STEROIDS

Trial of Antiandrogen

from a Correspondent

MANY men, possibly as many as 50 per cent of those over the age of 60, suffer from enlargement of the prostate to the extent that the urethra is constricted leading to urine retention. The usual form of treatment is surgical, but, as an alternative, hormones and hormone antagonists have been used.

It is known that the male sex hormone is involved in the normal growth and functioning of the prostate and is assumed to play a part in the development of benign prostatic hypertrophy. Hormones with antiandrogenic activity have thus been used in treatment, but unfortunately most of these have disadvantages—the use of oestrogens causes feminization and the use of potent synthetic progestins usually leads to a decrease in production of testicular hormones by suppressing gonadotrophin release from the pituitary. One synthetic antiandrogen, cyproterone acetate, seems to have a beneficial effect, but, over a long period, it also seems to decrease spermatogenesis and leads to loss of libido and potency. These effects again probably result from an inhibition of gonadotrophin secretion by the pituitary.

There is also a high incidence of prostatic hyperplasia in dogs. Neri and Monahan now describe (*Invest. Urology*, **10**, 123 ; 1972) the effects of treating dogs with a non-steroidal antiandrogen, 4′-nitro-3′-trifluoromethylisobutyranilide. Sixteen aged dogs were given the compound orally for 6 weeks and a further three dogs were treated with the compound for 1 year at a dose level of 5 mg/kg. The volume of the prostate and the height of the epithelial cells were significantly reduced after treatment for only 6 weeks and these changes were accompanied by a reduction in the secretory function of the prostate as shown by a decrease in acid phosphatase activity and protein content of the gland and by electron microscopic studies. After 6 weeks of treatment the dense secretory bodies, vesicles and the Golgi apparatus, which were seen in the pre-treatment biopsies, were absent showing a loss of secretory function. The testes, as shown by examination of biopsies, appeared unaffected by the treatment and there had been no decrease in the level of plasma testosterone. Within 8 weeks of stopping treatment, the atrophied prostate reverted to a hyperplastic condition.

When given orally, the compound seems to be equally potent as cyproterone acetate, a steroidal antiandrogen which competes with androgens at the target organ receptors. 4′-Nitro-3′-trifluoromethylisobutyranilide, however, unlike cyproterone acetate, does not have the progestational activity which may be responsible for the pituitary inhibition, neither does it seem to have any other hormonal activity. Furthermore, it does not seem to produce any undesirable side-effects, so that results of trials in humans will be awaited with interest. Even if the results are not so striking in man as in dogs, at least they may lead to some decrease in prostatic size with an improvement in rates of urinary flow.

ENVIRONMENT

Pressure from Pleasure

from our Plant Ecology Correspondent

THE swing in ecological research towards the study of human effects on the environment became evident at a recent symposium of the British Ecological Society in Sheffield (January 2–4). As well as recurrent pollution themes the ecological problems resulting from recreational pressures on the environment received considerable attention and there is evidence that recreational ecology is passing from a descriptive phase (pioneered by Baker in 1935) to an experimental phase.

The current interest in the countryside among the general populace has led to a considerable increase in demand for access to areas which are sensitive to heavy trampling. Dr N. J. Bayfield (Nature Conservancy, Banchory) described how upland footpaths in such areas as the Cairngorms and along the Pennine Way are deteriorating seriously as a result of increasing numbers of people using them each year. One of the greatest problems is that of lateral spread of footpaths, laying bare additional areas of soil. Dr Bayfield has found that this effect increases with soil wetness, and becomes most severe in the upland bog areas of the Pennines which are particularly sensitive to trampling. Path width is inversely related to roughness of terrain, a fact which suggests that the best sites for paths are the roughest areas.

Some experimental work reported by Dr E. A. G. Duffey (Nature Conservancy, Monk's Wood) indicates that invertebrate animals are even more sensitive to trampling than are most plants. He placed plant litter in nylon bags and laid them in experimental plots on the surface of soil beneath grass. He then subjected them to two levels of trampling (60 and 120 treads per annum) for a year. The effect of the trampling was to fragment the litter and reduce the air space from 63 per cent in the control to 54 per cent and 37 per cent in the two treatments, as measured by thin sectioning of embedded material. The numbers of animals present in twenty-five litter bags were reduced by half and the number of species present by three-quarters, but there were no marked differences between the two treatments. This indicates that animal populations are being severely affected at trampling levels which are too low to affect the composition of vegetation.

Vehicles, of course, can also have a considerable and harmful effect upon vegetation. Dr M. J. Liddle (Bangor) described how vehicle tracks on sand dunes at Aberffraw, Anglesey, first

More of the MS2 RNA Sequence

FIERS and his colleagues at the University of Ghent are continuing remorselessly to what must be their ultimate goal, the determination of the complete sequence of MS2 phage RNA. Having already determined the sequence of the coat protein cistron and part of the replicase subunit cistron, they report in *Nature New Biology* next Wednesday (January 24) the sequence of the codons specifying the last forty-five amino-acids of the assembly protein cistron and the sequence of the intercistronic divide (twenty-six bases) between the assembly protein and coat protein cistrons. Furthermore, Vandekerckhove, Nolf and Van Montag in an accompanying article report the amino-acid sequence at the carboxy terminal end of MS2 assembly protein. This amino-acid sequence is precisely that predicted from the base sequence reported by Fiers *et al.* From their analysis of MS2 RNA, Fiers *et al.* conclude that all sixty-one sense codons of the genetic code are present in this phage genome albeit at different frequencies.

Also in *Nature New Biology* next week Federoff and Zinder report about the requirement of host cell factors during the replication of Qβ RNA and f2 RNA. Federoff and Zinder find that the f2 replicase, a much less stable enzyme than Qβ replicase, requires a dissociable host cell factor when it uses both f2 viral RNA and complementary f2 minus strands as template for RNA synthesis. In the absence of this factor the f2 enzyme can, however, use poly (C) as a template for the synthesis of poly (G). Furthermore, the factor required by the f2 replicase seems to be different from those required by phage Qβ replicase when it uses Qβ viral RNA as template. The precise nature and function of these host factors in the replication of the RNA genomes of the RNA phages remain, however, to be elucidated.