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.

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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).

hydrolysis of proteins. It is to be expected, therefore, that d-amino acid oxidase will liberate small amounts of nitrogen from both normal and malignant tissues after such hydrolysis. If the amount of nitrogen liberated from these amino acids is of the same order of magnitude as that preexisting in the partly racemized glutamic acid reported by Kögl and others[3] to exist in malignant tissue proteins, then the d-amino acid oxidase method would seem to be unsuitable for the detection of such glutamic acid. Suppose, as an example, that 100 g of malignant tissue protein is assumed to have a nitrogen content of 15 g. If it is assumed that 5 g of glutamic acid are present in the hydrolysate of this protein, the glutamic acid nitrogen present will be 0.476 g. Even if this glutamic acid is completely racemized, the amount of d(−)glutamic acid present will be only 0.238 g, or 1.6 per cent. of the total protein nitrogen. This is of the same order of magnitude as the percentages of nitrogen liberated from normal and malignant tissues by d-amino acid oxidase; indeed, the nitrogen liberated from a carcinoma of the breast was found to be 3.7 per cent.

(2) In view of the recent report of Kögl, Erxleben, and Akkerman,[4] there seems to be little doubt that d(−)glutamic acid actually exists in acid hydrolysates of malignant tissue proteins. These authors have isolated, by two different methods, chemically pure d(−)glutamic acid from such hydrolysates.

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THE PEACE RESOLUTION OF THE AMERICAN ASSOCIATION OF SCIENTIFIC WORKERS

IMMEDIATELY after the outbreak of the European war in September, 1939, the members of the American Association of Scientific Workers attempted to crystallize their attitudes toward the conflict. This was done by discussions at membership meetings of the various branches, by communication between the branches and in discussion at two national committee meetings. From these discussions there resulted the following statement, which represents the attitude of a large majority of the members of the association.

Science is creative, not wasteful or destructive. Yet the same scientific advances which have contributed so immensely to the well-being of humanity are made to serve also in increasing the horrors of war. The present conflict in Europe focuses attention on this perversion of science.

The futility of war is especially clear to scientists, for war, as a method of solving human problems, is out of harmony with the rational spirit and objective methods of science. Wherever objective analysis is permitted, the great advantages of peaceful procedure in the adjustment of conflict become obvious. Scientists deplore the fact that the fruits of their efforts are exploited for the ends of death and destruction and look to the future when science will be employed only in the one struggle worthy of it—in man's never-ending contest with nature.

Scientists know that democracy and freedom of thought, which are precious to us both as citizens and as men of science, are endangered in the emotional turmoil which accompanies war. The continuance of progress now largely depends upon the scientists of the neutral nations. American scientists can best fulfill their share of this responsibility if the United States remains at peace.

We, the undersigned workers in science (including members of the American Association of Scientific Workers and other American scientists), therefore recommend to our fellow-citizens the wholehearted and unceasing support of all reasonable programs which seek a better undestanding of the causes of war, and which will preserve peace for the United States and bring peace to the world.

This statement, accompanied by a letter of explanation from Professor Arthur H. Compton, of the University of Chicago, chairman of the Mid-west Branch, is being mailed to many non-member scientists asking for their approval. When the signatures have been collected, it is planned to present the statement and the signatures to the President of the United States. Professor Compton's letter reads in part as follows:

May I ask your attention to the enclosed *Peace Resolution* adopted by the American Association of Scientific Workers, and if you approve it, please sign the resolution and return it. . . .

It is our desire to bring this resolution to the attention of the American public as expressing the earnest concern of American men of science in the maintenance of peace. The more nearly unanimous the responses to this request become, the more truly can we consider that this resolution represents the attitude of American scientists. . . .

Because of limited funds it has been impossible for the AASW to reach more than a small cross-section of the large numbers of American scientists. Others who approve the statement can signify their approval by writing Professor Compton.

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SCIENTIFIC BOOKS

THE STONE AGE OF MOUNT CARMEL

The Stone Age of Mount Carmel. Vol. II. By THEODORE D. MCCOWN and SIR ARTHUR KEITH. 390 pp., 88 tables, 247 illustrations, 28 plates. Appendix, bibliography and index. Oxford University Press, 1939. $20.00.

[3] See bibliography given in the paper of Lipmann *et al.*

[4] *Z. physiol. Chem.*, 261: 141, 1939.