is that, although there is no reason to doubt that reliable ages will ultimately be obtained from some deep sea samples, criteria for the recognition of reliable samples must be developed first.

MYCOPLASMAS

Isolation of Mycoplasmas

from a Correspondent

An International Symposium on Mycoplasma Diseases of Man was held at Erfurt in East Germany on October 2–5. About one third of the contributors were absent as a consequence of the problems associated with the political situation in Czechoslovakia. The papers presented were, however, a useful contribution to diagnostic, biological and epidemiological studies of mycoplasmas in general, and in particular those isolated from man.

The symposium was reminded by Dr B. E. Andrews (London) of the need for mycoplasma reference centres and the difficulties encountered by them. There were several reports concerning improvements of isolation techniques and Dr E. Künzel (Berlin) said that he had increased his isolation rate by incorporating β-propriolactone into medium. Dr J. M. Inglis (London) had found that 10 per cent of specimens taken at bronchoscopy contained mycoplasmas commonly found in the upper respiratory tract.

Dr R. Kundsin (Boston) reported the isolation of T-strain mycoplasmas from the products of conception and indicated that T-strains might be a factor in abortion. This contention provoked considerable discussion. T-strain mycoplasmas had been isolated also by Dr W. Witzleb (Erfurt) directly from the bladder. Attention was drawn by Dr F. Milazzo (Milan) to the antigenic distinctiveness of *Mycoplasma pneumoniae*, and by Dr H. W. Clark (Washington) to quantitative variations of antigen composition of mycoplasmas grown in various media. Dr G. Schabinski (Berlin) had developed an immunofluorescence technique for *M. pneumoniae* in which the antigen is attached to latex particles. Evidence was presented by Dr D. Taylor-Robinson (Salisbury) for the existence on cells, to which mycoplasmas attach, of at least two kinds of receptors, one being N-acetyl neuraminic acid in type. Dr M. Butler (London) discussed the growth of mycoplasmas in organ cultures of human embryo trachea, and Dr E. Stanbridge (London) suggested that the appearance of "leopard" cells in tissue cultures might be used to diagnose mycoplasma contamination. Dr R. H. Leach (London) has shown that such contamination occasionally interferes with multiplication of adenoviruses and herpes simplex virus.

MOLECULAR BIOLOGY

Control of Messenger Synthesis

from our Cell Biology Correspondent

The RNA control gene in *E. coli*—the *RC* gene—regulates the synthesis of ribosomal and transfer RNA but not of messenger RNA, which is made equally well in strains containing either the *RC* relaxed or *RC* stringent alleles during starvation for required amino-acids. That is the conclusion reached independently by three groups, Forchhammer and Kjeldgaard in Denmark, Edlin, Stent, Baker and Yanofsky in California and Lavalle and De Hauwer in Belgium, who report experiments on the synthesis of *m*RNA during amino-acid starvation in the latest issue of *J. Mol. Biol.* (**37**, 245, 257 and 269; 1968).

All these experiments boil down to tests of two closely related theories of the control of RNA synthesis. First, there is Stent's proposal that RNA synthesis is regulated through an obligatory coupling of translation and transcription by which ribosomes moving along nascent *m*RNA molecules free the *m*RNA from the DNA template and so permit continued initiation of more *m*RNA synthesis. The second proposal is that the rate of synthesis of all classes of RNA—messenger, ribosomal and transfer—is regulated in a coordinated way by the *RC* locus and that, in strains with the *RC* stringent allele, synthesis of all classes of RNA depends on the supply of a full complement of all the amino-acids. There is, of course, a long history of conflicting claims for and against both these hypotheses, but the agreement of the three groups seems to settle the issue once and for all.

Stent's model of coupled translation and transcription makes two predictions—first, that a decrease in the overall rate of translation must result in a corresponding decrease in the rate of *m*RNA synthesis; and second, less obviously, that under all growth conditions, cells must contain a constant average amount of *m*RNA per ribosome involved in protein synthesis. The three groups, by showing that *m*RNA synthesis continues in RC stringent strains starved for required amino-acids while *t*RNA, *r*RNA and protein synthesis are all greatly reduced, have shown that the first prediction of Stent's model is not fulfilled and so the model is probably incorrect. As Lavalle and De Hauwer say, "the presence of ribosomes on a growing messenger may just be circumstantial; messenger is being made and ribosomes begin to translate, instead of messenger is being made because ribosomes begin to translate".

The fact that in the RC stringent strain *t*RNA and *r*RNA synthesis depends on a supply of a full complement of amino-acids. whereas *m*RNA synthesis does not, means there are two separate control systems. Edlin *et al.* offer three possible mechanisms. First, there could be two classes of RNA polymerase, one for *t*RNA and *r*RNA and another for *m*RNA which respond differently to conditions during amino-acid starvation in RC stringent strains. Second, some part of the *t*RNA and *r*RNA genes might have signals, which, under the conditions of amino-acid starvation, reduce the ability of RNA polymerase to initiate or continue RNA synthesis. Third, in the prevailing conditions in starved RC stringent cells, *t*RNA and *r*RNA might in fact be synthesized but very rapidly degraded, perhaps because there is no protein synthesis.

Although there is apparently no obligatory link between *m*RNA synthesis and protein synthesis, can anything be salvaged of Stent's idea that ribosomes have some role in regulating messenger synthesis? Forchhammer and Kjeldgaard suggest that *m*RNA synthesis may be regulated by the 30*S* ribosomal subunit and initiation factors in the absence of protein synthesis. They have in mind, of course, the role of the 30*S* subunit in forming an initiation complex with *m*RNA. This might provide a mechanism for releasing *m*RNA from template DNA. The evidence for the suggestion is, essentially, that the amount of *m*RNA in a mutant strain of *E. coli* which makes 30*S* subunits