Food of Salmon Parr

AN investigation of the stomach contents of salmon parr from the River Dee and its tributaries has been in process during the past twelve months, and, in view of the scarcity of published data on this subject, a preliminary note may be of general interest.

The feeding is totally indiscriminate, and a single meal may include representatives of a dozen or more species of animals taken at random from under stones (insect-larvæ), free water (Cladocera and small beetles), or surface-driftage (aerial and terrestrial arthropods), while the large number of dipteran flies (especially Empididæ and Mycetophilidæ), uniform in species, sometimes found within a single stomach suggests that the fish may have snapped at swarms in the air itself.

Until so late as the end of October, food organisms of sub-aerial origin are more numerous than aquatic types in the stomachs, and the numerical abundance of Hemipteran plant pests, especially those associated with the alder (some species of *Psylla* and of Cicidina), points clearly to the desirability of encouraging the growth of trees and shrubs along the banks of the streams, especially where the benthic fauna is poor.

Details of the full seasonal cycle and a list of food organisms will be published later.

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Ancient Egyptian Astronomy

WITH reference to Dr. O. Neugebauer's letter in NATURE of January 21, p. 115, on this subject, may I express concurrence in respect to the neglect of this matter? Whereas excellent work has been done by Daressy, Schott, Gundel and Zinner on the Continent and by A. Pogo in America, very little attention is being given to it in England.

The Stobart tables, to which Dr. Neugebauer refers, can, however, never be quite forgotten, since it was by them that Brugsch definitely identified the planets in the astronomical ceilings of the temples of Denderah and Edfu (Roman period), the two temples of Esneh (Ptolemaic period), the temple of Medinet Habu, the Ramesseum and the tomb of Seti I (New Kingdom). Similar identifications of the planets have since been made on the Karnak clepsydra (Amenophis III) and on the Senmut ceiling (Hatshepsut, say, 1500 B.C.) and by Daressy on a Tenth Dynasty coffin from Asiut (say, 2000 B.C.). Venus may perhaps be referred to in the Fifth and Sixth Dynasty Pyramid texts (say, 2500 B.C.). Recently I noticed the planets in the coffin of Heru-netch-tef-ef in the British Museum (about 350 B.C.).

The standard "schaema coeli" appears to have been developed about the beginning of the New Kingdom (say, 1600 B.C.) and consists normally of three registers, containing (1) the 36 dekans, Sirius, the superior planets, the "meta-dekans" and the inferior planets; (2) the northern stars; (3) the twelve monthly feasts.

In the preceding Middle Kingdom (say, 2000 B.C.), the scheme is simply one of four figures: the Goddess of Heaven, the Great Bear (Ox-leg), Sirius and Orion.

The Pyramid texts contain numerous references to Sirius and Orion.

Pogo[1] has studied the tables of dekanal stars and hours on the Asiut Tenth Dynasty coffins, and it is clear that, at that era, the Egyptian notions of time were most vague, and similarly the Eighteenth Dynasty Karnak clepsydra is by no means accurate. Even the table of dekans was never standardized, but differs from dynasty to dynasty.

It seems very doubtful if one can safely attribute much mathematical ability to the ancient Egyptians on the basis of the demotic texts to which Dr. Neugebauer refers. From the time of the foundation of the Museum at Alexandria, Greek methods appear to have been adopted. The Denderah planisphere shows that the essential features of purely Greek astrology had been incorporated into the Egyptian system in Roman times, and even the "ancients" (Petosiris and Nechepso), so frequently alluded to by classical writers, seem to have acquired many notions from the Greeks, if one may judge by the fragments of their lore contained in the writings of Firmicus.

For those who are interested, I may remark that the replica of the Karnak clepsydra in the Science Museum at South Kensington shows most of the features of the standard figure of heaven, and agrees in most respects with the oldest existing example, that from the ceiling of the tomb of Senmut.

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[1] *Isis*, 17, 6 (1932); *Osiris*, 1, 500 (1936); and in Gundel's "Dekane und Dekansternbilder" (1936).

Finance for Scientific Research

I SHOULD like to comment on the leading article in NATURE of January 28 on this subject.

I think that the best hope lies in approaching this matter in a truly scientific spirit, when the authorities, it is to be hoped, would not feel in duty bound to defend the present position nor would reformers require to attack it. Research associations were originally formed, with Government help, to introduce research into various industries, and there was a belief that the advantages of research to the industries would become so apparent that after a period industries would provide all the funds for research themselves.

In general, the industries have become convinced of the advantages of research, but their prosperity and hence their ability to finance research has been impaired by circumstances affecting their supplies of raw material and their markets at home and abroad, which have been beyond the influence of the research associations.

Research associations are supposed to confine themselves to research on the processes of their members and leave these other matters alone. In my experience, this limitation cuts off a most important field of research, and tends to preclude any large advance of economic importance. In many cases, certainly in textiles, a large part of the price of the finished article consists of the price paid for the raw material. Unless and until attention is paid to ensuring ample supplies of uniform quality and reasonable price, no amount of research upon processes will overcome the difficulties of British industry.

Again, a research association cannot undertake research to develop entirely new uses for its raw material outside existing channels, because it is working for members who are operating established