globin. The pigment therefore carries carbon monoxide instead of oxygen to the tissues which are, in consequence, starved of oxygen or asphyxiated. The affinity of carbon monoxide for hæmoglobin is stronger than that of carbon monoxide for the tissues. Translated into terms of our conception, the tissues cannot split off the carbon monoxide from the hæmoglobin because reductase being an oxygen carrier and oxygen activator has no affinity for carbon monoxide. It was, therefore, very interesting to determine whether the carbon-monoxide-hæmoglobin, a pigment with a well-known spectrum, would remain unaltered in the presence of reductase or whether it would be in any way changed. It remained unaltered for many hours at 40°C., showing that reductase in its state of comparative freedom in tissue-juice was as powerless to break up the carbon-monoxide-hæmoglobin union as it is in intact cells.

Recently we have studied the enzymic nature of the active agent of tissue-juice from the kinetic standpoint. Measurements were made to determine the value of the temperature coefficient of the activity of reductase, and also to determine the nature of the law governing the decay in the activity of the enzyme. As regards the former, we obtained the necessary data from experiments on the reduction of oxyhæmoglobin by cat's liver juice at different temperatures. To determine the temperature coefficient, the time required to reduce oxyhæmoglobin at any one temperature was divided by the time required to reduce it at a temperature 10° higher. Between 10° and 40°C. the velocity of reduction is approximately doubled for each 10° rise in temperature, so that the temperature coefficient is about two. This discovery as to the behaviour of tissue-juice with rise of temperature, confirms our general contention that we are dealing with an enzyme. Above 40° it has been found that the increase in the velocity of reduction with rise in temperature rapidly falls off. Between 50° and 60°C., the temperature coefficient has been found to be 1·43. Although usually the temperature coefficients of reactions decrease slightly with increase of temperature, the decrease in the values obtained for the reduction of oxyhæmoglobin by reductase at temperatures above 40°C. is much greater than would be the case in ordinary chemical reactions. Since it is exceedingly probable that the optimum temperature of reductase lies between 40° and 46°C., the acceleration of the velocity of reduction due to increase in temperature is evidently to a certain extent counteracted by a partial inhibition or destruction of the enzyme, the result being a decrease in the value of the temperature coefficient.