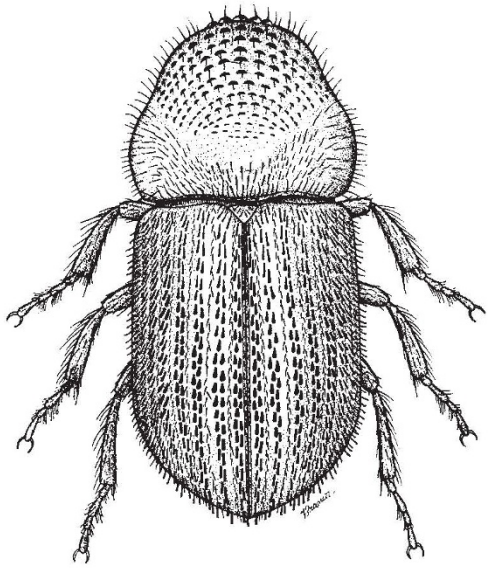
ENTOMOLOGY

Enemies of Trees



Two new species recently turned up among a consignment of bark and timber beetles presented for identification at the Plant Protection Research Institute in Pretoria. One of the hairy monsters was *Lanurgus oleaeformis*, shown here considerably larger than life (normal length is about 3 mm). K. E. Schedl, who has described the new species in the *Annals of the Transvaal Museum* (**28**, 177; 1970), suggests that South African foresters should beware of the damage that these beetles and their relatives could do.

RIBOSOMES

Slower Progress Now

from a Correspondent

In the wake of the recent international biochemistry congress (*Nature*, **227**, 1195; 1970) a ribosome workshop was held in Johgny-sur-Vevey, Switzerland, from September 10–11, under the auspices of the European Molecular Biology Organization. The general atmosphere was of a period of consolidation after the recent advances in the understanding of ribosomal assembly and the structure of ribosomal RNA. Nevertheless, in spite of the absence of any spectacular advances, some elegant pieces of work were described.

In the session on ribosome assembly, Dr A. Bollen (Brussels) described how he demonstrated that some of the double-helical regions in the 16S ribosomal RNA are involved in the attachment of ribosomal proteins within the 30S particle. He reconstituted 30S particles, using 16S RNA complexed with ethidium bromide, which specifically interacts with the double-helical sections. The attachment of the "core" proteins displaces the dye (which is followed by the decrease in fluorescence). Dr C. Kurland (Wisconsin) presented important quantitative results showing that the attachment of certain "core" proteins to the 16S RNA is an entirely specific process. Dr P. F. Spahr (Geneva) examined the ability of various proteins from the 50S particle (from *E. coli*) to bind to two large fragments of the 23S ribosomal RNA, with sedimentation coefficients of about 13S and 18S (produced by mild enzymatic hydrolysis carried out on the 50S particle; fingerprinting showed that the larger fragment probably arises from the 3'-terminus). A few of the proteins bound specifically to one or the other of the fragments, but most displayed some binding to either section, suggesting that the proteins might recognize multiple binding sites, widely separated from each other in the primary structure.

When ribosomal RNA was the topic for discussion, Dr Jordan (Marseilles) described his studies of the susceptibility of the 5S RNA to partial enzymatic hydrolysis. He was able to split the molecule in two (with a cut at position 41–42) and then recombine the halves. He also found that this point was particularly prone to hydrolysis when subjected to mild digestion of the RNA within the 50S particle, suggesting it is especially accessible to the nuclease. He noted that the point of hydrolysis is adjacent to the sequence —CCGAAU—, which could base-pair with the tRNA sequence GTψCG. The audience swallowed the implication with a large pinch of salt. Dr J. P. Ebel described some recent work by the Strasbourg group on the 16S RNA from *Proteus vulgaris*, which is similar in primary structure to that of *E. coli*, but has some differences which seem to be more frequent in some parts of the molecule than in others. Dr H. Wittmann (Berlin) produced a complete table showing which of the 30S ribosomal proteins correspond to each other in the classifications adopted by the various groups working on them. This mightily reassured the faithful. Other highlights of the session on ribosomal proteins included the work of Dr R. Brimacombe (Mill Hill), who digested 30S particles with ribonuclease and fractionated the resulting ribonucleoprotein fragments by electrophoresis on polyacrylamide gel. He extracted the proteins from the different fractions, and was able to show that some of the fractions were particularly enriched for certain of the proteins. Dr W. Moller (Leiden) described some of the properties of an acidic protein from the 50S particle, which is probably the only ribosomal protein to occur with a frequency of two copies per ribosome. He wondered whether it was in any way involved in directly interacting with tRNA, in the light of the existence of two tRNA attachment sites on the 50S particle.

A session on ribosomal structure featured largely the gross morphology of ribosomes, their degree of hydration, and so on. One of the most promising long term approaches must be X-ray diffraction studies. Dr W. Hill (Montana) described what he has found using low-angle X-ray diffraction and suspensions of the ribosomal particles. He estimated that the hydrated ribosomal particles from *E. coli* had the following dimensions: 30S: $55 \times 220 \times 220$ Å; 50S: $115 \times 230 \times 230$ Å; 70S: $135 \times 200 \times 400$ Å. To explain how the two sub-particles could give rise to a particle as compact as the 70S ribosome, he suggested that the 30S particle is wrapped over one "side" of the 50S particle, as a sort of cap.

PHOTOELECTRON SPECTROSCOPY

Enthusiasm for New Technique

from a Correspondent

Photoelectron spectroscopy, which has created a considerable stir in several disciplines, provided the theme of a meeting held in Oxford on September 14–16. The emphasis of the meeting, organized by the Institute of Physics and the Physical Society in collaboration with the Theoretical Chemistry Group of the Chemical