top is removed, and those flies that fly out are considered uninjured by handling and marking. 10–25 per cent of marked *G. palpalis* come to rest within the 125-ft. searching radius of the machine, the great majority of them alighting very close to the point of release.

Approximately 50 recoveries of marked specimens of the open woodland species, *G. submorsitans*, in a forest-island breeding site, revealed the flies resting on twigs, leaves and small creepers at heights ranging from 1 to 15 ft., with the majority above 7 ft. It would appear, then, that this species' daytime resting preference for tree trunks, at least when gorged[4], should be considered when planning control by residual insecticides.

Both species' habit of resting on leaves and twigs at night might be a means of avoiding predators such as ants and jumping spiders, the vibration of the predator's approach serving to alert the fly, whereas a branch or tree trunk daytime habitat would permit maximum visibility in the fly's search for a host.

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Sex-limited DDT-Resistance in House-flies

A new mechanism of inheritance of DDT-resistance has been investigated in a selected strain of house-flies (*Musca domestica* L.) wherein resistance is manifest only in males. Genetic tests have shown that the resistance is transmitted by males but not by females. It is therefore determined either directly by a *Y*-chromosome factor or, like sex in *Drosophila*, by the balance between the unpaired parts of *X* and *Y* and the rest of the chromosome set.

Evidence for the existence of this patrilineal inheritance dates back to 1954 when an attempt was first made to derive a homogeneous susceptible strain from the Canberra laboratory colony[1] which, although bred since 1939 in isolation from insecticides, had been found to contain a DDT-resistance factor in a small proportion of both males and females. Selection for early maturation (giving strain *E*) eliminated resistant females by the sixth generation, but the strain continued to produce some resistant males which, during a further 68 generations, increased in proportion to about 75 per cent of males produced.

At this stage a complete separation of resistant and susceptible males was effected in a single selection by breeding, on one hand, from males which survived a topically applied dose of 32·0 μgm. DDT/gm. body-weight, and, on the other hand, from males which when tested later were killed by a dose of 11·2 μgm. DDT/gm. The two strains so obtained were designated *EY* (early, with resistance involving *Y*) and *ES* (early, susceptible).

Males and females of *ES* and females of *EY* constitute three similar and apparently homogeneous populations in respect to their tolerances to DDT, which lie between 2·0 and 11·2 μgm./gm. *EY* males are consistently about eight times as resistant, their tolerances ranging from 16·0 to 128·0 μgm./gm.

Strain *EY* has bred true without any applied pressure since the initial selection. All its males are specifically DDT-resistant and all its females non-resistant. It contrasts markedly with previously described strains of houseflies, for in these resistance to DDT has been found to be autosomally determined and not sex-linked or sex-limited[2–4]. A fuller account of this work will be published elsewhere.

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BACTERIOLOGY

Intermediary Metabolism of Nitrobenzoic Acids by Bacteria

Ke *et al.*[1] have recently reported that the aerobic degradation of *o*-nitrobenzoic acid by a *Flavobacterium* involves the *o*-nitroso and *o*-hydroxylamino compounds. The corresponding amino-derivative, anthranilic acid, was not oxidized, their paper implying on the basis solely of manometric data that it was not a potential metabolite of *o*-nitrobenzoic acid although they found that cells grown on anthranilic acid could oxidize both it and salicylic acid. We wish to direct attention to the fact that although the aminobenzoates may not always be directly concerned in aerobic degradation of nitrobenzoic acids, they are nevertheless important intermediary metabolites.

We had previously recorded identical responses to those reported by Ke *et al.*, with *p*-nitrobenzoic acid and its derivatives, using cells of *Nocardia erythropolis* grown in the presence of *p*-nitrobenzoic acid, and with *o*-nitrobenzoic acid using cells of *N. opaca*, grown in a medium containing *o*-nitrobenzoic acid[2]. Although the aminobenzoic acid in both cases was not appreciably oxidized, it nevertheless accumulated in culture media. Work with cell-free extracts has shown that in addition to oxidation of the substrate, *N. erythropolis*, at least, carries out an appreciable, simultaneous reduction of the *para*-isomer to *p*-aminobenzoic acid by a pathway involving *p*-nitrosobenzoic and *p*-hydroxylaminobenzoic acids[3].

In contrast to Durham's earlier work[4,5] and the recent report of Ke *et al.*[1], no further oxidation of the aminobenzoates through the corresponding hydroxybenzoates has been found with our species of *Nocardia*. Cells of *N. opaca* grown on anthranilic acid failed to oxidize salicylate and growth of *N. erythropolis* was not maintained on *p*-aminobenzoic acid[6]. The use of desiccator-dried preparations of *N. opaca* showed that permeability factors were not responsible for absence of activity in that particular case.

The scheme of Ke *et al.*[1] whereby *o*-hydroxylaminobenzoic acid is metabolized to cellular material without passing through anthranilic acid is interesting in view of some results we obtained with *N. erythropolis*, which oxidizes *p*-nitrobenzoic acid through *p*-hydroxybenzoic acid to protocatechuic acid, also without the mediation of the amino-compound.