cyanide and plugged it up. In two days the scale began to fall from the tree and in a few days all appeared dead. Others hatched and attacked the tree, but lasted only a short time, and the tree has since been free from scale and very vigorous.

At the same time I bored a similar hole in an old peach tree which seemed to have passed its usefulness and put a like charge of potassic cyanide in it. The tree has since seemed more vigorous than before, and raised a fair crop of peaches. After feeding some of them to chickens and a rabbit with no apparent ill result, I ate some of the peaches, and could find nothing wrong with them. I have since put a similar charge of the cyanide in an orange tree with no apparent bad effect.

It would seem from this experiment that it is possible in some kinds of trees, at least, to poison scale and sap-eating insects without injury to the tree. The method would seem to be especially adapted to killing various kinds of borers and insects which, like the pine beetles, burrow beneath the bark.

Fernando Sanford
Stanford University, Cal.,
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Laboratory Cultures of Amœba

To the Editor of Science: While *Amœba* may appear in hay infusions within five days, even when in sufficient quantity, it is often not desirable for laboratory study on account of its extremely small size. Again standard text-books of general biology give tolerably certain methods for obtaining the organism, within, however, a much longer time—in some cases from 5 to 6 weeks. The writer hopes that certain notes on this part of the laboratory routine may be of help.

In preparing laboratory cultures of *Amœba* during the past three years, he has been led to collect material for his infusions from a number of different types of environment—stagnant and freshwater ponds, swamps, sewage polluted streams, etc., and to make *composite* cultures of the material obtained. Such cultures, if not infertile, in the writer's experience rapidly attain the peculiar balance necessary for the flourishing growth of the organism, and yield in a comparatively short time, in one case as early as six days, a type of *Amœba,* which, if not always large, presents considerable advantage over that inhabiting the hay infusion. Such cultures have been available for study as long as eight days. Very frequently, too, there are produced an abundance of Spirillæ, etc., which the *Amœbæ* obligingly ingest, while the whole microcosm seems to be one superior to that obtained in the infusion as ordinarily made. A number of control cultures made at the University of Pittsburgh and the Osborn Zoological Laboratory, Yale University, showed that *Amœba* eventually appeared in one or more of the components of the composite culture, but in every case later. Without any attempt at explanation, it seems to the writer, that there may be some parallelism between the condition of environment obtained in such a composite culture and that in the "varied environment medium" as described by Woodruff.[1] In conclusion, it is noted that the results of the experiments have always remained fairly uniform, although widely separated geographical localities have been involved.

N. M. Grier
Biological Laboratory,
University of Pittsburgh

The Origin of Mutation

The word mutation appears to have suddenly arisen in 1650, according to Lock. It appeared again independently two hundred and nineteen years later. This recent advent (1869) has been termed the "Mutations of Waagen" (1912). Darwin at times spoke of species as "mutable," and de Vries (1901) has made the word famous.

Since in the pages of this journal and elsewhere in the States there has been an attempt to show that the word was preoccupied in a sense different from that in which de Vries used it, the following quotation from Lock, "Recent Progress in the Study of Variation, Heredity and Evolution,"[2] may be interesting.

[1] *American Naturalist,* XLII.

[2] Third edition, 1911, p. 124.