nitrogen of muscle, a considerable error is introduced. It is our aim in completing this series of determinations to employ trichloracetic acid or some other fluid for extraction which will approximate the true values more closely.

It is hoped that these studies may form a basis for comparison with pathological muscle tissue.

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The rôle of autolysis in infarction.

By D. C. STRAUS and MAX MORSE.

[*From the Nelson Morris Memorial Institute for Medical Research, Michael Reese Hospital, Chicago.*]

Are the conditions which are believed to be necessary for autolysis realized in infarction? A true acidity is known to be necessary in some critical cases for autolysis,[1] that is, $P_H < 7, 0$. Infarction was made by kidney vessel ligation. The C_H was determined for the control blood and for that of the blood from the kidney after various periods of time elapsing after ligation.

Time.	PH.[2]
Control from the normal kidney vein	7.2
45 minutes after ligation	6.0
Control minutes after ligation	7.2
After four hours' ligation	6.0

Again, in a guinea-pig liver, excised and frozen by CO_2 within 50 seconds after excision, ground up and suspended in 0.9 per cent. NaCl solution and introduced into a Clark (W. M.) shaking hydrogen electrode C_H gave P_H 6, 5, the blood control giving 7, 2. After 35 minutes, $P_H = 6, 3$.[3] This rapid rise in C_H is in harmony with the observations of Hopkins, Moore and Roaf, concerning the origin of lactic acid immediately after the death of the tissue. It is likewise compatible with the determinations which Taschiro[4] has made on CO_2 evolution after injury. The conclu-

[1] Morse, Max, "Enzyme and reaction of medium in autolysis," *Journ. Biol. Chem.*, 1917, XXX, 197.

[2] By the Sørensen colorimetric method.

[3] By the potentiometer method.

[4] Taschiro, S., "Chemical Sign of Life," Chicago, 1917.

sion is justified that as far as reaction is concerned, the concentration of hydrogen ions is adequate for autolysis.

Can protein hydrolysis be demonstrated coördinate with the C_H? In the experiments described above, the variation of C_{NH_2} nitrogen was found to be as follows:

Time.	Mgm. Per Cent.
Control, vein	7.7
Control, mesenteric vein	7.7
After 45 minutes ligation	8.8
After 240 minutes ligation	12.1

The conclusion is here justified that there is evidence of hydrolysis of the proteins correlative with the development of acidity.

In work with inorganic colloids and catalysis, it has been shown that there is a relation between colloidal dispersion and catalysis. It is known that brain tissue hydrolyzes very much more slowly *in vitro* than *in vivo* and than other tissues. The question arose as to the following point:

Can the autolysis of slowly-autolyzing tissues such as the brain, be accelerated by modifying the dispersion of the colloids? Dog's brain was extracted in the cold with ethyl ether and the residue tested against control tissue from the same brain:

	Initial.	7 Days.
Control	0.55 mgm.	1.25 mgm. NH_2 nitrogen (Van Slyke gasometric method).
Ether	0.67 mgm.	0.65 mgm. NH_2 nitrogen (Van Slyke gasometric method).

No acceleration (but rather an inhibition) of autolysis occurred. In the use of $CHCl_3$, a similar result was obtained. Again, by saturating the unsaturated compounds of serum, which inhibits autolysis to be some degree, no difference between control and experiment was obtained; the compounds were hydrogenated and iodized by distributing the serum upon the walls of a large separatory funnel.