THE Chicago Section of the American Chemical Society plans to hold an American Chemical Exposition from December 11 to 15 at the Stevens Hotel. Arrangements will be in the hands of leading chemists in the Chicago area and the exposition will have the support and cooperation of national groups, that will officiate in an advisory character. The exhibits will stress the application of chemistry in industry and will reveal many new processes and new developments.

DISCUSSION

VITAMIN L AND FILTRATE FACTOR

LAST year Morgan and Simms[1] reported *inter alia* that "if the mother rats were deprived of the filtrate factor from the day of mating the litters were of normal size and weight, but none could be reared to weaning age." More recently, Sure[2] found that in albino rats complete failure of lactation resulted with the supplement of crystalline thiamin, riboflavin, vitamin B_6, choline and nicotinic acid, and the addition of factor W (filtrate factor) concentrate resulted in success in every trial. In the words of Sure, if there exist needed components other than those just named "these unidentified substances must have been furnished by the solution containing W factor, which was prepared from liver extract." Thus the question of the specific factor for lactation has been narrowed down to the filtrate factor fraction, the fraction in which we found our vitamin L.[3]

Since our first publication on the subject[4] we insisted that the failure of lactation (vitamin L deficiency) can be produced on diet entirely adequate for growth. We recently re-examined the subject and found that our vitamin L complex deficient diet, consisting of polished rice powder 75 g. purified fish protein 10 g., butter fat 10 g., McCollum's salt mixture 5 g., supplemented with acid earth adsorbate of baker's yeast (yield from 10 g. of dried yeast), was absolutely adequate for growth, inasmuch as the growth of young rats on this diet was in no way inferior to that on a similar diet with whole brewer's yeast supplement, replacing acid earth adsorbate. In both cases, young rats weighing about 25 g. grew to about 200 g. in 10 weeks. Vitamin L deficiency produced by us is quite independent of filtrate factor deficiency.

The source of filtrate factor in our vitamin L complex deficient diet proved to be polished rice powder, since when this was extracted with dilute alcohol the L deficient diet above mentioned produced subnormal growth (filtrate factor deficiency).

Another evidence pointing to the non-identity of vitamin L and filtrate factor is based on the fact that two different substances (L_1 and L_2) are involved in vitamin L complex. For example, liver filtrate is an accepted source of filtrate factor and yet we know that it supplies only one (L_1) of the two components. Baker's yeast filtrate is potent as filtrate factor but we also know that it does not contain vitamin L_1. Evidence seems to be growing that the so-called filtrate factor consists of two or more components, but these component substances occur together in liver as well as yeast filtrates. We believe that it is impossible to identify vitamin L with filtrate factor, and that the filtrate factor in the sense of Morgan and Simms and the W factor concentrate used by Sure are mixtures of filtrate factor and vitamin L.

WARO NAKAHARA
FUMITO INUKAI
SABURO UGAMI

THE INSTITUTE OF PHYSICAL AND CHEMICAL RESEARCH, TOKYO

THE ATTEMPTED CHARACTERIZATION OF MALIGNANT TISSUE PROTEIN WITH D-AMINO ACID OXIDASE

IN a recent paper, Lipmann, Behrens, Kabit and Burk[1] have reported results obtained by subjecting acid hydrolysates of normal and malignant tissue proteins to the action of d-amino acid oxidase. The average percentages of nitrogen liberated by the oxidase were as follows: for proteins (insulin, Bence-Jones protein, gliadin), 1.1 per cent.; for normal tissues, 1.8 per cent.; for one benign tumor, 1.8 per cent.; for malignant tissues, 1.7 per cent., and for one sample of leukemia tissue, 2.1 per cent. 71 to 87 per cent. of the d(−)glutamic acid nitrogen added to the tissue hydrolysates could be recovered. On the basis of these results, the above authors conclude that "whatever interest certain of Kögl's data may retain for general biochemistry, the main contention concerning malignancy specificity[2] is, for the cancer field, evidently no longer tenable." We are unable to agree that the results reported justify this conclusion. Our objections are discussed in the remainder of this communication.

(1) Certain amino acids, notably serine, proline, cystine and alanine, are partly racemized during acid

[1] A. F. Morgan and H. D. Simms, SCIENCE, 89: 565, 1939.
[2] B. Sure, *Jour. Nutrition*, 19: 57, 1940.
[3] W. Nakahara, F. Inukai and S. Ugami, SCIENCE, 87: 372, 1938.
[4] W. Nakahara and F. Inukai, *Sci. Pap. Inst. Phys. Chem. Research*, 22: 301, 1933.

[1] SCIENCE, 91: 21, 1940.
[2] *i.e.*, that malignant tissue protein contains partly racemized glutamic acid residue, as well as small amounts of other slightly racemized residues (leucine, lysine, hydroxyglutamic acid, valine).