

6. Carboxyhemoglobin behaves just like reduced hemoglobin. The hemoglobin recovered is carboxyhemoglobin.

7. Prolonged action of acid or other agents of denaturation on hemoglobin decreases the percentage of reversion.

From the above findings it is concluded that hemoglobin undergoes two kinds of change when subjected to denaturation. One is reversible and the other is irreversible. The two changes overlap when hemoglobin is heated or is treated with alkali or alcohol. But when hemoglobin is treated with acid the velocities of the two changes are so different that they can be separately studied.

Since the reversible denaturation, which we propose to call pseudo-denaturation, involves only the prosthetic group, it is a reaction peculiar to hemoglobin and is fundamentally different from the denaturation of proteins in general.

This is a preliminary paper.

¹ Anson, M. L., and Mirsky, A. E., *J. of Physiol.*, 1925, **lx**, 50.

² Anson, M. L., and Mirsky, A. E., *J. of Gen. Physiol.*, 1925, **ix**, 169.

³ Roaf, H. E., and Smart, W. A. M., *Biochem. J.*, 1923, **xvii**, 579.

⁴ Quagliariello, G., *Arch. sc. Biol.*, 1923, **v**, 193.

⁵ Conant, J. B., and Scott, N. D., *J. of Biol. Chem.*, 1926, **lxix**, 575.

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The Rôle of the Platelets in Blood Clotting.*

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Blood was obtained from a dog by the method of Lim,* which absolutely excludes admixture of tissue juice. It was kept in contact only with paraffin, was immediately cooled and centrifuged. By differential centrifuging platelets were obtained free of red and white cells. They were washed well in saline and then dissolved in water. This platelet solution was tested for thrombin, prothrombin cephalin and tissue fibrinogen. On treating it with active cephalin and calcium and letting the mixture stand for 15 minutes at room temperature, it was unable to clot a citrated solution of

* A detailed report of this work and of Dr. Lim's method will appear in the July number of the *Chinese Journal of Physiology*.

pure blood fibrinogen. A control mixture, using purified prothrombin from fresh blood plasma instead of platelet solution, gave very active thrombin, and clotted fibrinogen in 10 seconds. The platelet solution was capable of replacing cephalin in the activation of the prothrombin solution. This property was unaffected by boiling. It would also directly clot pure blood fibrinogen when free calcium was present, just as well as would an active tissue fibrinogen solution. This action was lost on boiling.

Platelets, therefore, do not contain thrombin or prothrombin, but do contain free cephalin and tissue fibrinogen, and are thus similar to other body tissues.

This is a preliminary report.

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Poisoning by Sikimitoxin.

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Chinese Bastard Anise, Mang T'sao, commonly known under the colloquial name T'zu Ta Liao, and identified as the fruit of *Illicium religiosum*, Sieb., has long been known to be poisonous. It is chiefly used as a condiment in preparing Chinese meat dishes. Fatal poisoning by these seeds is not an uncommon occurrence.¹ The chemical nature of its toxic principle was first investigated by Eykman² who, working with the Japanese anise, or sikimi-no-ki, also identified as *Illicium religiosum*, Sieb., isolated from the seeds a crystalline body which he named "Sikimin" and claimed for it a powerful toxic action. 12.5 mgm. of Sikimin killed a young dog in 3 hours. This crystalline body or sikimin, has never since been isolated by other workers; crude seeds, or aqueous extracts, being generally employed for the physiological study of this poisonous plant.^{3, 4, 5}

In a recent chemical study of Mang T'sao, the writer isolated from the seeds an amorphous poisonous principle with definite chemical and physical characters. Given to cats, 0.2 mgm. of this amorphous substance per kilogram of body weight was found to be fatal, less than 0.1 mgm. of substance per kilogram of body weight was sufficient to produce the same poisoning symptoms as those produced by the crude seeds, *i. e.*, salivation, vomiting defecation,