduction in the number of exacerbations, nor any effect on the number of days lost from work or rate of decline of FEV, nor did the sputum volume or purulence appear significantly reduced. In both these trials the tetracyclines were tolerated well and no significant resistance to tetracycline occurred in organisms cultured from the sputum of those receiving prophylaxis. These trials did not suggest that such