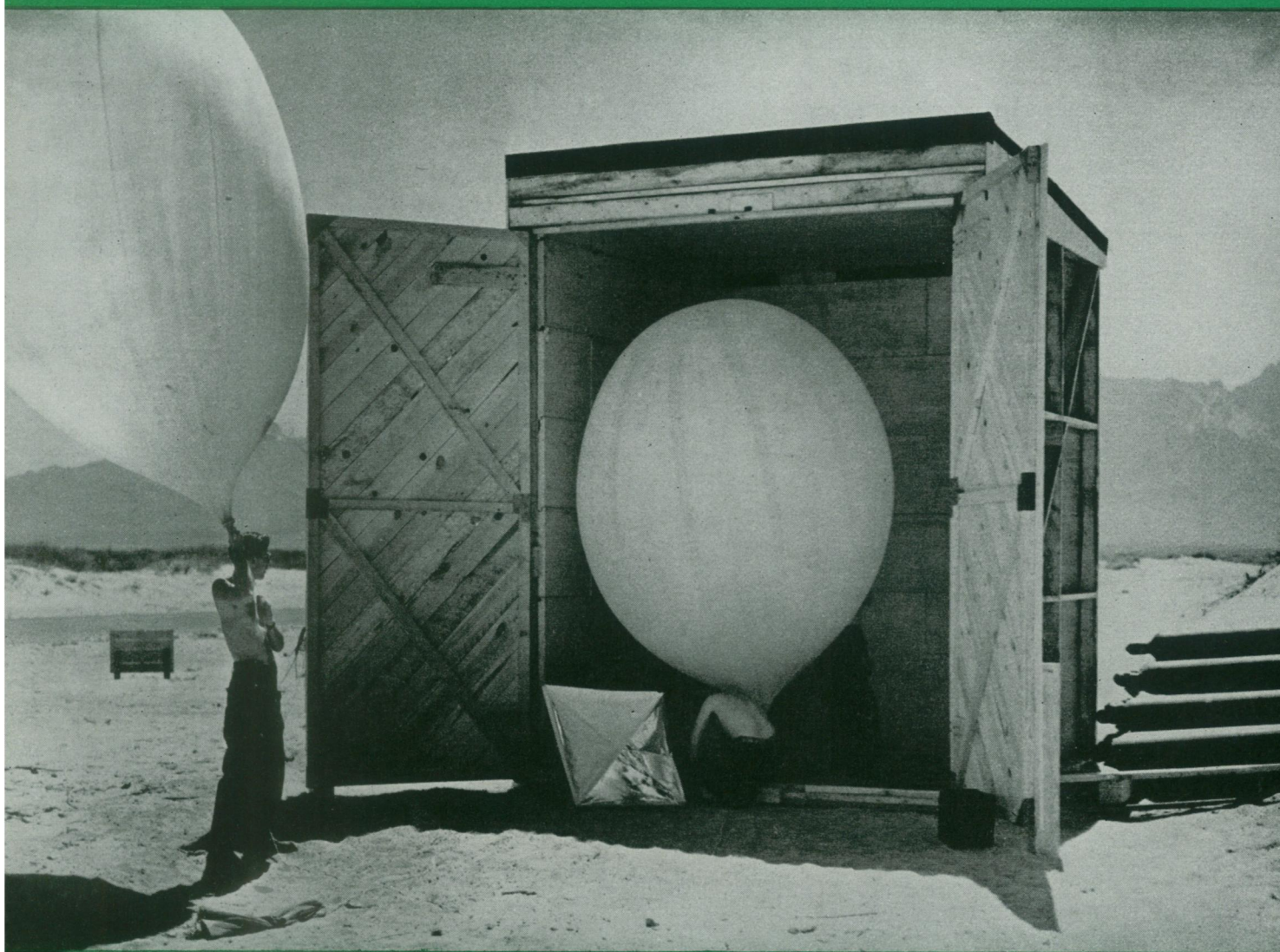


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January 12, 1952

# SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



## High Fliers

See Page 26

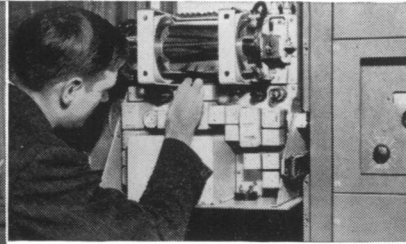
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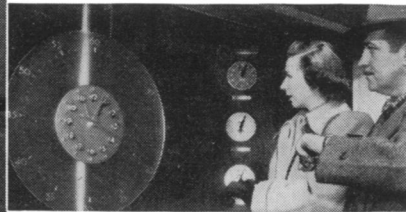
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↑ Front of the new frequency-time standard at Bell Telephone Laboratories. In the rear there are 600 electron tubes and 25,000 soldered connections. Room temperature is maintained within two degrees.

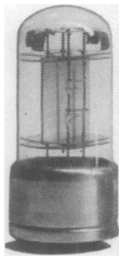


Each crystal is enclosed in a cylindrical oven which holds the crystal temperature to within 1/100 of a degree.



At the A. T. & T. building at 195 Broadway, New York, passersby set watches by the world's most accurate public clock, which is controlled by the master standard.

## A vibrating crystal keeps master time



The controlling quartz crystal vibrates in vacuum at 100,000 cycles per second. The standard is powered by storage batteries, with steam turbo-generator standing by, just in case of emergency.

Ever since Galileo watched a lamp swinging in Pisa Cathedral, steady vibration has measured time. In the 1920s Bell Laboratories physicists proved that quartz crystal oscillators they developed to control electrical vibration frequency in the telephone system paced out time more accurately than ever.

Bell's latest master standard keeps an electric current vibrating at a frequency that varies only one part in a billion, keeping time to one ten-thousandth second a day.

A master oscillator governs carrier frequencies of the Bell

ship-to-shore, overseas and mobile radiotelephone services, the coaxial and *Radio-Relay* systems which carry hundreds of simultaneous conversations, or television. In northeastern states, it helps keep electric clocks on time.

The new standard also provides an independent reference for time measurements made by the U. S. Naval Observatory and the National Bureau of Standards. Thus, world science benefits from a Laboratories development originally aimed at producing more and better telephone service.

### BELL TELEPHONE LABORATORIES



Improving telephone service for America provides careers for creative men in scientific and technical fields.

## NEW BOOM TOWNS IN AMERICA

Your Income Depends Upon  
Where You Live says Author

**CLEARWATER, FLORIDA.** The amount of money you earn at your job or from your business does not depend entirely upon your ability or even upon the kind of job or enterprise you're in, says Norman D. Ford, founder and first president of the famous Globe Trotters Club. It also depends upon where you live.

The biggest opportunities are in the boom areas, he says, where industry is growing and there's a big demand for new workers and for new, small businesses.

You might be earning 50% more today, says Ford, if you had known some years ago which towns, like Houston or Los Angeles, were beginning to boom then. A recent U. S. Government report shows that the net income of individuals went up 50% more in the past 20 years in the boom regions of the U. S. than elsewhere in the country.

Today, says Ford, who has just completed a survey of the United States to learn which are the boom towns of the 1950's, there are about a hundred communities all over America which are beginning to show the signs of a coming boom. These are certain towns and cities along the Atlantic Seaboard, in Georgia, Florida, the North Carolina highlands, in Mississippi, Alabama, Louisiana, Oklahoma, Texas, Colorado, the Far West, California, the Pacific Northwest, Alaska, etc.

These are the towns where it's easier to get a good job, with good pay, and with the best chances in the country for swift promotion, whether you're 20 or 50. These are also the towns where you can start a small business and grow fast as the boom pours in more purchasing power to boost your sales and bring more profits.

Here too are the communities where you can open tourist cabins on brand new highways to the most popular tourist regions in America. Here are places where you can earn most from rental income (stores, apartments, etc.).

And if the experience of real estate in Houston, Los Angeles, and other boom towns of the past is any guide, says Ford, these too are the towns and cities where you can invest in low cost real estate today for unusual profits in the years to come.

In his new book, **Where to Make More Money**, Norman D. Ford names the new boom towns. He tells what are the best job and small business opportunities here.

**This book will help you:**

- if you are about to leave school, college, or the Armed Forces
- if you wish to start your own small business, farm, motel, etc.
- if you would like to enjoy a better climate if you would like to live beside the sea, lake, forest, or mountains
- if you want to homestead on Government owned land
- if you want to get ahead fast and make more money

Price \$1. To order, use coupon below.

## Will you RETIRE YOUNG ENOUGH to enjoy it?

Do you really want to work all your life?

You can take life easy a lot sooner than you think. If you know where it costs less to live, and where you can earn a small income from a part-time business or job, you can afford to retire sooner, even now perhaps.

One of the best features of "Where to Retire on a Small Income" is that every town, city, or region described was selected because it offers opportunities to get part-time or seasonal jobs or to open a part-time business.

This book tells you where are the best places in the U. S. to retire. It covers Florida, California, New England, the South, the Pacific Northwest, etc. It also includes Hawaii, the American Virgin Islands and Puerto Rico.

**With this book, you learn:**

- where living costs, rents, and real estate are less (even where you can buy a farm for only \$2500)
- where you can live inexpensively on an island far from the world, yet close to neighbors;
- where you can go fishing all year around;
- where you can go hunting, boating, swimming, and always have a good time;
- where your hobby will bring you an income;
- where you stand the best chance of living longer.

You'd spend months, plus hundreds of dollars if you searched for the hundreds of facts in this book by traveling around the country. But all these facts on little known beauty spots, America's favorite retirement areas, and many undiscovered towns, cities, and regions, are yours for just \$1.

Sooner or later—now or in years to come—you will want to be independent. Order today, while you think of it. Money back, of course, if you're not satisfied.

Don't bother writing a letter. Simply fill out coupon and mail with \$1 bill.

## How to Gain Financial Independence

through a home in the country

Read this story of a city man who gained financial independence in 3 years of week-end fun in the country

Some hard work with hammer, nails, paint brush, and the other tools men like to wield on their days off from the job, converted a neglected country home—bought at a bargain price by a city civil service worker—into a 2-acre country estate, worth 4 times more. Total time: about a hundred weekends over a 3 year period. Outside help: some assistance from his two teenage sons and a few major repairs by local contractors.

Now he lives in the country all year round and spends an hour commuting to his city job. Working weekends in the summer on his bit of land, he cuts his living costs, and he also sells enough surplus strawberries, apples, pears, and peaches to earn over a thousand more a year. With his extra income, the lower living costs of the country, and the security of his country home, he has financial independence.

The stories of thousands of other men who won security in the country inspired Fred Tyler to write his new book on how you can own your home in the country and make it pay for itself.

Fred Tyler proves over and over again that whether you want to commute to a city job or be your own boss in the country, you can live better, enjoy yourself more, earn more, and bring a good, clean life to you and your family.

His new book tells you how to buy a country home almost on a shoestring and make it worth 2, 3, even 4 times what it cost you. He shows how you, like thousands of others, can turn your surplus land into a profitable spare time or weekend business. He proves again and again that whether you farm, open a shop, an office, or sell a service, you can make a mighty comfortable living in the country . . . doing the things you always wanted to do . . . and gaining the security so few people in the city ever find.

Honestly—ask yourself: Are you living the kind of life you'd like to? Are you frittering away your weekends? Or are you doing the simple things necessary to win security for you and your family?

Send today for Fred Tyler's Plan for Independence. 15 fact-filled chapters for only \$1. To get your copy, fill out coupon below.

## RETIREMENT—HOW MUCH INCOME DO YOU NEED?

—from "The Mutual Investor"

Many a person has planned to retire in recent years, only to find that his income wasn't enough to support him when the time came, due to increases in cost of living.

But here's a silver lining: some recent studies have shown, in dollars and cents, how much less an individual or a family needs when retired than when the breadwinner is still going to work. It's really surprising.

For example, Norman D. Ford, in a book entitled "Retire Young and Start Living," takes a family of four people living in the city on a moderate income. He then shows, in figures, that the same family living on a retirement estate, could get along with about the same comforts (although with more work at home) on about half that amount.

Norman Ford's "Retire Young and Start Living" is one of the three booklets in his 3-unit retirement kit. The other two are "How to Earn an Income While Retired" and "Lands in the Sun"; where to spend a while, or retire, in Mexico, the West Indies, and other lands to the south where the dollar buys so much more." \$1 for all 3. Use coupon below to order.

## WHERE DO YOU WANT TO GO?

France? Brazil? West Indies?  
Hawaii? Canada?

Read what the Christian Science Monitor says about a new way to travel that sometimes costs 1/3 to 1/2 less.

By the travel editor of The Christian Science Monitor: Many fascinating travel booklets pass over this desk in the course of a year but the one that arrived the other day so interested this department that it cost the office several hours of work in order that we might absorb its content. The booklet is entitled, "Travel Routes Around the World" and is the traveler's directory to passenger-carrying freighters and liners. In no time at all you find yourself far out to sea cruising along under tropical skies without a care in the world. You find yourself docking at strange ports and taking land tours to those places you long have read about. Most interesting of the vast listings of ships are the freighters which carry a limited number of passengers in quarters comparable to the luxury offered in the so-called big cruise ships which devote most of their space for passengers.

The booklet first of all answers the question: What is a freighter? The modern freighter, says the booklet, ranks with the de luxe passenger vessels so far as comforts and accommodations are concerned.

### LARGE ROOMS WITH BEDS

It is important to realize that in most cases today, freighter passengers are considered first-class passengers, although the rates charged are generally on a par with either cabin or tourist class fares. Most cabin-carrying freighters, to quote the booklet, have their private bath and shower, and these cabins offer beds, not bunks. The rooms are generally larger than equivalent accommodations aboard passenger ships, and the cabin of a modern freighter is sometimes even twice as large as first-class cabins on some of the older passenger ships. It goes without saying that your room is on the outside, and amidstships, the most expensive of all locations, for which you are usually charged a premium over the advertised minimum fares on passenger ships.

This booklet points out that it is frequently astonishing how low freighter fares are as compared with passenger ship fares; for example, less than one-half of the passenger ship fare to California is the amount asked on freighters. On most of the longer runs, the difference in favor of the freighters is regularly from a third to half of the passenger ship fare.

### SERVICE AND MEALS RATED EXCELLENT

Service and meals on a freighter leave little to be desired. You will be treated with consideration. Stewards will go out of their way to make your voyage pleasant. On ships with East Indian stewards you will be waited on almost hand and foot, in a manner that is completely unknown to Americans and most Europeans.

Foreign ships offer their own specialties, says the booklet. Thus vessels in the East Indian trade serve Rijkstafel (or King's Table), the East Indian dish which can run to as many as 50 different courses. Scandinavian ships serve smorgasbord every day, and some of their desserts (like strawberries smothered in a huge bowl of whipped cream) are never forgotten. Another feature of freighter travel is in its informality. No formal clothes are needed. Sport clothes are enough.

Other valuable information such as how to tip, shipboard activities, and costs are covered in the booklet, "Travel Routes Around the World."

Some of the trips listed include a trip to England for \$160, a 12-day Caribbean cruise for \$240, or a leisurely three-month Mediterranean voyage for \$500.

The booklet is published by Harian Publications, Greenlawn, New York, and may be obtained by sending to the publisher.

So when it arrives, all you need to do is sit down and take your choice. The booklet list literally hundreds of ocean trips.

\$1 sends you this up-to-date guide plus:

WHERE TO FIND THE BEST IN THE U.S., CANADA, AND MEXICO. And how to do it at the lowest possible cost. 40,000 words.

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## Mail to HARIAN PUBLICATIONS, 2 Adams Blvd., Greenlawn (Long Island), New York.

I have enclosed \$..... (cash, check or money order). Please send me the books checked below. You will refund my money if I am not satisfied.

- TRAVEL ROUTES AROUND THE WORLD, AND WHERE TO FIND THE BEST IN THE U. S., CANADA, AND MEXICO. \$1.
- WHERE TO RETIRE ON A SMALL INCOME. \$1.
- Norman Ford's 3-unit retirement kit—(RETIRE YOUNG AND START LIVING, HOW TO EARN AN INCOME WHILE RETIRED, LANDS IN THE SUN) \$1.
- Norman Ford's WHERE TO MAKE MORE MONEY. \$1.
- Fred Tyler's HOW TO MAKE A LIVING IN THE COUNTRY. \$1.

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