seen by the naked eye was observed to correspond very closely with the spectroscopic appearances. The fresh mixture of tissue-juice and oxyhæmoglobin was of course pink, but as reduction proceeded it became of a duller red, until finally when fully reduced it was of the purple or livid colour so characteristic of venous blood. Towards the end of our work we were able to say, even by inspection, when a specimen was fully reduced: the spectroscope almost always corroborated us. We found that the fresh liver juice (cat) in presence of an aqueous solution of oxyhæmoglobin (cat's blood diluted one in twenty-five) would completely reduce the pigment at 40°C. within five to six minutes. At room temperature (17-20°C.) the time was approximately four times as long. The acceleration in the rate of the reduction of blood pigment with rise of temperature was particularly instructive with fresh juice; the times of reduction were 36 minutes at 10°, 22 minutes at 20°, 10 minutes at 30°, 5 minutes at 40°, 2·5 minutes at 50°, and 1·75 minutes at 55°C.

Since reductase thus can work through a large range of temperatures, we might expect that it would be found both in cold-blooded and in warm-blooded animals. This was discovered to be the case, for we had unmistakable evidence of its activity in tissue-juices both from the frog and from the fish. At room temperature, a specimen of liver juice from the fish which reduced oxyhæmoglobin in 7 minutes, reduced it at 40°C. in 2 minutes. We found reductase in fact in four out of the five great groups of the Vertebrata: mammals, birds, amphibia and fishes. The reductase from fish's liver was amongst the most energetic of any we encountered: the reason seems clear; the fish has access to so little oxygen that its organs must be able to extract it very thoroughly.

The marked acceleration of reduction at temperatures above 40°C. is in accordance with what we know as to the intensification of respiratory tissue changes in fever. Herter has told us that in hog cholera the reduction processes are exaggerated.

We had no evidence that reductase was qualitatively different in the various organs of the same animal nor in the different kinds of animals examined. There is no specificity of reductase from any one source in reference to hæmoglobin from any other. Thus the cat's liver juice can reduce the blood of any other mammal or of a bird, a frog, or a fish. The reductase of a bird can reduce the blood of a mammal, a frog, or a fish and so on. We have called these "crossed reductions;" they prove there is no mutual specificity of relationship between the enzyme and the pigment. Incidentally they corroborate the belief that the resemblances between the