the action of 0·1 M sulphuric acid by a subsequent treatment with formic acid and diphenylamine) is therefore a specific degradation and not non-specific as has been claimed[4]. (It should be noted that a sequence of the type (pyrimidine nucleoside)$_n$ phosphate$_{n+1}$ cannot be degraded to two shorter sequences of the same type without liberation of a pyrimidine base or pyrimidine nucleoside.) Furthermore, the treatment with 0·1 M sulphuric acid liberated a considerable amount of cytosine. This may explain why sequences of four or more cytosine units were not found using this method, but were found when the other method was used[3]. This formation of cytosine also indicated that it was unlikely that the procedure could be improved by increasing the time or temperature of the reaction.

It can be concluded, therefore, that the method of choice for the determination of pyrimidine nucleotide distribution in DNA is the use of formic acid and diphenylamine; the results obtained here confirm those of the original authors and show that the method is highly specific.

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BIOPHYSICS

Possible Mechanism of Thrombus Formation

It has often been observed that after trauma (and possibly under other conditions) the thrombi which form in the vascular system consist of a small white head (the white embolus) and a longer red tail[1]. The predominant constituent of the embolus is generally aggregated platelets, and some recent experiments may throw light on the mechanism of formation of the red tail, which consists primarily of red cells.

It is well known that when a suspension of rigid, neutral-density particles flows down a tube the mean velocity of the particles is slightly greater than that of the transporting liquid[2]. Thus when a suspension is first drawn through an empty tube there is an increase in the concentration of particles at the leading interface as it moves along the tube[3]. Blood behaves in a similar way to a suspension of particles in this respect[4], red cells congregating at the leading interface. Moreover, lower transit times (corresponding to higher velocities) have been measured *in vivo* for red cells than for plasma[5].

We have now been able to show that if, into a suspension of rigid particles flowing down a tube, a sphere is introduced the diameter of which is very near to that of the tube the concentration of particles immediately behind it increases, while that immediately ahead falls. Fig. 1 shows the result of introducing a polystyrene sphere of diameter 1·8 mm into a tube of diameter 1·9 mm down which a neutral-density suspension of polystyrene spheres, 0·35–0·42 mm in diameter, is flowing at a mean volume concentration of 5 per cent.

The reason for the concentration changes is that the wall exclusion effect which is the primary cause of the difference in mean velocity between the particles and the liquid is only important over a limited range of particle/tube diameters. It disappears when the particles are very small (that is, less than about 1/30th of the tube diameter)[3] and also when the diameters of the particles and the tube approach equality. The particle sizes for the experiment are chosen so that the small spheres try and overtake the large sphere but are unable to squeeze by it so that their concentration rises immediately behind the sphere and falls immediately ahead of it.

From the observed similarities in the flow behaviour of neutral-density spheres in a liquid and red cells in plasma which was mentioned earlier, there are good grounds for expecting that the concentration changes observed in a suspension adjacent to a close-fitting sphere in a tube would be paralleled by changes in the distribution of red cells near white emboli moving in vessels of appropriate diameters. The differential flow velocity of red cells and plasma should reach a maximum in the range of diameter of human blood vessels of about 15–50μ, so that vessels of this size would be most affected. Vascular occlusion would be most likely in vessels possessing a minimum of branches, and the chances of complete stasis would increase with decreasing elasticity of the vessel wall. The plug would be identified by a reduced concentration of red cells in the plasma immediately ahead of it and by a white head which practically filled the lumen. It would be interesting to discover whether occlusions of this type have, in fact, been observed.

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BIOCHEMISTRY

Separation of Urinary Isoamylases on Cellulose Acetate

A number of electrophoretic investigations have been carried out on human α-amylases (*E.C.* 3.2.1.1.). Paper[1,2], agar[3,4], and polyacrylamide gel[5] have been used as media.

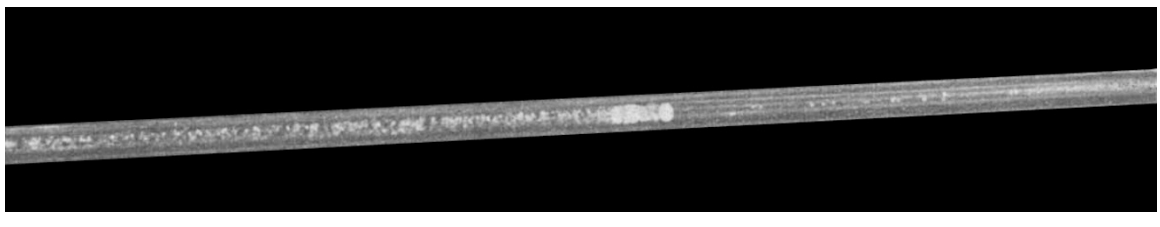

Fig. 1