

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.<sup>7</sup> 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.

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#### VITAMIN C IN EVERGREEN-TREE NEEDLES

IN his special report to *SCIENCE*<sup>1</sup> 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":<sup>2</sup> "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."

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#### TRANSLITERATION OF RUSSIAN NAMES

THE recent communications of Knight<sup>1</sup> and Hrdlička<sup>2</sup> 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

<sup>2</sup> Francis Parkman, "Pioneers of France in the New World," 17th ed., pp. 194-195. Boston: Little, Brown and Company, 1880.

<sup>1</sup> *SCIENCE*, April 30, 1943.

<sup>2</sup> *SCIENCE*, March 12, 1943.

<sup>7</sup> M. Rocha e Silva and C. A. Dragstedt, *Jour. Pharm. and Exp. Therap.*, 73: 405, 1941.

<sup>1</sup> *SCIENCE*, April 16, 1943, pp. 354-355.

the German "yes") is currently transliterated by any of the following letters and combinations according to the phonetic interpretation of the transliterator: ia, ya, j, ja or a. Possibilities for confusion are obvious. One need only reflect that a name beginning with this letter may be placed in four different positions in a Roman alphabet index. Although Russian orthography is highly phonetic (in contrast to the English), there are some cases of variability in the pronunciation of letters. This also results in various transliterations and consequent confusion in the index.

The Library of Congress employs a system which I do not like as a student of language but have adopted for practical purposes in my scientific studies. This system provides us with an equivalent for every Russian letter. As there are more letters in the Russian alphabet than in the current American alphabet, some diacritical signs and vowel and consonant combinations are used in conjunction with our own 26 letters. Although *approximate* phonetic rendering is obtained, the rules provide for use of the same equivalent *invariably* regardless of pronunciation. This is an essential regulation for maintaining so-to-speak "index integrity." Although one does sacrifice some phonetic value in strict adherence to the Library of Congress rules, it is the most nearly standard system, and in the interests of uniformity I

urge its adoption by scientists dealing with Slavic literature. A diagrammatic résumé is on file in libraries and may also be obtained from Washington, D. C.

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IN SCIENCE for March 12 (p. 243) Dr. Hrdlička commented on the unfortunate lack of uniformity in transliterations of Russian names. He was justified in his criticism, which is supported by Dunlap in SCIENCE for April 30. The same name ending in "v" I have sometimes found transliterated in various publications four different ways, *i.e.*, "v", "w", "f" and "ff". Uniformity could be secured easily if the rules of the American Library Association were followed by at least all American writers. I have found a 3×5 inch library card published by the Library of Congress and carrying this system, most convenient in checking my memory of the transliterations.

The ligatured diphthongs used in this system involve a difficulty in publication, as these characters are not included in the equipment of any presses known to me, which use monotype machines. By omitting the arc which is used as a ligature, this trouble can be avoided. I have done this with a note stating the policy, and I know of at least two American presses which are following this practice.

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## SCIENTIFIC BOOKS

### MATHEMATICS

*Basic Mathematics for Pilots and Flight Crews.* By C. V. NEWSOM and HAROLD D. LARSEN, University of New Mexico. vi+153 pp. New York: Prentice-Hall, Inc. 1943. \$1.50.

THIS is a brief presentation of those parts of geometry, algebra and numerical trigonometry needed by members of the air force. The authors have kept in mind the recommendations of the Civil Aeronautics Administration, as well as the specific weaknesses in mathematics found by air force instructors. A review of arithmetic is included, and such topics as graphs, scales and measurement and vector diagrams are stressed. The principles of straight and circular slide rules are explained. There are a large number of practical problems, most of which will directly appeal to the student as related to aeronautics. The book seems well suited for use as a textbook for pre-flight preparation at the high-school level either in the classroom or through home study.

*Analytic Geometry.* By EDWARD S. SMITH, MEYER SALKOVER and HOWARD K. JUSTICE. University of

Cincinnati. xii+298 pp. New York: John Wiley and Sons, Inc. 1943. \$2.50.

THIS text gives an extended treatment of plane analytic geometry, including chapters on higher plane curves, polar coordinates, parametric equations and empirical equations, followed by a brief treatment of solid analytic geometry. A short chapter on plane sections of a right circular cone, in which the fundamental properties usually taken as definitions are geometrically derived, precedes the discussion of the different types of conics. In this chapter, as well as in those on solid geometry, the figures are not only mathematically correct, but carefully designed to suggest the proper spatial relations. The authors have shown good mathematical judgment in avoiding incorrect statements, and sound pedagogical judgment in their selection of topics and omission of certain fine points. For some complicated proofs the student is referred to an outline in an exercise. The book covers competently the content of the conventional freshman course in analytic geometry, including ample material for the ablest students, and compares favorably with existing text-books in this field.