investigation to be made into available statistical records and other data concerning food supplies and consumption in the United States of America, the United Kingdom and Canada. Three United States officials have arrived in England to confer with officials of the Ministry of Food. They are Dr. John M. Cassels, Dr. Montell Ogden and Dr. L. A. Maynard, all of the U. S. Department of Agriculture. The Canadian Government is also participating in this inquiry. Ian Mcarthur, of the Canadian Dominion Bureau of Statistics, has also arrived in England. Personal discussions will supplement the full exchange of information on food matters which is already taking place through the established channels of the Combined Food Board.

Chemical and Engineering News reports that the embargo placed on the export of scientific periodicals by the United States is proving a heavy blow to Swedish investigators. Several prominent research workers in the April 7 *Stockholm's-Tidningen* express serious concern over their inability to keep abreast of scientific progress and new discoveries made in the United States. Professor Arne Tiselius, of the University of Uppsala, is quoted as saying, "It is vital for Swedish science to maintain contact with American research." Since the United States entered the war no scientific literature, with but few exceptions, has entered Sweden. A list of a hundred indispensable periodicals is being compiled and will be submitted to the authorities with an appeal that steps be taken for them to be regularly sent to Sweden. The *News* further reports that Swedish-British scientific cooperation has been made possible through an offer by the British Council to underwrite the printing in English of such Swedish doctors' theses as are of interest to the English-speaking scientific world. This offer, much appreciated in Swedish scientific circles, has been submitted to all universities and colleges in Sweden.

THE British Medical Research Council has arranged with the London Hospital for the establishment there of a department for research in industrial medicine. Dr. Donald Hunter, physician to the hospital, has accepted a part-time appointment to the staff of the council as physician-in-charge of the department, and the council has appointed Dr. Kenneth Perry and Dr. Norman Spoor as full-time research assistants to work under his direction. The hospital is providing accommodation and facilities, and will be responsible for the treatment of cases under investigation. The primary purpose of the department is to undertake clinical researches into disorders affecting industrial workers, including both occupational diseases and others of a more general kind. This work will be done mainly in the department itself, but the staff will make visits from time to time to other parts of the country where special problems for investigation may be brought to the notice of the council. The department will also be responsible for teaching and instruction in the subject. This arrangement supersedes that made last year for the appointment of a whole-time director of research in industrial medicine attached to the council's headquarters. The post had become vacant through the appointment of Professor A. W. M. Ellis to the regius chair of medicine at the University of Oxford.

IT is reported that an institute for typhus research has been opened at Lemburg. It has been named after Emil von Behring.

DISCUSSION

THE DIGESTION OF LIVING TISSUES BY PROTEOLYTIC ENZYMES[1]

THE insusceptibility of living bacteria, yeast cells, etc., to digestion by proteolytic enzymes has intrigued many investigators and a number of explanations for this resistance have been suggested.[2] Whatever the nature of this insusceptibility it is of a type which is easily lost. On death or injury a change occurs (protein denaturation?), which permits digestion to take place. In striking contrast to the resistance of these living forms is the susceptibility to digestion which mammalian tissues exhibit.[3] The present observations appear to suggest an explanation for the ability of proteolytic enzymes to digest living mammalian tissues in spite of the strong probability that these tissues possess the same protoplasmic and cellular characteristics upon which the insusceptibility to digestion of the freely living forms depends.

Trypsin has been shown to be capable of liberating histamine from mammalian tissues. This has been demonstrated for the perfused lungs of guinea pigs,[4] for the blood cells of rabbits[5] and for the liver of dogs.[6] Some recent observations with the trypan blue

[1] This research has been aided by a grant from the Clara A. Abbott Fund of Northwestern University.

[2] J. H. Northrop, "Crystalline Enzymes." New York: Columbia University Press. 1939.

[3] L. R. Dragstedt, *Arch. Surg.*, 44: 438, 1942.

[4] M. Rocha e Silva, *Arquivos d. Inst. Biol.*, 10: 93, 1939.

[5] C. A. Dragstedt and M. Rocha e Silva, *Proc. Soc. Exp. Biol. and Med.*, 47: 420, 1941.

[6] M. D. Ramirez de Arellano, A. H. Lawton and C. A. Dragstedt, *Proc. Soc. Exp. Biol. and Med.*, 43: 360, 1940.

test in rabbits indicate that the ability of trypsin, when injected intracutaneously, to cause a localization of the intravenously injected dye at the injection site, probably depends upon a local liberation of histamine from the skin and the consequent increased capillary permeability which this agent causes.[7] While observing these trypan blue reactions it was noted that adequate concentrations of trypsin digested the skin at the injection site, but that a marked dye localization always preceded the digestion. Also, it was found that weak concentrations of enzyme could produce definite localization of dye without subsequent digestion. These observations suggest that the local liberation of histamine is primary to, and possibly essential for, the ensuing digestion. To test this hypothesis, it was found that the concomitant injection of histamine with trypsin increased the amount of local digestion produced by the latter and would enable otherwise ineffective concentrations of enzyme to produce digestion. The histamine concentrations used did not cause any necrosis when injected alone.

The vitality of organized tissue is closely dependent upon the integrity of its vascular supply. Histamine is a potent angiotoxic agent, producing both marked contraction of arterioles and marked dilatation with increased permeability of capillaries. Thus trypsin releases an agent capable of embarrassing the vitality of tissues which depend upon a vascular supply. Its ability to digest organized tissue would appear to be conditioned by its ability to produce initially a sufficient degree of tissue injury to cause the cells to lose their specific insusceptibility to digestion. Free living cells (bacteria, etc.) are not injured by histamine (even if it is released from them) because its cytotoxic action is weak and there is no vascular system through which injury can be produced indirectly. Thus, while these observations do not explain the nature of the insusceptibility of living cells to tryptic digestion, they suggest an explanation for the ability of trypsin to digest organized tissue which obviates the alternative necessity of assuming that there is a fundamental difference in the protoplasm of the two types of tissues.

CARL A. DRAGSTEDT
DEPARTMENT OF PHARMACOLOGY,
NORTHWESTERN UNIVERSITY
MEDICAL SCHOOL

VITAMIN C IN EVERGREEN-TREE NEEDLES

IN his special report to SCIENCE[1] on the work of Soviet botanists, B. Shishkin says, in part, "Quite recently it was discovered that needles of ordinary pine trees contain large quantities of vitamin C. Biochemists in Moscow and Leningrad have organized mass production of vitamin C concentrate from pine needles. Despite the fact that the percentage of vitamin contained in needles is very small, this source of vitamin C is of particular value to us on account of the huge pine forests throughout the whole territory of the Soviet Union. . . ."

This report reminded me of the following account by Parkman in his book, "Pioneers of France in the New World":[2] "A malignant scurvy broke out among them. Man after man went down before the hideous disease, till twenty-five were dead, and only three or four were left in health. . . . Cartier, walking one day near the river, met an Indian, who not long before had been prostrate like many of his fellows with the scurvy, but who now, to all appearance, was in high health and spirits. What agency had wrought this marvellous recovery? According to the Indian, it was a certain evergreen, called by him *ameda,* of which a decoction of the leaves was sovereign against the disease. The experiment was tried. The sick men drank copiously of the healing draught,—so copiously indeed that in six days they drank a tree as large as a French oak. Thus vigorously assailed, the distemper relaxed its hold, and health and hope began to revisit the hapless company." Parkman gives the opinion in a footnote that "The wonderful tree seems to have been a spruce."

MAURICE DONNELLY
RIVERSIDE, CALIF.

TRANSLITERATION OF RUSSIAN NAMES

THE recent communications of Knight[1] and Hrdlička[2] contained pertinent comments on the problem of representing Russian names and titles in American journals. It was a surprise to me, however, that neither referred to the Library of Congress catalogue rules for transliteration. As American scientists are becoming increasingly familiar with Slavic literature it would seem worth while calling attention to this method of transliteration with one or two comments on its use.

It has been my experience in studying translations, maps, gazeteers and catalogues of Russian work that a number of different systems are used which vary more or less from one another. The principal cause of transliteration confusion (particularly on maps and in library catalogues) is the fact that every one uses a different method. The worst system now in use would be the best one if it was employed by every one; *e.g.,* the Russian Я (pronounced *ja,* like

[7] M. Rocha e Silva and C. A. Dragstedt, *Jour. Pharm. and Exp. Therap.,* 73: 405, 1941.

[1] SCIENCE, April 16, 1943, pp. 354–355.

[2] Francis Parkman, "Pioneers of France in the New World," 17th ed., pp. 194–195. Boston: Little, Brown and Company, 1880.

[1] SCIENCE, April 30, 1943.

[2] SCIENCE, March 12, 1943.