identical with the degenerative changes in the adrenals which we have recorded[1] as developing regularly in male and female mice of mixed strains after the continued application of œstrin.

A detailed account of these observations will be published soon.

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[1] *The Lancet*, i, 247 (1936).

Wing Abnormality in *Locustana pardalina*

I ENCLOSE photographs (Fig. 1) of two locusts with the following history: The eggs were hatched and the young reared inside, in glass, so that the only sunlight that could reach them was screened through two layers of glass; other conditions were identical with such as produced perfectly normal flyers. They remind one strongly of similarly localized (and similarly produced?) abnormalities in *Drosophila*, and we may legitimately assume that the abnormality will be hereditary.

Most of the young were used for experimental purposes, but eleven remained over by the time that they were ready to undergo the final moult. Of these, three died immediately after the moult, the wings remaining small and crinkled. Four survived the moult but with wings as in the photographs, and four were apparently perfectly normal.

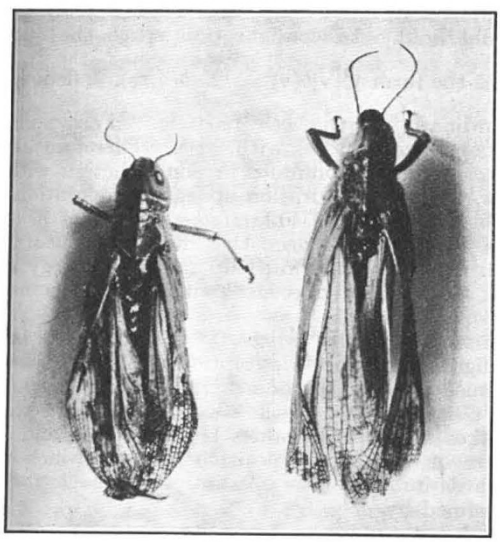

Fig. 1.

LOCUST WITH ABNORMAL WINGS. THE LEGS OF BOTH SPECIMENS WERE BROKEN OFF AFTER DEATH.

About a fortnight after the moult, the eight locusts were sprayed with a suspension of a *Micrococcus* sp. in the form of a fine mist: all four abnormal locusts died (the first two, the last nineteen days after infection); the four normal ones are still alive. The course of infection is the same in all—the fæcal pellets, 24 hours after infection, were in the mornings red, jelly-like and swarming with *Micrococcus*; after feeding, the pellets become more or less normal with only a light infection. The live ones are still (nearly a month after infection) passing such pellets. In those that died, the rectal matter suddenly became a very acid, brown, slimy liquid with a massive *Micrococcus* infection.

The abnormal wing character is thus associated with a loss of constitutional vigour, the latter being revealed by non-survival of the last moult and by decreased resistance to bacterial attack. This is, of course, no new phenomenon; idiocy in man is almost constantly associated with small bodily size, a short expectation of life and an increased susceptibility to disease.

Cases such as these add force to the objections that have been raised against the mechanistic preformationalism of modern genetics; they indicate in no uncertain way that the injuries concerned are of a constitutional character—injuries of the organism as a whole—which may be expressed as definitely localized abnormalities, perhaps particularly in the latest ontogenetic developments; they seem to indicate that genetics deals not with primary and independent but with secondary phenomena, dependent on, or modifying, 'holistic' changes.

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McCormick and the Reaping Machine

IN NATURE of December 26, p. 1088, a note appears referring to twelve notable American inventions. Among these is included a practical reaping machine by Cyrus McCormick. Cyrus McCormick was not the inventor of the first practical reaping machine. No doubt the American firms concerned with the manufacture of reaping machines have loudly and persistently claimed McCormick as the inventor of the reaping machine, and some British writers, who should have known better, have accepted this claim, but it has been repeatedly disproved that McCormick has any claim to be considered the maker of the first practical reaping machine.

Early in the nineteenth century there were many attempts to make reaping machines, and some of these attempts attracted considerable attention. The first really practical machine which was able to cut a harvest and continue to do so year after year was made by the Rev. Patrick Bell, in 1828, when he was a divinity student at the University of St. Andrews. A full account of this machine was published in 1828 in the *Quarterly Journal of Agriculture*. The original machine, which Bell made with his own hands with the assistance of the local blacksmith, is now in the Science Museum at South Kensington. This machine was used on the farm of Bell's father and afterwards on the farm of his brother for many years.

The earliest year in which it is claimed that McCormick produced a reaper is 1831, but no proof can be produced to show that he made any machines until several years later. By that time several of Bell's machines had found their way to America.

It is claimed on behalf of McCormick that Bell never patented anything whereas McCormick took out his first patents in 1834, and further patents in 1845 and 1847. Bell's reasons for not patenting anything have been given to us by himself and were of the highest and most honourable kind. He considered it to be his duty to present his invention freely to the agricultural public and not to add to its cost by any royalties or profits accruing to himself. He tells us

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