suppress a more extensive proteolysis. Chymotrypsinogen can give rise to several chymotrypsins: a tryptic split at 1 in the sequence —leu.[2]ser.arg.[1] ileu.val— gives an active form (π), and a second split at 2 by chymotrypsin itself gives the δ-form. Further splitting by chymotrypsin at 3 and 4 in the sequence —tyr.[4]thre.asp.[3]ala— produces the class-

$$\dot{N}H_2$$

ical α-form of Kunitz. Desnuelle has shown that it is possible to start in reverse and in complete absence of trypsin to cleave by the action of chymotrypsin the links at 2, 3 and 4 above to give modifications ('neochymotrypsinogens') which are still enzymically inactive.

Other activations involve quite extensive proteolysis. Recent work of Neurath's group shows that Anson's crystalline carboxypeptidase is in reality only one-third the molecular weight of the zymogen, the rest being lost as dialysable fragments. Miss G. E. Perlmann reported that, by the action of urea, pepsin itself can lose dialysable components, leaving a portion with increased specific activity. This finding again is relevant to the 'junk' hypothesis.

Virus structure. Advances with respect to the structure of tobacco mosaic virus were discussed by H. Fraenkel-Conrat, G. Schramm and Miss R. E. Franklin. An unexpected discovery of recent years is that the ribonucleic acid alone, in absence of protein, is infective; another, that the sub-units of molecular weight 18,000 can be reconstituted to form the giant virus particle either in the absence of, or in the presence of, the nucleic acid component. This finding should greatly assist the elucidation of the topographical relation of nucleic acid and protein. Fraenkel-Conrat reported a feature of more general importance in protein chemistry—that the N-terminal residue (serine) of the sub-unit is substituted by an acetyl group. The indirect evidence for cyclic chains in proteins, resting as it does on the apparent absence of C- and N-terminal groups, becomes, by this and other examples (cf. α-melanophore-stimulating hormone below), of less and less significance.

Methods. The new methods which have been used so successfully for the separation of proteins, large and small peptides, and amino-acids were discussed by A. Tiselius, J. Porath, J. Borman, S. Moore, F. Turba, F. Šorm and B. Keil. In addition, L. C. Craig described a new and very simple microdiffusion apparatus which can be used not only for fractionation of dialysable peptides, but is also capable of giving information on the heterogeneity of the solute.

In retrospect, the Paris conference very clearly emphasized the great rewards that have accrued from the application of new and novel methods, and justifies the belief that any discussion of methodology should not be confined to a special symposium, but related over a very wide field to the major advances which have been made in our knowledge of the protein molecule.

KENNETH BAILEY

NEWS and VIEWS

Photograph of the Track of the Artificial Earth Satellite

THE Russian artificial Earth satellite is accompanied in its orbit by the remains of the last stage of the rocket from which it was launched. The rocket is at present travelling ahead of the satellite, at a distance which is increasing with time as the relatively greater resistance encountered by the rocket from the Earth's atmosphere causes it to fall to a lower altitude than the satellite. A photograph of the rocket, which is larger and more easily seen than the satellite itself, was taken at Hobart, Tasmania (42° 54′ S., 147° 20′ E.), at approximately 0938 G.M.T. on October 7, by Mr. T. McMahon, head of the Photographic Section in the University of Tasmania, working with members of the Department of Physics. Prof. A. L. McAulay, of the University of Tasmania, writes: "It shows the track of the rocket (Fig. 1) travelling approximately south-south-west to north-north-east against a background of stars of the constellation Aquarius".

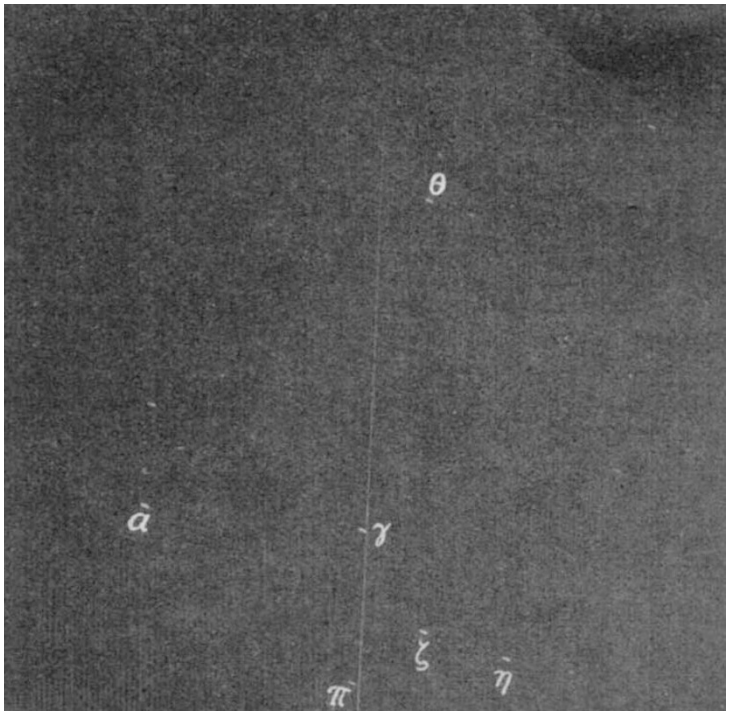

Fig. 1