TABLE I.
Showing the % destruction of uric acids and its substitutes in the autoclave.

Uric acids	Time in minutes		
	15	30	45
Uric	9.7	15.9	24.0
1-monomethyl	12.5	19.7	23.4
3-monomethyl	14.0	14.1	14.9
3-9-dimethyl	9.0	4.0	11.0
1-3-dimethyl	15.6	16.2	15.6
1-3-7-trimethyl	6.0	10.0	7.0

The usual 15 minutes exposure at 15 lb. pressure, therefore, does not destroy more than 15% of the compounds employed.

The *Bacterium acidi urici* of Ulpiani destroyed 30% of the uric acid employed in 12 hours and 100% in 24 hours, while *B. aerogenes* accomplished the destruction in 48 hours at 37°C. Although all the cultures were incubated for a period as long as 14 days they failed to destroy any portion of the substituted compounds. All growth ceased when the uric acid was completely utilized. In mixtures of uric acid and the substituted uric acids the organisms selectively utilized all the uric acid employed and left the methylated uric acids quantitatively unaffected. These results are comparable with the findings of Armstrong and Horton,[4] who showed that urease is capable of acting on urea itself but not on methyl urea, s-dimethyl urea, as dimethyl urea, ethyl urea or s-diethyl urea. In other words, the bacteria and the enzyme (urease) exercise a selective effect.

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A New Pathological Condition of Probable Dietetic Origin in Rats.

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It has recently been observed in this laboratory, that when young or mature rats, of both sexes, which have been on the laboratory stock diet (milk, white bread and mixed grains) are transferred to individual cages with screen bottoms and are fed on an artificial food mixture, consisting of 18% casein (A and B free, British Drug

[4] Armstrong, H. E., and Horton, E., *Proc. Royal Soc. of London*, 1912, **85**, 109.

Houses), 78% corn starch and 4% McCollum's salt mixture, they develop, in the majority of cases, within 8 to 10 days, peculiar tail symptoms. These symptoms start with a slight segmentation of the distal end of the tail, followed by a more accentuated constriction, reddening of the segment, sometimes bleeding, necrosis and falling off of the tail tip. As the experiment proceeds the segmentation and the process extends.

It has been thought first, that the symptoms present an analogy with the deficiency disease described by Burr and Burr.[1] However, the following reasons speak in favor of a new pathological entity. The disease observed by us develops much earlier and is neither prevented by a daily addition of 400 mg. lard, 2 drops of cod liver oil, nor by 2 drops of linoleic acid. Replacing the purified casein by ordinary commercial casein did not delay the symptoms.

FIG. 1.

Of the 44 rats used in the initial experiments, 56.8% showed severe and 22.6% slight symptoms. The remaining 20.6% were normal looking animals. Of the several substances tried out so far, 50 mg. of dried yeast per day did not prevent the onset of sickness. Our experience seems to indicate that the tail symptoms are a part of a general syndrom as the development of severe lesions coincides

[1] Burr, G. O., and Burr, M. M., *J. Biol. Chem.*, 1929, **82**, 345; 1930, **86**, 587.

usually with an arrest in growth. Under investigation, at present, is the prophylactic effect of more substantial yeast doses, as well as other products.*

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Variations in the Micronuclear Apparatus of Paramecium bursaria.

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Studies have been made on the micronuclear apparatus of a race of *Paramecium bursaria* in pedigreed culture for more than 6 years, with the following chief results.

During this period marked variations have occurred in the micronuclear number. Originally the animals were bimicronucleate, but later they assumed the unimicronucleate condition characteristic of the species, and finally became amicronucleate.

Since throughout the life of the culture there have been no marked variations in the vitality of the animals, whatever function the micronuclear apparatus plays in the somatic life of the race is not obviously influenced by profound changes in the volume and distribution of the micronuclear material.

Cytological investigations have revealed no evidence of endomixis or conjugation.

The viability of amicronucleate animals, without the power to undergo endomixis or conjugation, further supports the indentification of the macronucleus and micronucleus as a segregation of somatic and generative elements into discrete bodies within the cell.

* As the paper goes to press, we noticed a paper by Hume and Smith (*Biol. J.*, 1931, **25**, 300) dealing with the same phenomenon. While we differ somewhat in the interpretation of the facts, we agree on the main results.