kers so that it would be possible to determine the species and thus know if it is abnormal habit.

The nest in question consisted of a globular portion which was abruptly contracted below into a long, slender, vertical neck of practically uniform diameter. This slender neck served as the only means of entrance into the structure.

The writer wishes to state that he once found one of these unique nests at Oxford, Mass., many years ago. This nest was kept as a curiosity in the writer's collections for many years and did not fail to excite the wonder and admiration of those who saw it. In size and shape this nest was similar to the one found by Newhall at Shelburne, Mass. Newhall states that he found his specimen under the eaves of a building. As well as the writer can remember, the nest which he found at Oxford, Mass., was suspended from a small branch of a tree not far from the ground. The maker of the nest was never seen. Although the writer has always kept a sharp eye open since for other specimens of this kind, none has ever been seen. It would be of considerable interest to know whether the two unique nests in question really represent abnormal deviations of habit for some well-known species, or the normal habit of nest-construction for a very rare and little known, or even unknown, species.

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SYNCHRONISM IN THE FLASHING OF FIREFLIES

THE articles on the flashing of fireflies which have appeared from time to time in SCIENCE have aroused my desire to experiment upon the subject. The presence of two individuals of the firefly, *Photuris pennsylvanica* DeG., in my tent at the University of Michigan Biological Station at Douglas Lake, Mich., on the evening of July 17, 1917, gave me my first opportunity. With the tent dark, I watched the two fireflies for about ten minutes. For a while they flashed alternately, but it soon became apparent that one was flashing a trifle more frequently than the other. Consequently, once in every two and one half to three minutes flashing was simultaneous. Then for about twenty minutes I experimented with a three-celled vest pocket flashlight with the following results. I could easily get in rhythm with the firefly, but I could not make the firefly change its rhythm and keep with me. Sometimes the fireflies would stop while I was flashing the light and again they would continue to flash after I stopped flashing. At no time could I control their flashings. The flashlight and the two fireflies flashed simultaneously when I synchronized with one of the fireflies until its time interval brought it into coincidence with the other.

On the evenings of July 19 and 25, 1917, I had opportunity to carry the experimentation further—on each occasion with a single firefly. The same kind of results were obtained from these experiments. However, I discovered that when I brought the flashlight within 25 centimeters of the firefly it ceased flashing and did not recommence until after I had ceased flashing or until I had moved the flashlight back a meter or more.

On many evenings at the College of Agriculture of the University of the Philippines, at Los Baños, I have watched splendid fireflies, of which there are large numbers in the immediate vicinity. I frequently noticed that small trees and shrubs would be more aglow at certain times than at others, but I never happened to observe a time when a small tree or shrub was all alight one instant and dark the next. In my experience there were always some fireflies flashing in the "*dark*" periods. The times of greatest light occurred when the greatest number of varying flashes coincided.

From these observations and experiments it seems to me that complete synchronism in the flashing of a group of fireflies is simply a very rare accident, occurring when the flashes of the individuals chance to come at the same time.

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UREDINIA OF CRONARTIUM RIBICOLA ON RIBES STEMS

DURING the past season uredinia of *Cronartium ribicola* Fischer have been discovered for

the first time on *Ribes* stems. Three natural stem infections were observed on a plant of *Ribes hirtellum* Michx. (*Grossularia hirtella* (Michx.) Spach) growing in a pine woodlot at Kittery Point, Maine. In this same woodlot two other isolated plants of the same species, inoculated with æciospores by applying the moistened æciospores to the unwounded green stems, developed respectively one and seventeen stem infections. Of the seventeen infections some were very evidently natural infections since they occurred at points on the stems where no æciospores had been applied.

Uredinia were produced on some of the stem infections from the middle of June until August 20. The urediniospores which were formed in these sori were apparently normal in every way. In the case of the other stem infections, where no uredinia appeared, study of sectioned material showed an abundance of mycelium and numerous well-formed internal uredinia in the cortex.

The discovery of sporulating uredinia on *Ribes* stems complicates the already difficult problem of detecting the disease on *Ribes*. In view of the observations recorded above, it must be concluded that no *Ribes* from infected regions can be declared absolutely free from the rust even when completely defoliated. Moreover, the presence of the mycelium and internal uredinia in the stem tissue is strong evidence that the disease does in some cases winter over on *Ribes*.

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SCIENTIFIC BOOKS

Dioptrographic Tracings in Three Normæ of Ninety Australian Aboriginal Crania. By DRS. RICHARD J. A. BERRY and A. W. D. ROBERTSON. Transactions of the Royal Society of Victoria, Vol. VI., 1914.

The volume at hand contains 270 "life-size" tracings of crania of Australian natives. The number of skulls dealt with is ninety, each one being represented uniformly from the front, side and top. The publication follows one of a similar nature in which tracings were given of 52 Tasmanian skulls, by the same authors, and reviewed by the writer in SCIENCE of December 16, 1910.

As to derivations, the skulls utilized with six exceptions are all from the southeast part of Australia, *i. e.*, from the region south of the Murray River; the six exceptions are from Queensland.

The authors accompany the publication with the statement:

> We are solely desirous of making available to our scientific colleagues elsewhere, material of a valuable character, and which is otherwise inaccessible, and which runs the further risk of being lost in the process of time unless so collected. We do not desire to impose our own deductions derived from a study of this material upon those who may hold different opinions from ourselves, and hence we do not incorporate here, nor did we do so with the Tasmanian tracings, the result of our own observations on highly debatable questions, with the material itself. The conclusions which we ourselves drew from the Tasmanian material have been published in the *Proceedings of the Royal Society of Edinburgh*, Volume 31, 1910, and similarly the conclusions which it is our intention to deduce from the present material will be made available elsewhere, and in due course. Thus those who desire to make use of the present material for other purposes will have a free hand both now and for the future.

As in the case of the tracings of the Tasmanian crania, anthropologists are thankful to Drs. Berry and Robertson for their painstaking work; but as the Tasmanian volume so the one at hand presents certain serious deficiencies which are badly felt and which can scarcely be compensated for by any subsequent publication on the series.

In the first place there is no identification and subdivision of the specimens according to sex. They are evidently all of adults, yet even this is not certain. But the most serious deficiency is the omission of all measurements. An illustration without at least two or three of the principal measurements does not convey, a full measure of confidence. It is probable