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SCIENCE NEWS LETTER

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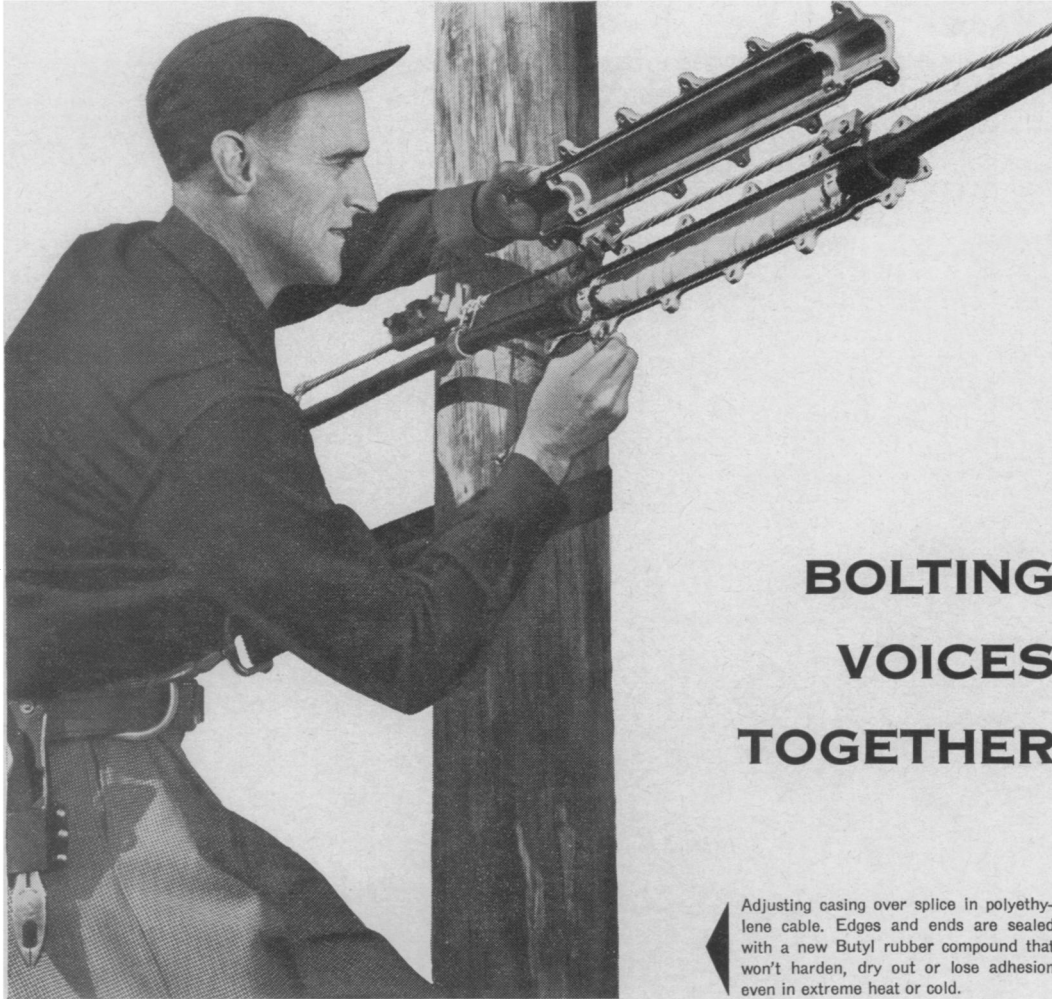
THE WEEKLY SUMMARY OF CURRENT SCIENCE



Science Talent Search Winners

See Page 155

A SCIENCE SERVICE PUBLICATION



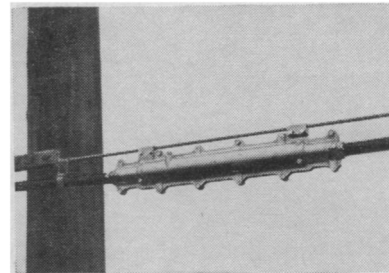
BOLTING VOICES TOGETHER

Adjusting casing over splice in polyethylene cable. Edges and ends are sealed with a new Butyl rubber compound that won't harden, dry out or lose adhesion even in extreme heat or cold.

More than ever, light, flexible polyethylene sheathed cable developed by Bell Telephone Laboratories is providing speedy answers to the demand for more telephone service.

But at thousands of splices, the sheath must be thoroughly sealed against moisture. Laboratories engineers developed a protective casing which is quickly and simply bolted in place. The edges and ends of the casing are *permanently* sealed with a new compound developed by Laboratories rubber chemists.

Now, economical polyethylene cable can be installed much faster and at lower cost. Here is another example of how Bell Laboratories continually finds ways to keep telephone service high in quality, while the cost stays low.



CLOSED CASING IN PLACE

BELL TELEPHONE LABORATORIES

Exploring and inventing, devising and perfecting, for continued improvements and economies in telephone service.



HOW TO TRAVEL WITHOUT BEING RICH

If you know ALL the ways of reaching foreign countries, you don't need fantastic sums of money in order to travel. You could spend \$550-\$1000 on a one-way luxury steamer ticket to Buenos Aires, or you can get there for \$97 in fares via bus and rail through colorful Mexico, Guatemala, Panama, Colombia, the Andes, etc.

You could spend \$5000 on a luxury cruise around the world or \$600 via connecting steamers. You can island hop around the West Indies via plane for several hundred dollars—or see the islands more leisurely by motor schooner for much, much less. There's hardly a place on earth you can't reach for less if you know ALL the travel ways.

Norman Ford, founder of the Globe Trotters Club and America's top expert on low-cost travel, has gathered into one handy booklet dozens upon dozens of specific travel routings to all parts of the world—Mexico, South America, Europe, Africa and the Mediterranean, the Far East, Australia, the South Seas, etc.—so that you can see more at prices you can afford by combining freighter, liners, rail, bus, plane, and other competing services.

Over and over again he proves that you can travel now—that you don't have to wait for some far-off day when you've saved much more money.

\$1 brings you his guide, *Foreign Lands at Stay-at-Home Prices*, plus two other priceless reports:

1. **WHERE TO FIND THE BEST IN THE U. S., CANADA, AND MEXICO.** And how to see great sections of America for just \$100.
2. **FREIGHTER LIFE.** Your introduction to the one way to travel almost anywhere in the world—via passenger-carrying freighter—for as little as you'd spend at a resort.

A really big \$1 worth. Money back, of course, if not satisfied. For your copies of all 3 guides, simply fill out coupon.

HOW TO TRAVEL —and get paid for it

There's a job waiting for you somewhere: on a ship, with an airline, in overseas branches of American firms, in foreign firms overseas—even exploring if you're adventurous.

The full story of what job you can fill is in Norman Ford's new book *How to Get a Job That Takes You Traveling*. Whether you're male or female, young or old, whether you want a life-time of paid traveling or just hanker to roam the world for a short year or so, here are the facts you want, complete with names and addresses and full details about the preparations to make, the cautions to observe, the countries to head for.

You learn about jobs in travel agencies (and as tour conductors), in importing and exporting concerns, with mining and construction companies. Here's the story of jobs in the Red Cross and the UN organizations, how doctors get jobs on ships, the almost-sure way for a young girl to land a job as airline hostess, the wonderful travel opportunities if you will teach English to foreigners, and the fabulous travel possibilities for those who know stenography.

"Can a man or woman still work his or her way around the world today?" Norman Ford asks in this book as you might ask today. And he replies in 75,000 words of facts, "The answer is still a very definite Yes!"

To travel and get paid for it, send today for *How to Get a Job That Takes You Traveling* on a money-back guarantee if not satisfied. Price, just \$1. Fill out coupon.

Will Your Next Vacation Really Be Something to Remember?

The surest way to guarantee a new, different, and exciting vacation is to learn the hundreds of things you can do and the places you can visit on *the money you want to spend*.

Norman Ford, founder of the world-known Globe Trotters Club, tells you that in his book *Where to Vacation on a Shoestring*. This is the man who has spent a lifetime searching for the ways to get more for your money in vacations and travel.

In his big book, you learn

- about low-cost summer paradises, farm vacations, vacations on far-off islands, on boats drifting down lazy streams while you fish.
- about vacations at world-famous beaches, under palm and eucalyptus trees, in government-subsidized vacation resorts, in Indian country, along rugged coastlines, on ships and by rail.
- about dude ranches you can afford; what to see, do, and how to save at national parks and in the cities most Americans want to visit.
- about low-cost sailing ship cruises, houseboat vacations in the North Woods, fantastically low-cost mountain vacations, the unknown vacation wonderlands almost at your front door.

Of course, Norman Ford knows where to get real vacation bargains in all America, from Maine to California, and in Canada, Mexico, etc. At no time does he ask you to spend a lot of money to enjoy yourself, no matter how really different and exciting is the vacation you choose through his experienced advice. Always, he tells you the many things you can do within your budget and how to get more for your money (if you travel by car, he shows how most auto parties can save \$6 or \$7 a day).

You can't help but learn something that is just meant for you. Yet, *Where to Vacation on a Shoestring* costs only \$1. To make sure your next vacation will be something to talk about, get the facts now. Use the coupon to order.

Where Do You Want to Go? FRANCE? WEST INDIES? BRAZIL? HAWAII? MEXICO?

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 comfort 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 fare. Most passenger-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 amidships, 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 its informality. No formal clothes are needed. Sports 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.

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 lists literally hundreds of ocean trips.

\$1 sends you this up-to-date guide plus a free copy of **LANDS IN THE SUN**, a guide to where to stay a while—even retire—in the West Indies, Mexico, Peru, and other lands to the south where the dollar buys so much more.

To get your copies of both guides, simply fill in coupon and mail today.

FILL OUT AND SEND AT ONCE FOR QUICK DELIVERY

Mail to **HARIAN PUBLICATIONS, 10 Scranton Street
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, plus a free copy of Lands in the Sun. \$1.
- Where to Vacation on a Shoestring. \$1.
- Foreign Lands at Stay-at-Home Prices, Freight Life, and Where to Find the Best in the U. S., Canada, and Mexico. All 3 for \$1.
- How to Get a Job That Takes You Traveling. \$1.
- Special offer: All books above for \$3.50.

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What General Electric people are saying . . .

T. M. LINVILLE

Mr. Linville is Manager, Research Operation Services Department, General Electric Research Laboratory

" . . . It may well be that the supply of professional managers may determine the fate of our civilization. Adequate supply coupled with further development of the science of managing is needed, because the fulfillment of human wants demands organized human effort on an ever-increasing scale.

People today, as always, are seeking more comforts and less drudgery as well as protection from the hazards of life. Today the outstanding hazards are war, unemployment, illness, old age, and dependency of loved ones. The comforts being sought are the age old ones of food, shelter, and clothing, and the newer ones of education, recreation, and personal freedom and development.

If professional managers fail to meet these objectives, some shortsighted politicians are likely to lead the people to give up their economic and political freedoms, thereby freezing the economy into low-level production.

Professional managing is a calling in which one puts special knowledge to use with broad human understanding in the services of not only himself and his employers, but also in the service of his employees, his customers, and the community and nation.

This is a very different way of managing from the pre-Civil War slavery in the South and autocratic empire building in the industrial North. It has come about in this twentieth century. It is a professional kind of job.

The feudal concept that first dominated the industrial world has been replaced by business organizations which operate in the interest of, and by the consent of, owners, employees, customers, and the public. The managers are professional employees. The ownership is diffused. Such organizations put to work the people's savings. They provide the best means to gain the benefits sought by the people at large.

at The University of Illinois

E. S. LEE

Mr. Lee is Editor of the General Electric Review

" . . . The prophecy made years ago by Dr. Steinmetz that the electrical age—and the electrical industry—was in its infancy, can still be made today. In 1935 the electrical manufacturing industry supplied only 1.7 percent of the gross national product. Today it supplies 4 percent. There are those who forecast that as early as 1961 the products of electrical manufacturing will represent an estimated 5½ to 6 percent of the gross national product.

The forecasters have been busy, too, drawing dotted lines to show the probable kilowatt-hour output of electric power in the years ahead. A once daring prediction of one-trillion kilowatt-hours for the year 1970 is now moved ahead to 1965, and the really long-range prophets are talking among themselves about an annual output of five-trillion kilowatt-hours by the year 2000.

By virtue of its position, the electrical industry must be prepared to grow more than twice as fast as the remainder of the economy. Based on the best estimates of the growth of the economy as a whole, it is probable that in the next 10 years as much electrical generating equipment will be built, sold, and installed as has been built and installed in the industry's past 75-year history.

What a prospect for the engineer! Such growth means the solution of new and more complex technical problems, together with the advancement of managing ability to solve the many human problems that come with the expanded units of production. In both of these realms the call for solutions is intense. In ever-expanding avenues the opportunity for the new is more extensive than ever.

G.E. Review

J. K. WOLFE

Dr. Wolfe is a Research Associate at the General Electric Research Laboratory

" . . . Recently, a new class of fluorine compounds, namely 'fluorocarbons' have appeared which show promise of considerable commercial as well as scientific interest.

These fluorocarbons whether gas, liquid or solid, show extraordinary stability toward heat and oxidation from air of chemicals. The solids and liquids are not swelled or attacked by gasoline, solvents, acids, or other chemical materials. High thermal stability is a well-known characteristic of the inert fluorocarbons. On heating they decompose only at high temperatures in the range of 1000 degrees F. to mixtures of saturated and unsaturated compounds. They are not attacked by the usual chemicals, acids, bases, or oxidizing agents, even at high temperatures. In the electrical field, fluorocarbon liquids have many properties which can afford a basis for new equipment design. A combination of properties which these materials possess is certainly not found in any other class of fluids. Besides being nonflammable and usually stable, they possess exceptional electrical properties being particularly resistant to the flow of electrical current over a wide range of frequencies.

Some of the more recent developments of fluorocarbon derivatives are just beginning to open more fields. The initial high prices of these materials will undoubtedly be decreased as the volume and use becomes more extensive. The price will undoubtedly follow the established pattern as production increases and there are many other places where you will see fluorocarbons occupying a very important spot in the future.

*G.E. Science Forum
WGY, Schenectady, N. Y.*

You can put your confidence in—

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