

PHYSICS

Franklin Was Prophet

Distinguished physicist and statesman, Franklin also predicted the role of science in the modern world. His 250th birthday anniversary celebrated all this year.

By HOWARD SIMONS

► BENJAMIN FRANKLIN, in addition to an eminent scientist, patriot and publisher, was also an accurate predictor of the role of science in the modern world.

This year, the world honors the 250th anniversary of the birth of this "versatile genius."

Much of the world that pays homage to Dr. Franklin this year was foreseen by him; for more than 175 years ago, Franklin predicted:

1. "We may perhaps learn to deprive large masses of their gravity, and give them absolute levity, for the sake of easy transport." (Today, countless numbers of airplanes travel aloft providing easy transportation.)

2. "Agriculture may diminish its labor and double its produce." (Today, farm labor has been lessened and production more than doubled.)

3. "All diseases may by sure means be prevented or cured, not excepting even that of old age, and our lives lengthened at pleasure even beyond the antediluvian standard." (Today, the life span lengthens each year and the toll of disease shortens.)

This is what Dr. Franklin foresaw as the result of the rapid progress of "true" science. So sure was he that mankind would reach these heights through scientific progress and technological advance that he lamented that perhaps he had been born too soon.

At the same time, Franklin foresaw man's slower pace in conquering his most dread disease, war. While outlining what the

world of today would be like, he expressed the fear that "moral" science was not progressing as rapidly. He wondered when "men would cease to be wolves to one another," and when "human beings would at length learn what they now improperly call humanity."

Benjamin Franklin was born on Jan. 17, 1706, and penned his predictions at the age of 74 to his English friend, the world-famous chemist, Joseph Priestly.

Most persons think of Benjamin Franklin as a statesman who only incidentally was interested in science. But most Franklin scholars agree that he was a scientist, who only incidentally was drawn into diplomacy.

Franklin spent the first 40 years of his life earning and saving enough money by printing and publishing to be able to retire and devote his time and energies to scientific investigation.

This he was able to do in 1748. He began his full-time scientific career with research in electricity, which had captured his imagination only a year earlier.

As I. Bernard Cohen, a Franklin scholar, tells us, "During the next five years, he made a series of remarkable contributions to the science of electricity, of which most of us remember only one—the demonstration of the electrical nature of lightning."

Hailed as the greatest electrical scientist of the world during his lifetime, Franklin discovered the principles of electricity and the nature of lightning.

He published a book entitled "Experiments and Observation on Electricity," in which he introduced in print words we still

use today in electricity, such as armature, condense, conductor, electrical shock, electrician and positive.

Dr. Franklin is credited with discovering the law of conservation of charge for conductors, the nature of electrostatic induction, the importance of grounding and insulation, and the fundamental properties of dielectrics.

His interest and experiments in electricity led to the celebrated electrical kite known by every schoolboy. Franklin also invented the lightning rod.

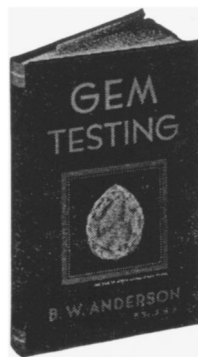
The late Dr. Robert A. Millikan, a Nobel Prize-winner in Physics, lists Benjamin Franklin as one of the two "most influential" scientists of the 18th century.

"Franklin," Dr. Millikan stated, "lives as a physicist because . . . it was he who with altogether amazing insight laid the real foundations on which the whole superstructure of electrical theory and interpretation has been erected."

But electricity alone was not the total extent of Franklin's scientific inquiries.

He was interested in meteorology, too. In 1743, he observed and recorded for the first time what we now take for granted, that northeast storms originate in the southwest, or in another way, that storms travel in an opposite direction to the winds and therefore their courses can be plotted.

Waterspouts and whirlwinds, he postu-



GEM Testing

By

B. W. ANDERSON

Director of the
Precious Stone
Laboratory, London
Chamber of Commerce

ILLUSTRATED

For gem collectors, dealers, jewelers, students, gem hunters, etc. Practical, clear, detailed, specific, and easy to use.

"How to identify jewels, to distinguish one stone from another and the genuine from imitations."—*Science News Letter*.

"An invaluable tool for all who have anything to do with precious stones."—*Jewellery Magazine*.

"All the tests that can be applied in gem classification and how and when to apply those tests."—*Watchmaker, Jeweler and Silversmith*.

"Splendid contribution to gemmological literature shows . . . 'just what are the easy scientific tests available for discriminating with certainty between one stone and another, and between real stones and their substitutes, and how to apply these tests in practice.'"—*British Jeweller*.

\$5.00 Postfree

5-Day Money-Back Guarantee

EMERSON BOOKS, Inc.

Dept. 671-K, 251 W. 19th St., New York 11

<p>7 DENTAL INSTRUMENTS PENCIL SHAPED TRUE TEMPERED TOOLS. These dental instruments made to sell for \$1.50 each are ideally suited for working in Metal, Plastic, Wood, Leather, Clay, Stone, etc. The pencil shape permits one to easily etch, carve, scribe, form, model and untold number of uses. The quality of the tools is such that they will readily accept and hold reshaping and sharpening. All 7 Instruments of various shapes Only \$1.98 Plus 20¢ PP</p> 	<p>12 HONING STONES Of Various Types — Sizes — Shapes Govt. Surplus worth many times our low price. A various assortment of sizes, shapes and lengths for sharpening Tools, Instruments, Fish Hooks, Knives, Cutlery and hundreds of other uses. Also used for deburring, removing light scratches. Our assortment of shapes and lengths permits one to hone in hard to get places. Made to sell for up to 75¢ each. Our LOW PRICE for all 12 stones \$1.98 Plus 25¢ PP</p> 
<p>THREE 6" INSPECTION MIRRORS Complete With Handles Govt. Surplus. Permits inspection of parts or part numbers otherwise hidden from sight. Magnifies sizes up to 1" in diameter. A natural for mechanics, Radio & Television repairman, hobbyist. Made to sell for many, many times our LOW PRICE OF \$1.69 For All Three Plus 15¢ PP</p> 	<p>133 PIECE POWER TOOL ACCESSORY KIT For: Sanding, Grinding, Polishing, Carving, Burnishing, Etching, Milling, Cleaning, Cutting Off, Hole Cleaning, Deburring, etc. Contains Grinding, Polishing, Cut Off and Buffing Wheels, Sanding Cartridges, and Discs, Steel Cutters, Mandrels, Burnisher, Mounted Stones, Knife Edge Rubber Wheels, etc. All with 3/32" Mandrels. The complete accessory set for any small job. Reg. \$6.00 OUR PRICE \$1.98 Plus 25¢ PP</p> 
<p>MATTHEW DAY CO. INC. MONEY BACK GUARANTEE DEPT. T-213 DUMONT, NEW JERSEY</p>	



COMMEMORATIVE — This stamp reproduces a Benjamin West painting.

lated, arise from the same origin and are similar, the big difference being that one travels over water and the other over land.

Add to electricity and meteorology, Franklin's interest and work in aeronautics, agriculture, botany, medicine, horticulture, engineering, oceanography, and public health, and it is a good start in describing the scientific interest of America's most cherished scientist-statesman.

When today's scientists honor Benjamin Franklin, they do so in no greater degree than did the scientists of Franklin's own day.

Considered the first American scientist, Franklin gained world-wide recognition and did much to foster the interchange of ideas among the world's scientists.

He was a member of 24 scientific and educational societies in America, England, France, Scotland, Germany, Holland, Italy, Spain and Russia.

He was the founder and president of the American Philosophical Society, senior scientific society in America.

Dr. Franklin had a strong belief in one idea. This was that ideas themselves should be exchanged and that, through this exchange and communication, all mankind would benefit.

This year, more than 200 societies, associations, institutions, businesses, and public service units throughout the world will foster this idea and make it live.

The year-long homage will be offered by many of the world's leading scientists, authors, educators and statesmen to emphasize Franklin's dream of a much closer, cordial understanding between all the nations of the earth.

This will be part of the tribute paid to the man who, as Poor Richard, told mankind, "we may make these times better, if we bestir ourselves."

Science News Letter, January 14, 1956

NUTRITION

Hormone-Grown Meat Found Safe to Eat

► HORMONE-FED steer meat is safe to use, say scientists of the department of animal husbandry, Purdue University.

The scientists, led by T. W. Perry, came to this conclusion after performing assays on the meat from hormone-fed steers. The assays showed that no residual hormone was present in the meat.

The tests were conducted by the university scientists as part of a planned program of study to learn the effect of growth hormones on weight gain, sexual behavior, and carcass quality.

Steers on the 123-day test gained 50 to 52 pounds more than those not receiving hormone treatment. The carcasses were graded as slightly inferior when stillborn was the hormone fed.

Meat from steers fed hexestrol or dienes-trol was graded equal to the meat from the control steers that had received no hormone.

Science News Letter, January 14, 1956

To People Who Want to Write but can't get started

Do you have the constant urge to write but fear that a beginner hasn't a chance? Then listen to what a famous editor said on this subject:

"There is more room for newcomers in the writing field today than ever before. Some of the greatest of writing men and women have passed from the scene. Who will take their places? Fame, riches and the happiness of achievement await the new men and women of power."



NEIGHBORS PRAISE HIS ARTICLES

"As a 'buy-product' of my N.I.A. Training, I have received \$73.00 for articles from *Autobody* and the *Reconditioned Car*. The local weekly printed one of my articles and asked for more. When neighbors stop you to say they read your piece, there's nothing like it." — George R. Maire, 114 9th St., Laurel Gardens, Pa.

Writing Aptitude Test FREE!

The Newspaper Institute of America offers a FREE Writing Aptitude Test. Its object is to discover new recruits for the army of men and women who add to their income by fiction and article writing.

The Writing Aptitude Test is a simple but expert analysis of your latent ability, your powers of imagination, logic, etc. Not all applicants pass this test. Those who do are qualified to take the famous N.I.A. course based on the practical training given by big metropolitan dailies.

This is the New York Copy Desk Method, which teaches you to write by writing! You develop your individual style instead of trying to copy that of others. Although you work at home, on your own time, you are constantly guided by experienced writers. You "cover" actual assignments such as metropolitan reporters get.

It is really fascinating work. Each week you see new progress. In a matter of months you can acquire the coveted "professional" touch. Then you are ready for market with greatly improved chances of making sales.

Mail the Coupon Now

But the first step is to take the FREE Writing Aptitude Test. It requires but a few minutes and costs nothing. So mail the coupon now. Make the first move towards the most enjoyable and profitable occupation—writing for publication! Newspaper Institute of America, One Park Avenue, New York 16, N. Y. (Founded 1925.) (Licensed by the State of New York.) (Approved Member National Home Study Council.)

Free

Newspaper Institute of America
One Park Avenue
New York 16, N. Y.

Send me, without cost or obligation, FREE Writing Aptitude Test and further information about Writing for profit.

Mrs. }
Miss }
Mr. }

Address

City Zone State

Check here if Veteran.
(All correspondence confidential. No salesman will call on you.) **117-A-666**

DORMIPHONE
YESTERDAY—SCIENCE FICTION
TODAY—ASTOUNDING
REALITY! A Great
Scientific Discovery

- FOR
- Foster Learning
 - Memory Training
 - Superb Listening Enjoyment

Today, for the first time, an ingenious device, The Dormiphone, invented by Max Sherover, president of Lingua-phone Institute, does for you what no machine has ever done before! Would you like to increase your rate of learning 20% to 50% by making use of periods of relaxation and sleep? Scientists, actors, lecturers, students, psychologists prove DORMIPHONE can help you master a new language, improve your speech, memorize a role in a play, learn useful facts and figures with less time, less effort. All this in addition to more listening pleasure out of your favorite records makes the Dormiphone the most useful, 3-speed, portable phonograph ever assembled.



FIND OUT ABOUT DORMIPHONE

Proof of what DORMIPHONE can do for you is fully set forth in a FREE Booklet, "A New Dimension in Learning." Write today. MODERNOPHONE, INC., Dormiphone Div., 125-016 Rock. Plaza, New York 20, N. Y.

MAIL COUPON NOW

MODERNOPHONE, INC. (Dormiphone Div.)
125-016 Rock. Plaza, N. Y. 20, N. Y.

Gentlemen: Please send me your FREE Booklet, "A New Dimension in Learning."

If under 18 check for Special Booklet A.

Name

Address

City Zone State

My main interest is

Learning a Language Speech Improvement
 Memorization Listening Enjoyment