Further investigations along these lines are at present being made, and will form the basis of a subsequent communication.

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Further experiments, using smaller doses of the drug, may show that this antagonism is complete.

Proteolysis of Collagen

It was shown by Lindemann, Lang and co-workers that the lytic hydrolysis of collagen by the proteolytic enzymes involves the desintegration of the protein into a preliminary stage. A consideration of known facts, together with the present evidence obtained in connection with an investigation of the mechanism of bating of skins in the leATHER manufactUre, indicates that collagen and proteolytic enzymes are also denatured by the enzyme prior to hydrolysis. During is a process in which skins, after liming and defatting, are treated with a proteolytic enzyme (usually trypsin) in order to produce a soft, leathery tissue. The process has been shown to involve the removal of the crystalline collagen in form of collagen in which the fibrillar structure has been disintegrated and which has been named "proteagin" produced by the evining action of serum, and is normally carried out at about 37°C. Temperature controlling is carried out at a rate of 3°C. The action takes place below 35°C, and above 40°C, rapid digestion of intact collagen occurs, leading to a loss of leather-making qualities. Lowering the temperature is explained by the fact that proteagin must be converted into collagen before it can be hydrolysed by the enzyme. If, however, the skin is heated to 38°C or more, and it is difficult to bring the proteagin in the absence of enzyme into its presence in an active state of denaturation, which can be partially denatured by the enzyme. As denaturation is believed to involve rupture of hydrogen bonds between parallel molecular chains, the enzyme functions as a hydrogen bond breaker in a similar manner to enzymes such as alkalis, urea, potassium thiocyanate, etc.

Hydrogen bond breaking by chemotherapeutic substances is followed by the decrease in hydrothermal shrinkage temperature. This is due to the fact that the protein structure of collagen is disrupted by the enzyme, leading to a decrease in the temperature at which the protein reverts to its native form. The decrease in hydrothermal shrinkage temperature is due to the fact that the protein structure of collagen is disrupted by the enzyme, leading to a decrease in the temperature at which the protein reverts to its native form.

Size and Shape of Cartilage Macromolecules

The collagen-sulphuric acid-protein complexes of cartilage were extracted from fresh, homogenized bovine nasal septa by 30% and potassium chloride and precipitated with absolute alcohol after dialysis against running tap water and addition of potassium acetate; all operations were carried out at 2° C.

The final product was analysed in chemical comparison to the mucopolysaccharide of chondroitin and hyaluronic acid.


The viscosity of the mucopolysaccharide at a pH of 7.4, which was measured by viscosimetry, sedimentation, light scattering and flow birefringence.

The viscometric measurements were carried out at a velocity gradient of 0 to 3000 cm/sec in a Couette apparatus, the intrinsic viscosity at 25°C. was [η] = 146.6 cm. The sedimentation coefficient at 25°C. was 0.66 x 10^-9 x 10^6, and the refractive index increment was 0.18. The viscosity of the mucopolysaccharide at a pH of 7.4, which was measured by viscosimetry, sedimentation, light scattering and flow birefringence.

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This latter presents an intrinsic streaming hirch- 
fréquence $|\Delta\Omega| = \frac{G}{C} = 0.05 \Omega \text{cm} \times 10^{-4}$, in 
the case of sodium mepacrine, on the contrary, the 
flow hirchfréquence was negligible $|\Delta\Omega| \ll 10^{-4}$, a result which in agreement with the negative 
results of Weischer and Haxby by an analogous product.

The hypothesis of a polypeptide system of coils seems to be the most satisfactory. My light-scattering results also indicate the existence, or at least a very small extent, of branching in the monoprotein; indeed, Bennett showed that branching increases the general upward curvature of curve 2, whereas my curve 4 exhibits a strong downward curvature. The possibility of a system of non-linear coils, which could also explain such curvature, seems to be ruled 
out by the high value of the ratio $L/r$ (L being the 
length of the filament and $r$ the root-mean-square 
angular radius of the coil).

On the assumption of such a polypeptide system of coils, $L/r$, by the method of radious and protein, 
entangles the approximate value of $M_{k}$ (intermolecular 
kinking, its upper limit) I have found $M_{k} = 400,000$; therefore, $M_{k}/M_{p} = 1$, a result which 
confirms the polypeptide observed in the solution.

In order to check the mutual consistency of my experimental results as well as my conclusions, I applied the following equation proposed by Plany $^1$

$$\phi = \frac{N_{2}}{V_{2}} \left( \frac{1}{\gamma_{2}} - 1 \right)$$

where $\phi$ is the solid content, is a universal constant independent of solvent, temperature and nature of polymer. Introducing in the above equation my values of $N_{2}, M_{k}$, and assuming $\gamma_{2} = 0.6$, $I_{2} = 0.1$, I find $\phi = 10^{4} \times 10^{6}$; the good agreement between this value and the theoretical

one seems to confirm the consistency of the experimental results and the validity of the proposed model.

The determination of the volume fraction of the substance $V_{2}$ was carried out by the method of light scattering.

The value for $\phi$ was taken by $\phi$ ($\phi$ is the specific volume of the substance). Therefore, the number of points of the substance $V_{2}$ was calculated by the method of light scattering.

Fig. 1. Curve 1 stands for the dependence of the linear to the volume fraction of the material, and the curve 2 for the volume fraction of the material itself.