EDITORIAL
Chemotherapy in Tuberculosis

Chemotherapy in tuberculosis was revived when the sulfa-
mides were found to be efficacious in controlling certain infections. Although none of these preparations proved of value in the treat-
ment of tuberculosis, another group of compounds known as sul-
one derivatives was employed by Feldman, Hinshaw, Pfuetze, Fetter, Medlar and others.1,2,3,4 The three most extensively used drugs in this group are known as promin, diasone and promizole. The immediate effect of these preparations on experimental tubercu-
losis was remarkable. However, further observations revealed that they apparently only suppressed the disease, since sensitivity to tuberculin was not lost in any treated animal. Moreover, in animals apparently successfully treated for a prolonged period, the disease reactivated and caused death after medication was stopped. The same sulfone derivatives were administered for tu-
berculosis in humans but while some apparently encouraging re-
results were observed, none proved entirely adequate.

When penicillin was found to be so effective in destroying certain infections it was immediately used in tuberculosis in animals and human, but it proved to be of no avail. Recently another anti-
bacterial substance, streptomycin, made from the organism acti-
nomycetes griseus, has been found to exert impressive effects in vitro and in vivo against the tubercle bacillus. Feldman, Hinshaw and Mann5,6 found streptomycin is effective in resolving or suppressing established experimental tuberculous infection in guinea pigs. In most instances the drug exerted a suppressive rather than a sterilizing effect; however, in approximately 39 per cent of the animals successfully treated the sensitivity to tuberculin disappeared, thus suggesting that a germicidal effect was exerted. Moreover, these animals were found to be sufficiently free from tu-
bercle bacilli that the organisms could not be detected by the most delicate means of study; namely, infection of other guinea pigs with emulsions from the spleen. This suggests to Feldman and Hinshaw that if sufficient doses of streptomycin are admin-
istered for an adequate length of time to guinea pigs, actual steril-
ization may not be an impossible goal. The authors reported that the streptomycin preparations used had a low toxicity for guinea pigs in doses of 6000 units per day and were tolerated without recognizable deleterious effects for a prolonged period.

Smith and McClosky7 treated a group of tuberculous guinea pigs with promin and another group with streptomycin and reported
that streptomycin has a chemotherapeutic index better than ten times that of promin. When they used a suitable combination of streptomycin and promin they obtained results which under their experimental conditions they had not obtained previously.

A preliminary report of a study of the effects of streptomycin on tuberculosis in humans by Hinshaw and Feldman is encouraging. Thirty-four patients who had tuberculosis were treated with streptomycin over varying periods of time, with subsequent observation for periods up to nine months. It appeared probable that the drug exerted a limited suppressive effect, especially upon some of the more unusual types of pulmonary and extra-pulmonary tuberculosis. No convincing evidence of rapidly effective bacteriocidal action was obtained. However, apparently significant improvement was seen in cases of early and extensive hematogenous forms of pulmonary tuberculosis, early miliary disease, tuberculosis of the genito-urinary tract and suppurative tuberculous lymphadenitis.

Any drug capable of destroying tubercle bacilli in the human body will be most effective if administered soon after the initial invasion occurs. Periodic tuberculin testing of uninfected individuals, which now constitute the majority in this country, will detect primary tuberculosis if it develops with almost 100 per cent accuracy within eight weeks after tubercle bacilli are focalized. Then and for some time thereafter one might expect to destroy all tubercle bacilli with a satisfactory chemotherapeutic agent. Thus the disease could be cured in the strict sense of the word before it has caused significant destruction of tissues. The only criterion of such cure would be the complete loss of allergy to tuberculoprotein, as indicated by subsequent tuberculin tests.

J. A. M.

REFERENCES