

the surface of the earth it is about seven miles per second, but for Mercury, it is only 2.2 miles per second.

Now this speed applies to any object, whether it is as big as a house—or a rocket ship—or a single tiny molecule. Our atmosphere consists of molecules of nitrogen and oxygen, which are in constant movement, but the average velocity is considerably less than seven miles per second. Only occasionally will an air molecule at the top of the atmosphere move fast enough to leave the earth completely, and join the stray molecules moving around in space.

On Mercury, however, the speed of movement of such molecules would be greater, because of the higher temperature. Thus, if Mercury were by some miracle to be suddenly endowed with an

atmosphere like ours, it would soon lose it. In view of this, Mercury seems quite unsuitable as the possible abode of life.

**Celestial Time Table for March**

Mar.	EWT	
2	3:00 a.m.	Moon farthest, 252,200 miles.
7	12:30 a.m.	Moon in last quarter.
10	4:00 a.m.	Venus greatest brilliance.
13	8:00 a.m.	Jupiter nearest, distance 412,200,000 mi.
	11:51 p.m.	New moon.
14	5:00 p.m.	Moon nearest 222,300 miles.
16	6:30 a.m.	Moon passes Venus.
20	3:11 p.m.	Moon in first quarter.
	7:38 p.m.	Spring commences.
	10:54 p.m.	Moon passes Saturn.
25	10: p.m.	Neptune nearest, distance 2,720,000,000 miles.
26	5:00 a.m.	Mercury farthest east of sun.
27	1:13 a.m.	Moon passes Jupiter.
28	1:44 p.m.	Full moon.
29	8:00 a.m.	Moon farthest, 252,600 miles.

Subtract one hour for CWT, two hours for MWT, and three for PWT.

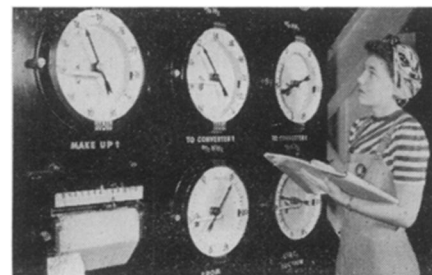
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states that the use of the walk-around oxygen equipment does not eliminate the need for wearing life vests.

The primary job of the walk-around oxygen equipment is to give airmen freedom to move about their bomber at high altitudes, without risking their lives through the removal of their oxygen masks. Pilots and air crewmen need oxygen at high altitudes because without it they have faulty judgment, poor coordination, and short memory.

Atmospheric pressure, which under normal conditions near sea level forces oxygen into the blood stream through the lungs, falls off at high altitudes so that less oxygen actually gets into the blood, unless an oxygen mask is used.

The walk-around oxygen unit consists of a low-pressure oxygen cylinder with a harness, and a regulator which dilutes oxygen with air whenever it is safe to do so, and supplies more oxygen on demand. The same mask that is used with a regular oxygen station can be used with the walk-around assembly. In addition to allowing airmen to move around the plane away from their oxygen stations, walk-around bottles can be used to revive a crew-mem- (Turn to Page 127)



**HOW T.V.A. NITRATE PLANT SPEEDS GAS ANALYSES**

Gas Analyses, made automatically and continuously, are an important feature in the great T.V.A. Nitrate Plant No. 2 at Muscle Shoals, Ala. Here nitrogen is extracted from the air and made available for explosives, fertilizer, etc.

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Micromax Gas Analysis Recorders can be used with a variety of gases such as ammonia, CO<sub>2</sub>, acetone, H<sub>2</sub>, SO<sub>2</sub>, etc. If you will outline your specific problem, we will be glad to recommend suitable equipment.

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INVENTION-PHYSIOLOGY

**Walk-Around Oxygen Unit**

Helps save the lives of airmen by enabling them to breathe under water as well as by supplying oxygen at high altitudes.

► WALK-AROUND oxygen units help save the lives of airmen by enabling them to breathe under water while trying to escape from their downed bomber planes, as well as by supplying vitally-needed oxygen at the high altitudes at which modern bombers fly.

Many men, uninjured when their shot-up planes crashed into the sea, have lost their lives by drowning because they were unable to breathe under water while trying to escape through hatches and windows. The walk-around equipment enables them to breathe while finding a way out of the plane, bob up to the surface of the water, and float for a time as

though buoyed up by life vests.

The new equipment was developed by Capt. W. C. Kulesz, of the Aero Medical Laboratory at the Air Technical Service Command. Length of functional time depends upon water pressure as well as on the pressure in the oxygen bottle or cylinder. Approximate durations obtained during tests were six minutes at a depth of 10 feet, five minutes at 20 and 25 feet and 3.5 minutes at 50 feet.

Instructions to flyers in doomed bombers direct the men to don their portable oxygen equipment immediately after bracing themselves in ditching position for the impending impact. Capt. Kulesz



# Books of the Week

► **COMMITTEE REPORT**, prepared by over 40 electrical engineers in electrical equipment and other industries and in public utilities, is included in **ELECTRIC POWER DISTRIBUTION FOR INDUSTRIAL PLANTS**. It is an authoritative and valuable publication for those engaged in the design, construction and maintenance of electrical power installations. (*American Institute of Electrical Engineers*, \$1.)

*Science News Letter, February 24, 1945*

OVER 10,000 useful metallurgical terms are included in **METALS AND ALLOYS DICTIONARY**, an up-to-date reference work, by Dr. M. Merlub-Sobel, containing definitions of these terms, and the composition, properties and uses of the important commercial alloys. It is written in language which the layman can easily understand. (*Chemical Pub. Co.*, \$4.50.)

*Science News Letter, February 24, 1945*

## Just Off the Press

THE ANNUAL OF THE AMERICAN SCHOOLS OF ORIENTAL RESEARCH, For 1943-1944—Millar Burrows and E. A. Speiser, eds.—*Am. Schools of Oriental Research*, 162 p., illus., \$2.50.

THE BOY CHEMIST—A. Frederick Collins—*Odyssey*, 341 p., illus., \$2.75, rev. ed.

AN ESSAY ON THE PSYCHOLOGY OF INVENTION IN THE MATHEMATICAL FIELD—Jacques Hadamard—*Princeton Univ. Press*, 143 p., \$2.

AN INTRODUCTION TO ELECTRONICS—Ralph G. Hudson—*Macmillan*, 97 p., illus., \$3.

ELECTRIC POWER DISTRIBUTION FOR INDUSTRIAL PLANTS—A. I. E. E. Committee on Industrial Power Applications—*Amer. Inst. of Elec. Eng'rs*, 107 p., paper, illus., \$1.

JAPAN AND THE JAPANESE, a Military Power We Must Defeat, a Pacific Problem We Must Solve—The Editors of *Fortune*—*Infantry Journal*, 166 p., paper, illus., \$25c.

LATIN AMERICAN UNIVERSITY JOURNALS AND SERIAL PUBLICATIONS, a Tentative Directory—Katherine Lenore Morgan—*Pan American Union*, 74 p., paper, 50c.

MICROBIOLOGY AND PATHOLOGY—Charles F. Carter—*Mosby*, 777 p., illus., \$3.50, 3rd ed.

POET PHYSICIANS, an Anthology of Medical Poetry Written by Physicians—Mary Lou McDonough, comp.—*C. C. Thomas*, 210 p., \$5.

PRACTICAL MARINE NAVIGATION—James A. Stowell—*Addison-Wesley Press Inc.*, 133 p., illus., \$2.50.

THE PSYCHIATRIC NOVELS OF OLIVER WENDELL HOLMES—Clarence P. Oberndorf—*Columbia Univ. Press*, 268 p., \$3.

STABILIZING THE CONSTRUCTION INDUSTRY—Miles L. Colean—*Nat. Planning Assn.*, 38 p., paper, illus., 25c (Planning Pam. No. 41).

TWO BILLION ACRE FARM, an Informal History of American Agriculture—Robert West Howard—*Doubleday*, 209 p., \$2.50.

THE USE OF PERSONAL DOCUMENTS IN HISTORY, ANTHROPOLOGY, AND SOCIOLOGY—Louis Gottschalk and others—*Social Science Research Council*, 243 p., paper, \$1.50 (Bull. 53).

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## NUTRITION

### Fermented Grass Leaves Produce New Beverage

► **NEBUCHADNEZZAR** took his grass straight, like a cow; we moderns may get it as an amber-colored drink. Patent 2,369,042, issued to W. R. Graham, Jr., and C. W. McCarty of Kansas City, Kans., covers a process for making a dark beverage out of grass or sprouted grain foliage that has been wilted and slightly crushed to release the digestive enzymes, then permitted to ferment naturally for anywhere from three hours to three days. Dried for storage and shipment, the product may be soaked in water to produce the beverage whenever desired. Patent rights are assigned to American Dairies, Inc., and the Quaker Oats Company.

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## From Page 123

ber who gets into trouble away from his oxygen station, or as extra oxygen stations in case the plane's oxygen system should be put out of commission.

When full, the cylinder contains oxygen at a pressure of 425 pounds per square inch. Depending upon the wearer's activity, altitude of flight, and on which of three styles of bottles is in use, the oxygen will last three to 50 minutes.

Curiously enough, the higher the altitude, the longer the oxygen will last. The more active a person is, the less time it will last. Flyers are instructed to recharge their bottles as soon as the pressure gauge reaches 100 pounds per square inch. There is a recharger hose at every oxygen station on a bomber.

*Science News Letter, February 24, 1945*

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