Cave Geology. Five papers dealing with the development of limestone caves and their contained features were presented at the session on cave geology sponsored by the National Speleological Society. The growing interest in experimental methods was shown by R. O. Ewers in “Applications of experimental geology to problems in cavern development,” and in a paper entitled “A comparison between laboratory models and naturally occurring domes” by M. W. Reams. Data on an important aspect of cave geology were given by E. L. White and W. B. White in “Processes of cavern breakdown.” H. D. Holland explored some of the relationships which should be considered in investigations of cave excavation and speleothem development in his paper, “The chemical evolution of some cave waters.” “Dolomite speleothems,” by D. W. Deal, was presented by title.

John V. Thraikill,
Program Chairman

Zoological Sciences (F)

Significant advances in comparative endocrinology, modification and control of growth and differentiation processes, biological effects of fallout, and exobiology highlighted the many sessions presented in the zoological sciences. Increasing attention is being devoted to endocrine mechanisms in the developing insect, particularly the nature of hormonal substances. Several terpenes and alcohols have now been found to mimic the so-called juvenile hormone of insects, while sterols duplicate the action of the brain hormone (H. A. Schneiderman). Gottfried Fraenkel reported the discovery of a new hormone responsible for tanning of the cuticle of newly emerged flies. This hormone is under neurosecretory control and seems to be a product of the corpora cardica. Like many vertebrate hormones, it is entirely unspecific, being present in newly molted cockroaches and in the larvae and adults of beetles.

In the memorial session in honor of the late A. M. Schechtman, many current aspects of differentiation were touched upon: polyuridilic acid stimulation of C14-phenylalanine incorporation by cell-free systems derived from sea urchin eggs (Tyler); pinocytic uptake of blood proteins by the insect oocyte during the process of yolk formation (Telfer); reversal of regeneration polarity in planarian flatworms by controlling protein synthesis by means of chloramphenicol or colcemide treatment (Flickinger); the presence of “interferon” in conditioned media in which chorioallantoic membranes infected by Rous sarcoma virus had been growing, and its role in inhibiting viral growth in freshly immersed membranes (Ebert).

The study of developmental processes is being augmented by new approaches and new technical developments on a wide front. The behavioristic role of male vocalization in inducing full ovarian and oviduct development and egg laying, for example, was reported for an Australian parakeet (Brockway). The investigation of early development in mammalian material is being facilitated by such elegant experimental procedures as those of Mintz who combines mouse cleavage stages and follows differentiation; eight-cell-egg pairs and unions of up to ten whole eggs can give rise to “normal” blastocysts. The technique permits the combination of genetically or biochemically labeled blastomeres with normal cells and a study of their subsequent development.

A serious note was struck by several participants in the radioecology session who again pointed out the immediate and residual effects of nuclear blasts on plants and animals. Significant, if not immediately dangerous, increased levels of Sr90, I131, and Cs137 were found in milk, whole human body, and human thyroid in fallout areas (Pendleton et al.). On the other hand, a more uplifting tone was sounded by Colin Pittendrigh who discussed the feasibility of ascertaining and the desire to ascertain the presence or absence of extra-terrestrial life. Although vast sums and vast problems are involved in the study of exobiology, Pittendrigh feels, and probably speaks for most biologists when he notes, that not only are intriguing answers to be sought in the nature of life upon other planets, but, if it exists, its discovery will revolutionize man’s concept of himself and of the universe as well.

The newly elected chairman of Section F, replacing Ernst Caspari, is Dietrich Bodenstein, professor and head of the Department of Zoology, University of Virginia. W. Frank Blair (University of Texas) was elected committee-man-at-large to replace Orlando Park, who retired at the close of his 4-year term.

David W. Bishop, Secretary
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