

ture has its time distinctly shortened at 40°C., the blood heat. There is a decay in the activity of tissue reductase the longer the juice is kept even when it has been covered with a layer of toluene to prevent putrefaction. In a particular series of recent observations extending over a week, the following fall off in activity of reduction of liver juice was estimated. At the end of twenty-four hours the activity had fallen to 80 per cent. of its original value, at the end of the second day to 66 per cent., at the end of the fourth day to 30 per cent., and at the end of the eighth day to about 5 per cent. The survival of hepatic reductase to the eighth day is evidently not an isolated phenomenon, for quite recently it has been found that both hepatic xanthinase and uricase are active in liver juice as late as the fifth day. We shall later see that this decrease in activity is amenable to mathematical treatment.

Since several substances are known to be able to bleach soluble Prussian blue or cause it to fade, one had to eliminate the action of such as could possibly vitiate the results. Alkalies had first to be disposed of. It is of course true that alkalies can cause rapid fading of soluble Prussian blue and certain other pigments, but none of these is present in the living tissues. When all the various inorganic salts present in the blood or lymph had been examined, it was found that none of them caused any fading of the blue beyond what a similar dilution with water would have done. No more effective were mixtures of the salts; and Ringer's solution itself produced no fading. Reductase certainly acts like a reducer in an alkaline medium. Acid, therefore, added to the soluble Prussian blue and gelatine mixture prevents that complete reduction in the capillaries of an injected organ which occurs in its absence. Histologists recommend acetic acid being added to this particular injection mixture in order to prevent "fading by the alkaline tissues." That the inorganic salts of the blood do not reduce soluble Prussian blue is shown by the fact that when the blue and the red (of the blood) meet in the large vessels they form purple in those cases where the blood is not washed out previous to injection; but if the blue were reduced to the colourless state, the blood would be red in the large vessels, whereas it is always purple when the one pigment does not predominate over the other. It is hardly necessary to say that reduction was not due to products of putrefaction, for not only were the juices kept under toluene, but the reducing power falls off with age while the products of putrefaction must necessarily accumulate as time goes on. The net factor which had to be eliminated was the supposed reducing power of