published in a given journal should be exercised. Although the advantages to be gained in this manner would certainly be very great, it may well be questioned whether the necessary cooperation for such reforms could be secured even in one country, much less throughout the world. In view of this it has appeared of interest to consider whether better utilization of the literature of science might not be achieved by improvements in the means of distribution of the papers published under present conditions.

It is apparent that persons engaged in scientific research must both learn of the existence of the reports of others and have access to or be able to obtain copies of the original publications. The problem then is to satisfy these two needs in a better manner than at present.

Acquaintance with the source literature of science is usually obtained by means of abstract journals, reviews, bibliographies or the references given in each paper to preceding publications. These resources serve admirably for the prior literature but not for the currently appearing contributions. It is these that many investigators are especially anxious to have brought promptly to their attention.

In the larger research centers, such as that composed of the governmental laboratories in Washington, the system in operation is the circulation of the current issues of the journals among the workers. Each one is thus permitted to successively examine the contents of the periodicals he selects. This plan, however, has the serious disadvantage that while the journal is circulating it is not available for reference. Furthermore, each worker must peruse the copy during the brief period it is at his disposal, and may sometimes be forced to neglect more important work in order not to delay the circulation of the periodical. There is also the disadvantage that the contents of each number is usually so varied that much time may be wasted in scanning articles of no immediate interest while searching for the rare ones directly bearing upon a given problem.

A far better plan would be the publication of current classified catalogues of the titles of papers appearing in scientific periodicals. The only question is whether such publications can be produced at not too great an expense, and, when coupled with microfilm copying service, will they satisfy the needs of workers not adequately supplied with journals or abstracts.

The necessary conditions for launching such a project are adequate library collections of periodicals in given fields of science, and properly qualified persons to select and classify the titles to be included in the published catalogues. Microfilm services have been developed sufficiently to meet the needs in respect to microfilm copying. There is, however, the accompanying requirement that the journals from which microfilm copies are to be made shall not circulate.

Fortunately there is a library where all these conditions are fulfilled, and it is probable that a trial of the plan can be made there. This is the Army Medical Library of Washington. Its collections of medical periodicals are among the most complete in the world and are circulated to only a very limited extent. The Library also collects directly from the current journals the titles of the articles subsequently used in compiling its Index Catalogue of Medical Literature. The cards thus made are available for preparing at small expense a classified catalogue of the currently appearing papers. The Library is also provided with a microfilm copying service and thus combines all the elements required for inaugurating the suggested system of disseminating current periodical literature.

There is one additional question which arises in connection with the catalogues of current titles and that is whether they can also be conveniently used for searching the prior literature. For this purpose indices will be required, but their preparation need not add greatly to the expense, and with them it should certainly be possible to trace desired references to articles of which the titles have been recorded in the preceding issues of the catalogue.

It may be concluded, therefore, that this improved means of acquainting research workers with the current periodical literature, and promptly supplying them with microfilm copies of it, will enable many more persons to undertake research than can now do so with profit, and permit everyone to make better use of the published work of others for the advancement of science.

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478 (Nov. 22) on the basis that it "describes the scheme one would expect of a Totalitarian State or the U. S. S. R." Dr. Sutton overlooks the fact that the freedom of the press to which he refers has a very different purpose than the publication of scientific research for the benefit of those able to use it for the advancement of science. It is needless to mention that the purpose of my article was to call attention to the chaos which exists in the periodical publication of science and suggest that something be done about it.

VITAMIN L AND DEXTRIN DIET

IN a previous note in SCIENCE, incidental to pointing out the non-identity of vitamin L and filtrate factor, we[1] referred to Sure,[2] who stated that an attempt to rear young of the albino rats with supplements of crystalline thiamine, riboflavin, vitamin B_6, choline

[1] W. Nakahara, F. Inukai and S. Ugami, SCIENCE, 91: 431, 1940.

[2] B. Sure, *Jour. Nutrition*, 19: 57, 1940.

and nicotinic acid resulted in complete failure of lactation, and that the addition of filtrate factor concentrate prepared from liver extract resulted in success in every trial. Liver filtrate is a potent source of vitamin L_1 but, according to our previous experiments, the other necessary lactation vitamin, *i.e.*, vitamin L_2, is absent from it.[3] The question then arises: how did it happen that Sure obtained successful lactation without vitamin L_2 supplement?

Our recent experiments show that Sure's use of dextrin in his basal diet provides the answer to this question. We confirmed that more or less satisfactory lactation can be obtained on a diet consisting of dextrin 60%, purified fish protein 25%, butter 10%, and McCollum's salt mixture 5%, supplemented with acid earth adsorbate of yeast extract (vitamin B complex) and liver filtrate (filtrate factor and vitamin L_1). If, however, polished rice is used, instead of dextrin, an additional supplement of yeast constituent (vitamin L_2) becomes necessary for successful lactation, liver filtrate supplement being insufficient.

Dextrin diet + liver filtrate (L_1): 35 of 81 young reared (43.2%).

Polished rice diet + liver filtrate (L_1): 5 of 155 young reared (3.2%).

Polished rice diet + liver filtrate (L_1) + baker's yeast (L_2): 23 of 40 young reared (57.5%).

Obviously, therefore, dextrin in diet renders largely unnecessary vitamin L_2, which is absolutely indispensable in polished rice diet.

Since it is highly improbable that dextrin serves as a direct source of vitamin L_2, it may more reasonably be assumed that dextrin diet leads to the production of vitamin L_2 by the intestinal yeasts. In this connection it may be recalled that dextrin diet strikingly favors the proliferation of these yeasts which synthesize vitamin B_2, rendering the rats relatively refractory to B_2 deficient feeding.[4] In any event, it seems now clear that vitamin L_2 deficiency can not be produced by dextrin diet, and that with this diet vitamin L_1 supplement is sufficient to permit successful lactation.

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AN INVESTIGATION OF GROWTH IN PLANTS

A RECENT grant from the Rockefeller Foundation to the Connecticut Agricultural Experiment Station will be used to further a study of normal growth that has been in progress for some time. The long inbred strains of maize that have been continuously self-fertilized for more than 30 generations furnish favorable plant material for an investigation of this kind. These inbred plants are so reduced in size and growth rate and so uniform in all structural details that any mixing with unrelated plants can be certainly detected. In this material heritable changes are occurring from time to time that are known to have their origin in the nucleus. Most of these are degenerations from a normal level of vigor.

Chromosomal rearrangements, both spontaneous and induced, are known to alter growth in the endosperm tissue. The problem is to study their effects upon other parts of the plant where they can be measured statistically.

The interaction of nucleus, cytoplasm and cytoplasmic inclusions in the control of normal growth and differentiation is one of the most fundamental problems in biology at the present time. Knowledge in this field has importance for the further improvement of economic plants and animals and the control of neoplastic diseases.

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PRO AND CON EVOLUTION IN CONTEMPORARY GERMANY

FASCICULE 4–5 of Volume 37 of the semi-scientific periodical *Natur und Kultur* of Muenchen (April–May, 1940) contains an editorial preface by Dr. Franz Wetzel and nine essays by different authors, in all of which are to be found violent attacks upon evolution, especially with regard to the origin of man from apelike ancestors.

It is not intended here to discuss the arguments assigned in those essays, based chiefly on Dacqué's and Westenhöfer's ideas, but attention must be drawn to a fact most striking to a scientific reader: nowhere are the conclusions derived from the results of research; on the contrary, the former are tested as to whether or not they agree with the national socialist racial theory ("Rasselehre"). If they do not they have to be rejected. Evolution seems to be especially suspect because it appears to be contradictory to the invariability of species and races, required as dogma by the "Rasselehre," and is, in consequence, stigmatized by Otto Muck[1] as "Theorie der universalen Art- und Rasselosigkeit." It is no less striking to see that the adversaries of evolution reproach its advocates, alleging that the latter make them politically suspect.

Fortunately, H. Weinert rejects all these anti-evolutionary arguments as "pseudowissenschaftliche Ein-

[3] W. Nakahara, F. Inukai and S. Ugami, SCIENCE, 87: 372, 1938.

[4] N. B. Guerrant and R. A. Dutcher, *Jour. Biol. Chem.*, 110: 233, 1935; U. Tange, *Sci. Pap. Inst. Phys. Chem. Research*, 36: 471, 1939.

[1] *L.c.*, pp. 133, 135.