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gations of Howlett on the frait-flies of the genus Dacus in which the males are attracted by the eugonol oils, iso- and methyl-eugonol, which are constituents of oil of citronella.

The control of outbreaks of the larvæ of Arctiid moths in India by the capture of the adult moths in bait traps of the Andres-Maire pattern is an example of the manner in which practical advantage may be taken on a large scale of a chemotropic response.

The negative chemotropic reaction of insects is illustrated in the practical use of repellent odors. *Musca domestica* is repelled by certain coal-tar products such as phenol; the protection of cattle from biti flies and of man from mosquitoes is secured by the use of repetter mixtures.

Turning now to a problem of great biological interest and practical importance, namely, the different behaviour of the same species of insect to different plants, we find that what would appear to be fundamentally a chemotropic reaction is sometimes responsible for the creation of a biologically different race of the same species. In his investigations on blueberry insects in Maine, Wood has found a form of Rhagoletis pomonella infesting blueberries (Vaccinium) and huckleberries (Gaylusaccia baccata) that is below normal size, and this form appears to be long-established as efforts to get the apple-bred race to oviposit on blueberry and vice versa, failed. The physiological influence of the host plant upon the insect feeding upon it and the creation of biologically different races which may differ suffire the separated as species by the tendency of members of a sing olyphagous species of insect to become adapted to a particular food plant is strongly suggested by Cameron's study of the Ical-miner Pegomyia hyoscyami Panz. which feeds on belladerna (Atre a belladonna). Within this category we should also inclus. I believe, the case of the Arizona wild cotton weevil (Anthonomus grandis thurberia Pierce). The production of morphological changes by a change in food plants has been observed in like manner in the case of Aphides. These chemotropic responses, for that is essentially their nature, have as important a relation to the work of the taxonomist as to that of the applied entomologist.

A subject which promises results of great practical value is the study of the resistance of plants to insect attack with a view to the production of insect-resisting varieties in crops subject to injury. Comparatively little attention has been paid to this further example of chemotropic reaction, but the development of strains or varieties completely or even partially resistant to the attacks of particular insects attacking them, would place a valuable preventive measure in our hands. This is a field for joint investigation by the entomologist and the plant-breeder.