SCIENCE

NEW SERIES
VOL. 95, No. 2470

FRIDAY, MAY 1, 1942

SUBSCRIPTION, $6.00
SINGLE COPIES, .15

Science: published weekly by The Science Press, Lancaster, Pa.
Entered as second-class matter July 18, 1923, at the Post Office at Lancaster, Pa., under the Act of March 3, 1879.

American War Birds Have Keen Eyes

FOR America's fighting forces, strictest requirements are imposed on the men who fly the fighter planes. Stamina, keen perception and split-second timing depend on condition. In the most critical physical examinations, particular emphasis is given to perfection of vision.

Several years ago, at the request of U. S. Army officials, Bausch & Lomb developed a special anti-glare glass for use in bright over-cloud flying. This glass, known as Ray-Ban, has the remarkable property of filtering out excess glare-producing light, at the same time transmitting most of the light useful for seeing. Army, Navy and airline pilots—as well as target shooters and motorists—have welcomed the cool, comfortable, keen vision that Ray-Ban affords.

So, again, and in still another way, Bausch & Lomb gives aid to America's all-out for Victory. Its other contributions, more obvious, include gun-fire control equipment—rangefinders, binoculars, aerial height finders. Behind the scenes, but of no less importance, are the instruments of industrial research and production—metallographic equipment, spectrographs, toolmakers' microscopes, contour-measuring projectors. Bausch & Lomb eye-wear products—eye examination instruments, spectacle lenses and frames—keep a nation of workers at top visual efficiency.

BAUSCH & LOMB

OPTICAL COMPANY • ESTABLISHED 1853

AN AMERICAN SCIENTIFIC INSTITUTION PRODUCING OPTICIAL GLASS AND INSTRUMENTS FOR MILITARY USE, EDUCATION, RESEARCH, INDUSTRY AND EYESIGHT CORRECTION

SCIENCE

VOL. 95 FRIDAY, MAY 1, 1942 No. 2470

SCIENCE: A Weekly Journal devoted to the Advancement of Science, edited by J. MCKEEN CATTELL and published every Friday by

THE SCIENCE PRESS

Lancaster, Pa. Garrison, N. Y.

Annual Subscription, $6.00 Single Copies, 15 Cts.

SCIENCE is the official organ of the American Association for the Advancement of Science. Information regarding membership in the Association may be secured from the office of the permanent secretary in the Smithsonian Institution Building, Washington, D. C.

METALS IN NATIONAL DEFENSE[1]

By Dr. ZAY JEFFRIES

GENERAL ELECTRIC COMPANY

WHEN near the middle of 1940, the Advisory Commission to the Council of National Defense was established, it was only natural that great stress was put on the importance of metals and minerals and equally natural that Dr. C. K. Leith should find himself in the center of this activity. Dr. Leith has made a profound study of the relationships between minerals and war. He has served the government, directly and indirectly, for more than a quarter of a century and, for the past twenty years, he has advocated the stockpiling of such minerals as are not obtainable or of which there is a deficiency in the Western Hemisphere. He has eloquently pointed out that the nations controlling the great mineral deposits of the world should lead in both industrial and war strength; that no continent is self-sufficient in all the minerals necessary for either a complete industrial development or the most efficient prosecution of war; that the mineral distribution is such that no continent can obtain all the necessary minerals without sea transportation, and hence that the value of sea control can hardly be overestimated.

Dr. Leith early called on the National Academy of Sciences for technologic help on manganese and tin. By February, 1941, the problems were multiplying to such an extent that he asked the academy to arrange for a comprehensive organization to provide the Office of Production Management, successor to the Advisory Commission, with advice on metals and minerals.

Dr. Frank B. Jewett, the president of the academy,

[1] Read at the meeting of the National Academy of Sciences, Madison, Wisconsin, October 14, 1941.

The same procedure is followed as in making ordinary enlargements on bromide or chloro-bromide papers except that translite film or paper is used instead.

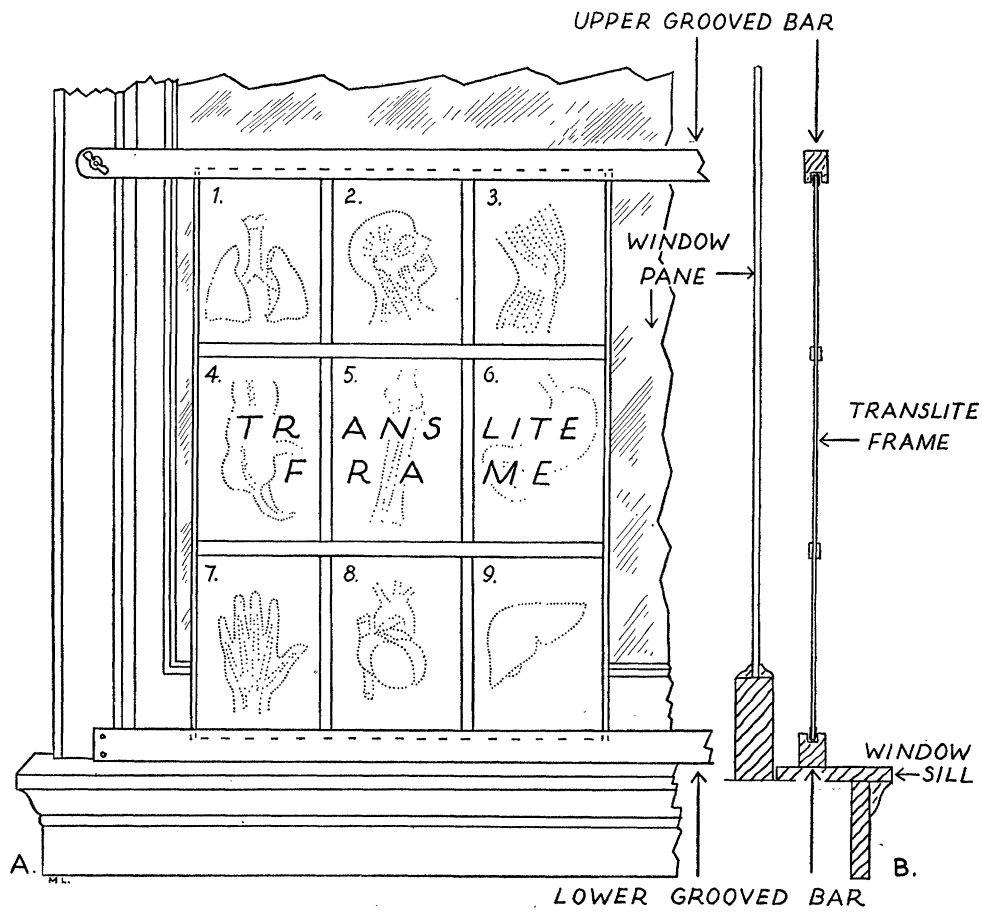

FIG. 1. Front (A) and cross-sectional (B) view of window frame with translites in place for viewing. The translite frame may be removed from the window by unscrewing the wing nut fastening one end of the upper grooved bar.

The translite film or paper requires no special technique in handling and developing. The development, the fixing and the washing of the translite film or paper is similar to that employed in preparing ordinary photographs. Wide variations in exposure of the translite film are possible since the translite film has a rather wide latitude.

Translites may easily be made to resemble the specimen more closely by the application of coloring pigments directly to either side of the film or paper. Eastman Transparent Oil Colors are best suited and should be used undiluted and applied directly with cotton applicators and then blended. Excess color may be removed easily by means of "thinner" applied in a similar manner.

Photography has been used as an inexpensive means of recording detail of preparations, etc., for further study. Ordinary photographs usually fail to create the illusion of depth so that it becomes difficult to determine the relationship of successively deeper planes to one another. The use of translites enhances the illusion of depth, and this means of mounting and illuminating translites is efficient and inexpensive.

IRVING REHMAN
GUSTAVE J. NOBACK

DEPARTMENT OF ANATOMY,
NEW YORK UNIVERSITY

BOOKS RECEIVED

BOAL, SAM J. *Gardening—Without Bunk.* Pp. 145. Putnam. $1.75.

HAYES, H. K. and F. R. IMMER. *Methods of Plant Breeding.* Illustrated. Pp. xii + 432. McGraw-Hill. $4.00.

HUME, EDGAR ERSKINE. *Ornithologists of the United States Army Medical Corps.* Illustrated. Pp. xxv + 583. Johns Hopkins Press. $5.00.

KÄFER, KARL. *Der Kettensatz.* Pp. 415. von Schulthess and Co., Zürich.

Sun Chief: The Autobiography of a Hopi Indian. Edited by LEO W. SIMMONS. Illustrated. Pp. xi + 460. Yale University Press. $4.25.

VON LOESECKE, HARRY W. *Outlines of Food Technology.* Illustrated. Pp. 505. Reinhold Publishing Corporation. $7.00.