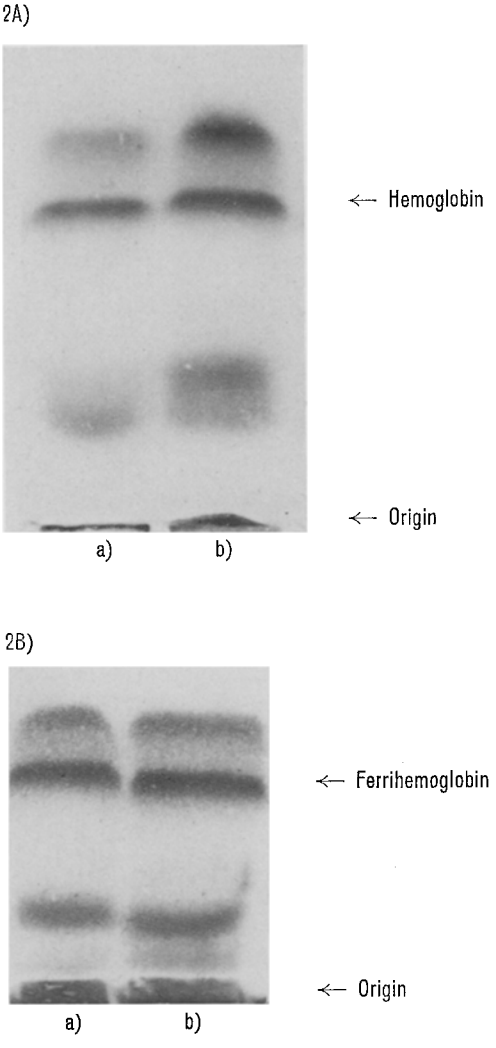

Fig. 2. Starch gel electrophoresis of HbO_2, and ferrihemoglobin, 4 mg/ml, in glycine-glycinate buffer with and without NaCl, 0.5 *M*, treated with PMB 10 moles/Hb tetramer after 4 h incubation at room temperature. Nigrosine stain: A) HbO_2 in glycine-glycinate buffer, pH 10.5, $\mu = 0.1$. a) HbO_2 + PMB + NaCl; b) HbO_2 + PMB, no NaCl. B) Ferrihemoglobin in glycine-glycinate buffer, pH 10.5, $\mu = 0.1$. a) ferriHb + PMB + NaCl; b) ferriHb + PMB, no NaCl.

oxyhemoglobin (Figure 2A) and ferrihemoglobin (Figure 2B) in glycine-glycinate with PMB indicate complete separation into 2 new bands after 4 h for globin and partial separation into 2 new bands for oxy- and ferrihemoglobin after 4 h. The new bands presumably correspond to the α^{PMB}- and β^{PMB}-chains.

Conclusions. Change in conformation and/or increases in dissociation that occur in hemoglobin at pH 10.5 and that appear in globin upon removal of the heme result in greater reactivity of the sulphydryl groups toward PMB. The results reported herein are consistent with the greater dissociation of hemoglobin at alkaline pH[1,2] and with the known differences in conformation and dissociation between globin and hemoglobin[15–18].

Résumé. La mesure des taux de réaction des sulfhydryles masqués de l'hémoglobine et de la globine humaines avec le *p*-mercurichlorobenzoate montre que ce taux de réaction est plus grand en tampon glycine-glycinate au pH 10,5 qu'en tampon phosphate au pH 7. Il est plus grand pour la globine que pour l'hémoglobine, dans les mêmes conditions. Le titrage des groupes de sulfhydryles «libres» dans le dimère d'hémoglobine présent en tampon glycine-glycinate au pH 10,5 indique la présence d'un tel groupe ce qui fait supposer que l'espèce en question est le dimère $\alpha_1 \beta_1$.

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The Effect of Oxygen on the Hemoglobin-Binding Capacity of Haptoglobins

Earlier it was demonstrated that, depending on the phenotype, the peroxydase activity of the haptoglobin-hemoglobin complex formed in serum heat-treated at 56 °C decreases[1]. Parallel with the decrease of peroxydase activity, and likewise depending on the phenotype, the hemoglobin-binding capacity (HbBC) of haptoglobin decreases[2]. In the same study it was also demonstrated that the decrease of HbBC due to of heat treatment, might be restored completely in the case of phenotype Hp 1-1 and partially in the case of phenotype Hp 2-1 and Hp 2-2, if into the heat-treated serum an oxygen stream was let in for 10 min[2]. The present study discusses the effect of oxygen on HbBC of native serum.

Method. Sera of all 3 phenotypes were divided into 2 parts. One part was left untreated, the second oxygenated for 10 min in a tube measuring 15 × 105 mm. The amount of oxygen was 0.6 to 0.8 l in total. At intervals, the scum produced was destroyed with a Pasteur's pipette, and after oxygenation completely disappeared by centrifugation. Then the HbBC of both the native and oxygenated samples was determined on the agar-plates of the Hyland's 'haptoglobin electrophoresis test'.

Results. It was found in all sera of the 3 phenotypes that the HbBC of oxygenated samples increased as compared to the original HbBC of serum. The increase was most distinct in sera of the phenotype Hp 1-1: 20–40 mg/100 ml HbBC. The Figure shows the value of HbBC in the native and oxygenated sample of serum of the phenotype Hp 1-1.

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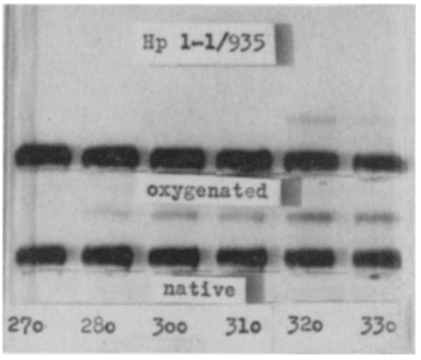

HbBC (mg/100 ml)

The HbBC of the same serum increases after 10 min oxygenation.

The method of oxygenation influences the results. The treatment with a smaller quantity of oxygen leads to an increase of lesser degree. It seems to be necessary to standardize the conditions of oxygenation. Only in this manner would it be possible to settle definitely whether the rate of HbBC increased by oxygen treatment is correlated with the phenotype or not. It may be assumed that a relation exists between the two features of haptoglobins described: the sensibility to heat and the dependency from oxygen. At present there is no explanation available for these phenomena.

Résumé. Sous l'effet de l'oxygène l'«hemoglobin binding capacity» des haptoglobines du sérum natif augmente.

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Effect of Methylendioxyphenyl Synergists on Metabolism of Carbaryl by *Aspergillus terreus*[1]

Methylenedioxyphenyl compounds were originally developed for use with the pyrethrin insecticides as synergists. However, it was found that they also possess the ability to synergize carbamate insecticides. Especially, these synergists are capable of enhancing the toxicity of carbaryl (1-naphthyl N-methylcarbamate) toward houseflies which efficiently detoxicate the insecticide as an inhibitor of cholinesterase.

When methylenedioxyphenyl synergists were added to aldrin-treated soils, the conversion of aldrin to dieldrin was inhibited[2]. In experiments with culture media containing microorganisms, it appeared that the inhibition of the conversion of aldrin to dieldrin occurred through an effect of sesamex on microorganisms, primarily bacteria. Lichtenstein et al. concluded that the chemical may either inhibit the enzyme system responsible for the

[1] Authorized for publication on 10 July 1974 as paper number 4732 in the journal series of the Pennsylvania Agricultural Experiment Station.

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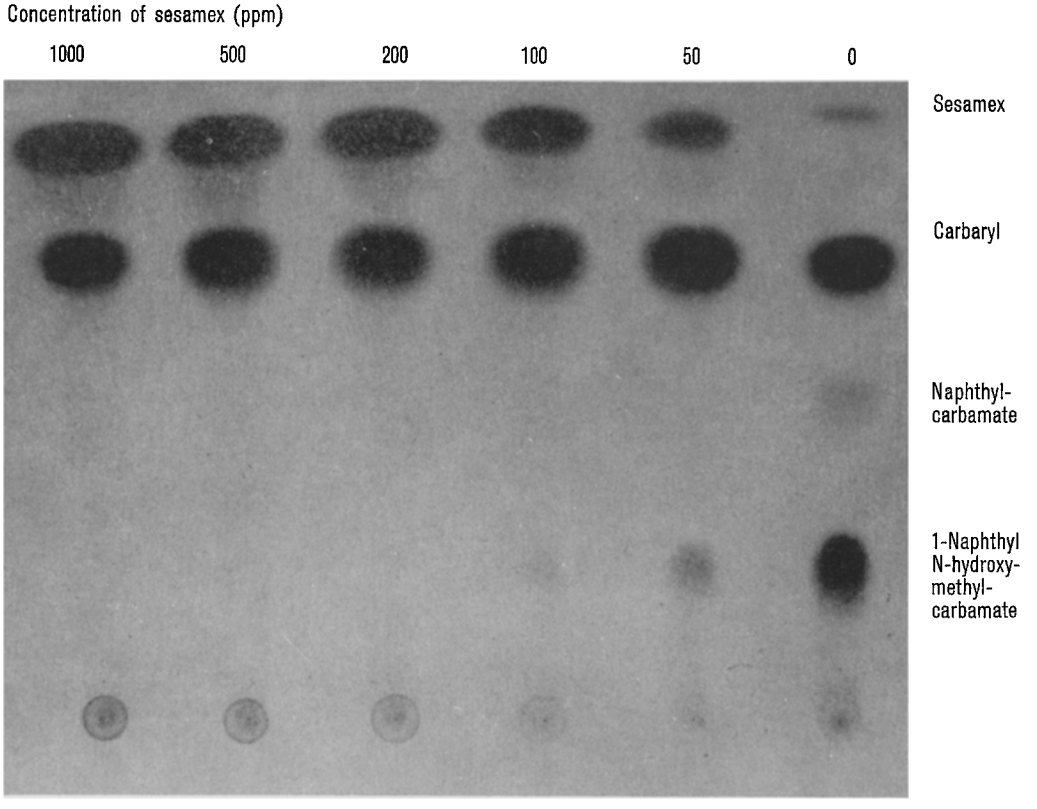

Fig. 1. Effect of different concentrations of sesamex on metabolic transformation of carbaryl by *Aspergillus terreus* (Thin-layer chromatography of ether extract from growth medium after 10 days of growth).