not possible ordinarily to upset the relative composition of the body by dietetic measures, aside from altering the fat and glycogen content. Normal growth proceeds only through assimilation of all the essential body constituents in the proportion in which they are normally found in the body; and in tissue disintegration the loss is likewise general, not restricted to individual components of the fundamental structure.

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The chemical composition of nonstriated mammalian muscle.

By **LAFAYETTE B. MENDEL** and **TADASU SAIKI.**

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In view of the paucity of data on the chemical composition of nonstriated muscle, Dr. Saiki has made an extensive study of the urinary bladder and muscular coat of the stomach of the pig. The details will be published in the *Journal of Biological Chemistry.* The preparations studied contained a considerably larger proportion of connective tissue (and presumably lymph spaces) than the corresponding skeletal muscles. This factor, involving the possible contamination with tissue lymph, must be taken into consideration in an interpretation of the analytical data. Hypoxanthin is the predominant purin base present. Creatin and paralactic acid can also be isolated. There is little, if any, glycogen in the nonstriated muscles examined; but the tissues possess the property of transforming glycogen in the characteristic enzymatic way. The most interesting contribution is a rather complete analysis of the inorganic constituents indicating a difference in their relative distribution in comparison with skeletal muscle, which can be accounted for in part only by an admixture of lymph.

COMPARATIVE COMPOSITION OF PIG'S MUSCLE AND BLOOD SERUM.

	K_2O	Na_2O	Fe_2O_3	CaO	MgO	Cl	P_2O_5	H_2O
Nonstriated muscle.....	0.081	0.328	0.011	0.044	0.007	0.171	0.184	80.6
Skeletal muscle (Katz)..	0.306	0.210	0.008	0.011	0.047	0.048	0.487	72.9
Blood serum (Abderhalden).....	0.027	0.425	—	0.012	0.004	0.363	0.020	91.8

The summary here given indicates a comparative richness of the nonstriated muscle in Ca. It is suggested that this may bear some relation to the characteristic physiological properties of such tissue, viz., tonic contraction and automatic rhythmic activity, both of which can be facilitated by Ca ions.

45 (301)

Increased susceptibility of protozoa to poison due to treatment with alcohol.

By LORANDE LOSS WOODRUFF.

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The protozoa on which the experiments were performed were from two cultures (each comprising four lines) — one of *Paramecium* which had been under daily observations for over nine months, and the other of *Stylonychia* which had been under daily observation for over two months when the experiments were begun. The daily rate of division of each of these cultures was known.

From each of these cultures two secondary cultures were isolated line by line, and these were treated in identically the same way as the original or "control" cultures, except that each received daily for over a month a certain amount of alcohol in the culture medium of hay infusion. One culture received one part of alcohol to 2,500 parts of culture medium and the other received two parts of alcohol to 2,500 parts of culture medium.

Then, from each of the two control cultures and from each of the four alcohol treated cultures, other cultures were isolated and treated in identically the same way as the culture from which each was respectively derived, except that each received one part of copper sulphate to 1,250,000 parts of culture medium.

From these experiments it was found that whereas the average rate of division of the alcohol treated cultures was more rapid than that of the control, the alcohol treated cultures were more susceptible to copper sulphate than the control series, and finally (in the cultures carried to conclusion) died out while the control series treated with copper sulphate survived. It was found that the protozoa which were subjected to the greater strength of alcohol (2/2,500) divided more rapidly than those which were subjected to