content of catecholamine could be estimated, and blood pressure was measured for four hours before the test and each minute during the first ten minutes of the test. The hypertensives had significantly higher resting blood pressures than the controls, but the slightly greater basal catecholamine excretion was not significant. All subjects increased their blood pressure and adrenaline excretion as a result of carrying out the test; but the increases were always significantly greater in the hypertensive group than in the controls. Systolic and diastolic pressures in the control group increased by 10 per cent and 15 per cent respectively, while in the hypertensives the increases were 24 per cent and 26 per cent respectively. In the hypertensives, adrenaline excretion more than doubled under stress, from 0·56 to 1·30 μg/h, but the mean increase in the controls was only 0·14 μg/h. Less noradrenaline was excreted during stress by some of the controls, and in any case the increase was only 0·02 μg/h, but the increase in the amount of noradrenaline excreted by the hypertensives was much greater—0·50 μg/h. Here is further proof that mental stress can increase the excretion of catecholamines and raise the blood pressure, but for some reason patients already showing signs of hypertension have an increased sympathetic nervous system response to this type of mental stress.

PESTS

Veterinary Pesticides

from a Correspondent

When the Fine Chemicals Group and the Pesticides Group of the Society of Chemical Industry held a joint meeting in London on March 31 and April 1–2, the need for liaison between various disciplines soon became evident, for there were very few present who could bridge the gap between pure chemistry and biology. Recognizing this gulf, the chairmen of the four sections gave an introductory review of the biology of the organisms involved and the diseases and economic losses they cause as well as the general problems of controlling the diseases in domestic stock.

Fasciola hepatica was introduced by Mr W. T. Rowlands (Ministry of Agriculture), who emphasized that, although so much is known about biological methods of control, the farmer usually asks for something with which to treat affected sheep. Evidently safer and more effective agents against the immature stage of the fluke are still required. Molluscicides have not been investigated or applied sufficiently in the control of the amphibious snail which is the intermediate host, and a paper on the control of *Limnaea truncatula* by N-tritylmorpholine emphasized that although much is known about the general biology of the snail, there is still a need for more information about the timing and frequency of application of molluscicides.

Mr J. E. N. Sloan (Cooper Technical Bureau) introduced the tapeworms. The three chemical groups that act on tapeworms are dialkylnaphamidines, aromatic and alicyclic isothionates and alkylpiperizines. Dr H. Loewe (Hoechst AG), talking about the last of these, gave a beautiful exposition of the logic by which the chemist proceeds. He is still in the last resort limited by pure trial and error as far as biological activity is concerned, but the chemical train of thought was immaculate.

Coccidiosis was introduced by Dr S. B. Kendall, who mentioned particularly the incidence in the chicken, which is economically the most important host. Several species of parasites are involved, and the disease significance of the different species has changed recently, partly because of the change to more intensive husbandry methods. More efficient drugs have emerged to prevent infection and give maximum growth rate, but there are further problems because of the absence of immunity in the birds and the development of resistance by the parasite to some of the drugs.

Dr S. F. Barnett (University of Cambridge) reviewed the problems of controlling ectoparasites, remarking that more fundamental work is needed on insect and invertebrate physiology and biochemistry in the hope of producing precision insecticides with activity that can be contained to this group of parasites and perhaps even to the species they seek to control. A paper on the effectiveness of some thiadiazalone compounds against normal and resistant *Boophilus* ticks gave some practical details about the *in vitro* and animal tests used, and suggested that dipping intervals of 9, 9 and 21 days would most effectively control *Boophilus*.

PROTEINS

Coiled Coiled-coils

from a Correspondent

In the α-helical fibrous proteins, the α-helix is usually thought to be coiled, the resultant structure being termed a coiled-coil. Caspar, Cohen and Longley (*J. Mol. Biol.*, **41**, 87; 1969) have recently reported a further degree of coiling in crystals of tropomyosin, so that the structures can be described as coiled coiled-coils.

Tropomyosin is a constituent of the thin filaments of muscle and is responsible with troponin for the calcium sensitivity of the myofibril. As isolated at high ionic strength, it occurs as a rod-like molecule approximately 20 Å wide, 400 Å long and with molecular weight 70,000. It is remarkable in having an α-helical content greater than 90 per cent and its two polypeptide chains are thought to wind round each other in a coiled-coil α-helical structure.

But in muscle, of course, tropomyosin does not exist as individual molecules but in an organized array, and so it is desirable to study the packing of tropomyosin molecules to provide clues of their arrangement in the thin filament. One type of aggregate is the crystalline form obtained by salting out at the isoelectric *p*H. Electron microscopy of fragments of these crystals had revealed an open mesh with protein confined to strands 40 Å wide which cross one another at regular intervals, leaving holes filled with solvent. Because the strands are not straight but wavy, the holes appear kite-shaped.

Caspar *et al.* have used electron micrographs to provide the phase information for an X-ray analysis of the projection of the crystal along the *a* axis. Three dimensional analysis must await further phase information. Apparently the tropomyosin molecules are polar and arranged end to end in the same direction to form indefinitely long filaments. The mesh seen in electron micrographs is not a planar structure and it appears as it does because the crystals are perforce always viewed