both of which were heterozygous. In this connection, it is of interest to note that this female was also of the small or dwarf type and that the male under consideration has shown a variable fertility with periods of diminished secondary sex characters and complete sterility. It has been found, however, that matings between heterozygous females and normal males produce only normal young, as in the case of affected male × normal female. No homozygous animal of either sex has been encountered among those tested.

The condition described is unquestionably inherited, and it is evident that in the F_1 generation the character is completely recessive. On the other hand, it is known that in matings between heterozygous parents the abnormality may be expressed in heterozygous males as well as in homozygous individuals, and that the homozygous form is apparently lethal. Until this situation is cleared up, ratios of normal to affected individuals can not be interpreted with certainty.

The disease described appears to fit into the syndrome which, at present, is associated with over-activity of the growth-promoting hormone of the pituitary. The apparent disturbance of thyroid function in certain cases may likewise be attributed to a pituitary abnormality affecting the thyrotropic hormone. In this instance, however, there is some evidence of an appreciable degree of differentiation, or separation, of cutaneous and skeletal manifestations of functional disorder. But further experiments will be necessary to determine the etiology of the condition as well as the precise mode of its inheritance.

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THE MODE OF PENETRATION OF PEAR AND APPLE BLOSSOMS BY THE FIRE-BLIGHT PATHOGEN[1]

A STUDY of the mode of penetration of the fire-blight pathogen into pear and apple blossoms has revealed some facts which seemingly are significant from a point of view of possible control measures. Histological studies of both natural and artificial infections, which will be fully illustrated by photomicrographs and drawings in a later paper, reveal the following.

There is a well-defined cuticle covering the nectarial region of both pear and apple blossoms.[2]

The nectar, instead of exuding from naked cells, as commonly assumed, passes out through stoma-like openings, the openings seemingly being regulated by guard cells, as in true stomata. For these nectar-exuding structures the writer proposes, for convenience, the name "nectarthodes." They have previously been noted in nectarial regions of other blossoms by various authors.

In the nectarial region of pears and apples, the fire-blight pathogen gains entrance into the interior by means of these nectarthodes, though entrance through these is apparently not nearly as common on apple blossoms as on pear. The reason for this difference rests essentially in the narrow, elongated, tightly covered calyx cup, characteristic of apple blossoms during nectar flow, contrasted with the broad, open and shallow calyx cup, characteristic of pear blossoms.

In addition to penetration through nectarthodes, *Erwinia amylovora* has no difficulty penetrating the following: First, the stigmatic surfaces of both pear and apple gynoecia, the large glandular naked cells of these surfaces making penetration under suitable conditions a relatively simple matter. The manner of such penetration will be fully illustrated elsewhere. Second, the locules of the anthers, with a seeming passage into filaments. The passage from anther to filament has not been fully confirmed.

These common methods of penetration of pear and apple blossoms are additional to those which the writer and other investigators have previously reported, and which include penetration through stomata of calyx lobes and outer receptacle walls, as well as through petals.

If floral infections of apples depended entirely on nectarial penetration, what chance would there be of controlling blossom infection by depositing a germicidal spray with ordinary spray-equipment in such tightly covered plant parts?

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[1] Research Paper 352 Journal Series, University of Arkansas.

[2] Professor L. H. MacDaniels, of Cornell University, has confirmed and amplified the writer's findings concerning cuticular covering of nectarial regions of pear and apple blossoms.

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