

A number of "extreme variates" are noted, which the author declines to call mutants, but in later discussions refers to as "mutants." It seems to me the quotation marks might well have been left off. The author maintains "that 'mutation' is not a special kind of variability different from that of 'ordinary fluctuating variation,' but it is a part of the normal variability, and the direct response of the germ plasm to stimuli." If I understand the case correctly, these "extreme variates" are quite extreme; they are rare, occurring only once in 6,000 cases; and *breed true*, a thing which ordinary variates do not do. This is my idea of a mutant. The mere question of terms, however, is relatively unimportant. The fact is, Tower has given us one of the strongest arguments for the importance of mutations that has ever been presented, although he seems to think otherwise. He says: "The breeding 'mutants' in our gardens and laboratories can not tell us how they would succeed in nature; my experience with these beetles is that they fare badly, and, as far as I can discover, that they play a minor role in the evolution of species." However, he had already stated (p. 273 *et seq.*) that not only did *pallida*, one of the "mutants," breed absolutely true for six generations in the laboratory with "no tendency to revert to the parental species" (*decemlineata*), but that from 14 males and 15 females allowed to shift for themselves in nature, 1,580 *pallida* offspring of the 6th generation were found, and he "felt that further experiment with this form unconfined in nature was neither safe nor desirable, and exterminated the entire lot." It is true that 29 *pallida* is more than he ever found in nature at one time and place, but he did find 6 at Clifton, Ohio, and he noted that occasionally, as at Cabin John Bridge, Md., in 1900, sports are relatively very abundant. *Pallida* is only one of a number of similar cases that Tower found. If I had been so fortunate as to obtain his results I would have drawn quite the opposite conclusions, and would have supported the mutation theory most loyally, believing it to be the statement of one, at least, method of evolution.

But the cream of Tower's paper has not yet been noted. After discussing (Chap. III) the ontogeny, chemistry, etc., of coloration in *Leptinotarsa*, and showing that marked colour variations can be brought about by varying the environmental conditions during development, but that *these variations are not inherited*; and after treating of habits, assortative mating, etc., in Chapter IV, he shows in Chapter V how *inheritable variations can be brought about artificially*. Selection alone is apparently