

NON-MECHANICAL and FULLY PORTABLE Refrigerator for storage at -320°F .

LINDE's fully portable LNR-25B Liquid Nitrogen Refrigerator is the most reliable cold storage unit in existence. This rugged stainless steel container has no mechanical operating parts and thus is essentially maintenance-free—eliminates damaged samples caused by power failures.

It weighs only 60 lbs. empty, yet holds 28.5 liters of liquid nitrogen and 392 cu. inches of stored samples. A special LINDE insulation holds evaporation loss to only 3% a day. On a single charge of nitrogen, it will keep samples at -320°F . for 34 days, directly immersed in the liquid, or for 23 days in sealed tubular baskets suspended in the liquid. The large-diameter neck tube permits quick and easy access to the interior.

Linde Company manufactures a full line of containers (including the $16\frac{1}{2}$ cu. ft. storage capacity LNR-640 Refrigerator), accessories and other cryogenics equipment for the storage and handling of liquefied atmospheric gases. For information on the LNR-25B Refrigerator or other equipment, mail the coupon.

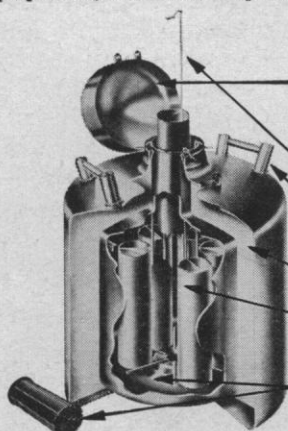


Typical uses:

- preservation of enzymes, hormones, proteins
- pharmaceutical and chemical research
- storage of bacteria cultures without laborious transplanting
- preservation of cancer cells for research
- shrink fitting small metal production parts
- cold storage of aluminum rivets and metalurgical samples
- immediate freezing of animal glands

CONSTRUCTION

Cutaway shows interior arrangement of storage baskets in the LINDE LNR-25B and its construction. Baskets are easily and quickly withdrawn through wide-entrance tube. All-stainless welded construction and superior insulation make it both portable and durable.



- Hinged Cap
- Basket Support Rod
- Lifting Handle
- Special LINDE Insulation
- Product Storage Basket
- Removable Neck Tube
- Basket Spacer

Linde Company, Division of Union Carbide Corporation Dept. SC-023
30 East 42nd Street, New York 17, N. Y.

Please send me complete information on

- ☐ the LNR-25B refrigerator
☐ other equipment for liquefied atmospheric gases
(please specify) _____

Name _____

Firm Name _____

Address _____

City _____ Zone _____ State _____

Linde
TRADE-MARK

**UNION
CARBIDE**

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Letters

(Continued from page 474)

cal diagnosis that is covered in the article "Reasoning foundations of medical diagnosis," by R. S. Ledley and L. B. Lusted [*Science* **130**, 9 (1959)]. In that article mathematical methods are used to separate basically quantitative values from the so-called "intangibles" or value decisions frequently required of the physician that involve moral, ethical, social, and economic considerations of great complexity. As pointed out in that article, the use of the computer might "enable the physician to define more clearly the intangibles involved and therefore enable him to concentrate full attention on the more difficult judgments."

However I am afraid the computer cannot be of aid in the "interpersonal relationship between the physician and the patient," as Hoffmann puts it, unless of course we stretch a point and say that any assistance a computer may give the physician in making a more precise diagnosis and a more scientific determination of the plan of treatment will tend to improve physician-patient relationships in general.

ROBERT S. LEDLEY

National Academy of Sciences—National Research Council, Washington, D.C.

Cardiotachometer

In a report by Rowley, Glagov, and Stoner published in *Science* [**130**, 976 (1959)], entitled "Measurement of human heart rate during usual activity," the authors stated, "Quantitative data on heart rate in beats per many minutes to many hours during various kinds of activity and work are not available."

It is apparent that the authors are unfamiliar with past developments in this field. In 1929, the late Ernst P. Boas developed the "cardiotachometer," which was designed to take continuous records of the heart rate for periods of hours or days. The many papers relating to this development were summarized in a text, *The Heart Rate* (Thomas, Springfield, Ill., and Baltimore, 1932). Since that time the device has been used extensively in many countries of the world and has been incorporated in many diagnostic and research tools.

NORMAN F. BOAS

Research Division, Norwalk Hospital,
Norwalk, Connecticut

We should like to express our gratitude to Norman F. Boas for calling our attention to the outstanding work of the late Ernst P. Boas, who published a detailed description of his cardiotachometer in 1928 ["The cardiotachom-

eter, an instrument to count the totality of heart beats over long periods of time," *A.M.A. Arch. Internal Med.* **41**, 403 (1928)]. The instrument was about the size of a present-day electrocardiograph; precordial electrodes, held in place by straps encircling the chest, were connected to the cardiometer by long lead wires.

The miniature heartbeat counter described by us in *Science* is completely self-contained and will permit epidemiologic studies which were not possible with the cardiometer developed by Boas.

DONALD A. ROWLEY
SEYMOUR GLAGOV
PETER STONER

Department of Pathology, University
of Chicago, Chicago, Illinois

Metric System

The American Geophysical Union's Special Committee for the Study of the Metric System in the United States noted your publication of our letter to the editor and its accompanying questionnaire [*Science* **129**, 532 (27 Feb. 1959)]. The committee appreciates your presenting this matter to your readers. It wishes, also, to thank the readers who aided the committee by a generous return of completed questionnaires. Many of the replies included letters containing helpful suggestions and offering financial assistance.

In the September 1959 *Transactions of the American Geophysical Union* your readers will find a full report of the committee, together with an analysis of the replies to the questionnaire received as of July. At this writing, three months later, 1080 have been analyzed. The fields of science and engineering were quite well covered by publication of the letter or questionnaire, or both, in eight leading journals and magazines in the United States. In reply to the most significant question, as to whether it would be desirable to replace the English system by the metric as the "only official system" of weights and measures in the United States, 90 percent replied in the affirmative. The average period of transition suggested was about 22 years; this indicates agreement with the committee on the necessity for a long transition period to avoid economic dislocation. Such a transition period would permit time for education in the schools, normal retirement of presently active older personnel, and normal obsolescence of existing equipment.

The Congress of the United States, for the first time in nearly 30 years, is faced with a decision in this matter. House bill HR7401, introduced last

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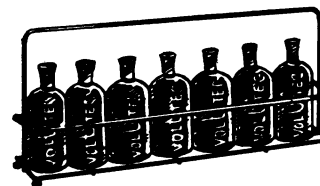
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SR12	Ninhydrin, 0.2% in n-Butanol
SR14	Isatin, 0.2% in n-Butanol
SR16	Bromocresol Green, neutral in n-Butanol
SR18	Ferric Chloride, 2.0% in n-Butanol
SR19	p-Anisidine HCl, 3% in n-Butanol
SR20	Aniline Hydrogen Phthalate in n-Butanol

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