Meetings

Arachnid Behavior

Investigators of arachnid behavior summarized their research and suggested areas for future studies at a symposium (29 Dec.) during the AAAS meeting in Cleveland, Ohio.

In a discussion of the behavior of mites, G. W. Wharton (Ohio State University) pointed out a great variety of behavior patterns for a group as diverse as the mites and ticks. Most of what we know about these forms is of a descriptive nature; there is a need both for comparative studies and for a correlation of behavior responses with physiological patterns. It was noted that there are many different types of sense organs, including receptors for humidity, pressure, light, and sound, and many of these are not well understood. Reproduction usually involves the use of spermatophores, but there is a wide range of reproductive activity that will require much research before it can be explained. Some of the most unusual behavior patterns are found among the parasitic mites and among those associated with ant colonies.

B. J. Kaston (Central Connecticut State College) noted that spiders also exhibited a great variety of behavioral responses. Some of the theridiid spiders live as commensals and even as parasites in the webs of orb weavers. Many spiders have evolved unusual methods for capturing their prey, including special webs, bolos, or even the use of a single strand as a spring. Some spiders of the genus *Scytodes* snare their prey by means of a gummy substance ejected from their poison glands. Recent studies have indicated that spiders can orient their webs by the use of polarized light.

Modern systematic studies should be based on an extensive investigation of the comparative morphology, ethology, physiology, genetics and ecology of the group involved (J. D. McCrone, Florida Presbyterian College). Unfortunately most systematic work on spiders has been based almost exclusively on the findings of comparative morphology. It was shown that in the case of *Lactrodectus*, the genus containing the black widow, it is possible to separate three closely related species by means of their behavior patterns in nest building, responses to irritation, and activity rhythms. These findings correlated well with biochemical studies of the spider's poisons. Much more spider systematic work should take into account comparative behavior patterns.

In reviewing the behavior of scorpions, H. L. Stahnke (Arizona State University) noted that satiated scorpions can survive long periods of time in a limited supply of oxygen. Hungry scorpions respond very quickly to changes in light intensity, while satiated individuals are slow to react. These facts emphasize how important it is to understand the physical state of the animal under investigation in behavioral studies. It was also shown that even in as uniform a group as scorpions there is a great amount of variation in responses and activities of different species. Thus one should not generalize on behavior of a group from the study of a few species. Scorpions eat small invertebrates and vertebrates which they can capture. The body fluids of the prey are imbibed and the solid parts discarded.

A. L. Edgar (Alma College) described opilionids as having three general types of life histories. In most, only one stage of growth occurs at any one time. In others, where some adults survive the winter, two different stages may occur simultaneously. In a few others, several stages may be found at one time. There is also evidence from Edgar's studies that unmated adults tend to live longer than mated adults.

Maturation and mating in *Leiobunum longipes* results in leg-pulling contests between males and "shepherding" of the female by the male after copulation. Proprioceptor organs are located on all appendages and act as an alarm system when stress occurs. Apparently many diverse types of sense organs are present, but their investigation has just begun. Most observations of opilionid behavior have been confined to northern species and much research is needed before a comparative ethology of the group can be written.

C. J. Goodnight (Purdue University) pointed out the paucity of information on the behavior of the whip scorpion. Available data indicate complicated behavior patterns similar in some respects to those of the scorpions. The phrynichids have a courtship pattern similar to that of the scorpions with their complicated mating ritual; they also use spermatophores.

This symposium pointed out the great variety of behavior patterns found among arachnids. While many observations have been made, a great many groups are poorly understood and much remains to be done before a comparative ethology of the group can be established. It was felt that arachnids make an ideal group for the study of comparative ethology. Once the behaviors of the different arachnid groups are better understood and analyzed, it may be possible to correlate behavior with physiological patterns.

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Initiation of Labor

An interdisciplinary conference on the initiation of labor was held in Princeton, New Jersey, 15–18 December 1963. Thirty-five scientists from nine countries attended the conference, which was intended to define the present status of knowledge in the field and to provide suggestions for research in areas of promise. The sessions were informal, without formal presentation of papers.

In the opening session the physiologic principles of the contraction of smooth muscle in the uterus were summarized by Walter Woodbury (University of Washington, Seattle). The change in the propagation of impulses over the uterus near term was pointed out. At term, impulses, once initiated, are continued over practically the entire uterus, whereas before this time propagation is much more localized. Uterine muscle, treated under appropriate conditions with progesterone, is blocked—that is, when it