the owl's account of his mistake, though I doubt not he is as badly frightened as the more injured party.

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THE writer was conducting some experimental work in orchards in west central Illinois and staying at a farmhouse several miles from town. One evening early in June the owner of the orchard, the farmer occupying the place and the writer were sitting in front of the farmhouse under a large tree just at dusk of evening. The weather was hot and none of the party were wearing hats. Suddenly a screech-owl flew from one of the trees to the head of the farmer and attacked him with claws and beak, inflicting several rather severe lacerations on the top of his head and his forehead. The farmer, not approving of this demonstration on the part of the owl, promptly retired to the house, secured his shotgun and to use his own expression "blew a hole through the middle of the owl."

This owl was the male of a common screech-owl *Otus asio asio*. Another owl, presumed to be the mate of the one killed, was noticed the same evening and on a number of other occasions in the trees in the yard but never showed any inclination to molest any one before or after the death of her mate.

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SYNCHRONOUS FLASHING OF FIREFLIES

DR. BROKENSHIRE, a medical missionary in Mindanao, in an article "Through Philippine Jungles" in the September *Missionary Herald,* concludes with the paragraph copied below which will appeal to those who are interested in the synchronous flashing of fireflies.

> It got dark. Then all one could see was now and then a flash of light from the shore where the Moros were living. The combination of darkness and the continual thumping of the paddles made me sleepy and I dozed off several times. I aroused once to see a strange sight. Off there in the darkness was a tree just filled with lightning bugs. The strange thing was that they all flashed at the same time. One second everything would be dark, the next second the whole tree would be aglow with a beautiful light!

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

"VITALITY" STAINS

As a preliminary report to work which is being continued on the physiological effects of vital stains, the following summary of observations is offered.

Methylene blue, neutral red, Bismark brown and Janus green were used in concentrations of 1/12,500 and 1/5,000 in sea-water with *Aurelia aurita* and *Gonionemus murbachii*. The largest and most active individuals were selected from a total of 75 Aurelia and 850 specimens of Gonionemus which were examined. Only the first two stains were used with Aurelia, which were stained for a period of two hours. The specimens of Gonionemus were stained for only forty-five minutes. In each case the animals were washed in several changes of sea-water before being placed in a running salt-water aquarium where observations were made.

The stains in each case had the effect of a stimulant, causing increased activity for a period considerably longer than was observed for the controls after being placed in the observation aquarium. In one case there was intermittent activity for over an hour, while the controls ceased activity within two minutes. With Aurelia the controls died before any of the stained individuals, twenty-one days after starting the observations. The stained individuals were normally active ten days later.

With a series of thirty-six individuals of Gonionemus, it was found that the individuals stained with Janus green died in about ten days while all the others lived at least three weeks. Relative activity was determined by response (pulsation of the bell) to pinching by forceps of a tentacle near the sucking disk. This stimulus was regarded as relatively uniform. At the conclusion of the observations the individuals in the order of decreasing activity (vitality) were as follows: neutral red, methylene blue, Bismark brown and the controls. The Janus green individuals had died.

References in literature to vital stains lead us to think that they are all toxic, but that some are less so than others. This is quite possible, but these few observations direct us toward further observations, for in each case the stained individuals either outlived the controls or were more active than the controls at the conclusion of the observation period. Certain ameboid cells of Aurelia were seen to contain concentrated masses of limited size of the stain, and it is suggested that vital stains may in some way increase the activity of these particular cells. These ameboid cells may have as their main function the protection of the individual against invasion by foreign substances.

These commonly known "vital" stains seem (except for Janus green) in the case of Aurelia and of Gonionemus to increase somewhat the vitality and