behaviour of alkyl substituents, changes in experimental conditions (for example, temperature, solvent) may produce different rate sequences. Our extensions of these investigations will include a study of the Arrhenius parameters of the reactions under various experimental conditions, and we postpone further discussion of the effects until additional observations are available.

Note added in proof (*cf. ref.* 4). See *J. Amer. Chem. Soc.*, **74**, 4940 (1952); because of differences in experimental conditions the absolute rate coefficients, for identical esters in the parallel investigations, are appreciably different, but the rate ratios, *p*-*R*/*p*-H, are in closer agreement.

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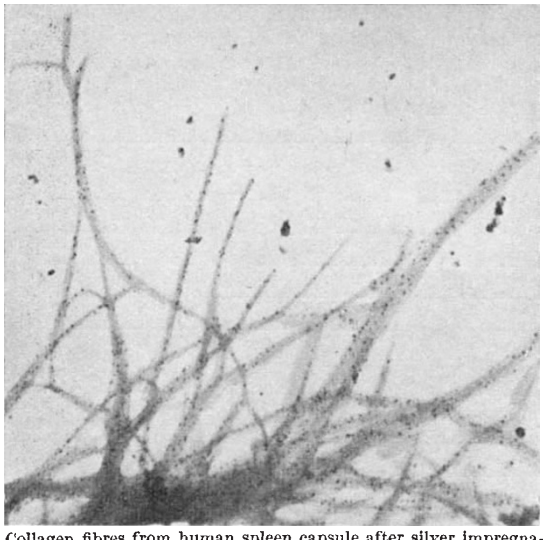
Reticulin and Collagen

A recent letter by Little and Kramer[1] reporting some studies on reticulin prompts the submission of a preliminary account of some similar investigations now in progress. Attempts to determine the relation between collagen and reticular fibres using the electron microscope to examine teased-out or otherwise broken-down tissues are open to the criticism that the fibres observed are not histologically identifiable. Kramer and Little appear to have overcome this objection and to have reached the conclusion that the fibrils of reticulin have the same structure as collagen fibrils—a conclusion which the following experiments confirm.

The reticulin of adult rat and human spleens has been investigated using two different procedures. In the case of rat spleen, the method was to cut 10-μ frozen sections which were mounted on collodion films on fine stainless steel mesh, and then to digest these sections with pancreatin until only the fibrous elements of the connective tissue remained. After thoroughly washing and drying, suitable pieces of mesh were cut out, the specimens shadowed with palladium and examined in the electron microscope. Apart from the collapse of the material on to the film on drying, the fibrous network is very little disturbed, and reticulin could be identified as branching and anastomosing networks of fine fibres, quite distinct from the relatively massive bundles of collagen. In all cases the reticular fibres showed the same characteristic cross-banding as is shown, for example, by rat tail tendon, a true collagen.



Collagen fibres from human spleen capsule after silver impregnation. × 20,000

The human spleen material was treated differently. A fresh spleen was cut into slices of about 5 mm. thickness, well washed and then digested in pancreatin until only a fibrous network remained. A well-washed slice of this material was fixed in formalin, washed, dehydrated and finally embedded in a camphor–naphthalene medium. This was sectioned at 10 μ, the sections being mounted on collodion films on glass. The embedding material was removed by sublimation *in vacuo*—a process which minimizes disturbance of the fibres. Optical micrographs of these preparations were compared with those of ordinary histological preparations of spleen, silver-impregnated and stained with Van Gieson's fluid. From this comparison the reticular fibres in the collodion-mounted specimens were clearly identified, and these fields were examined in the electron microscope after palladium shadowing. Again the reticular fibres show precisely the same banded structure as does true collagen obtained by teasing the splenic capsule.

It seems, therefore, beyond doubt that the fibres of reticulin are morphologically identical with those of collagen. This does not necessarily imply that the two kinds of fibre are identical in all respects. Indeed, their responses to the Bielchowsky–Foot silver impregnation technique are markedly different and remain to be explained. This phenomenon of argyrophilia is at present under investigation. The accompanying photograph is of human spleen capsule fibres teased out after Foot silver impregnation, and shows that the metal is deposited as particles of colloidal dimensions on the fibres, and is not a chemical combination with them. It would appear that silver staining is an interface phenomenon occurring at the fibre – ground substance boundary, and may depend more upon variations of the latter than on differences in the fibres.

These studies are continuing and will be published fully elsewhere.

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Nov. 17.

[1] Little, K., and Kramer, H., *Nature*, **170**, 499 (1952).

Photo-insolubilization of Dextran

The insolubilization of many dichromate-sensitized protein dispersions, notably albumins, gelatins, etc. after exposure to light, is well known and is the basis of most photo-engraving procedures[1]. Polysaccharides, such as starch and gum acacia, and polysaccharide derivatives such as methyl cellulose and, more recently, surface-hydrolysed cellulose esters[2], similarly become insoluble when exposed to light in the form of thin, dry films.