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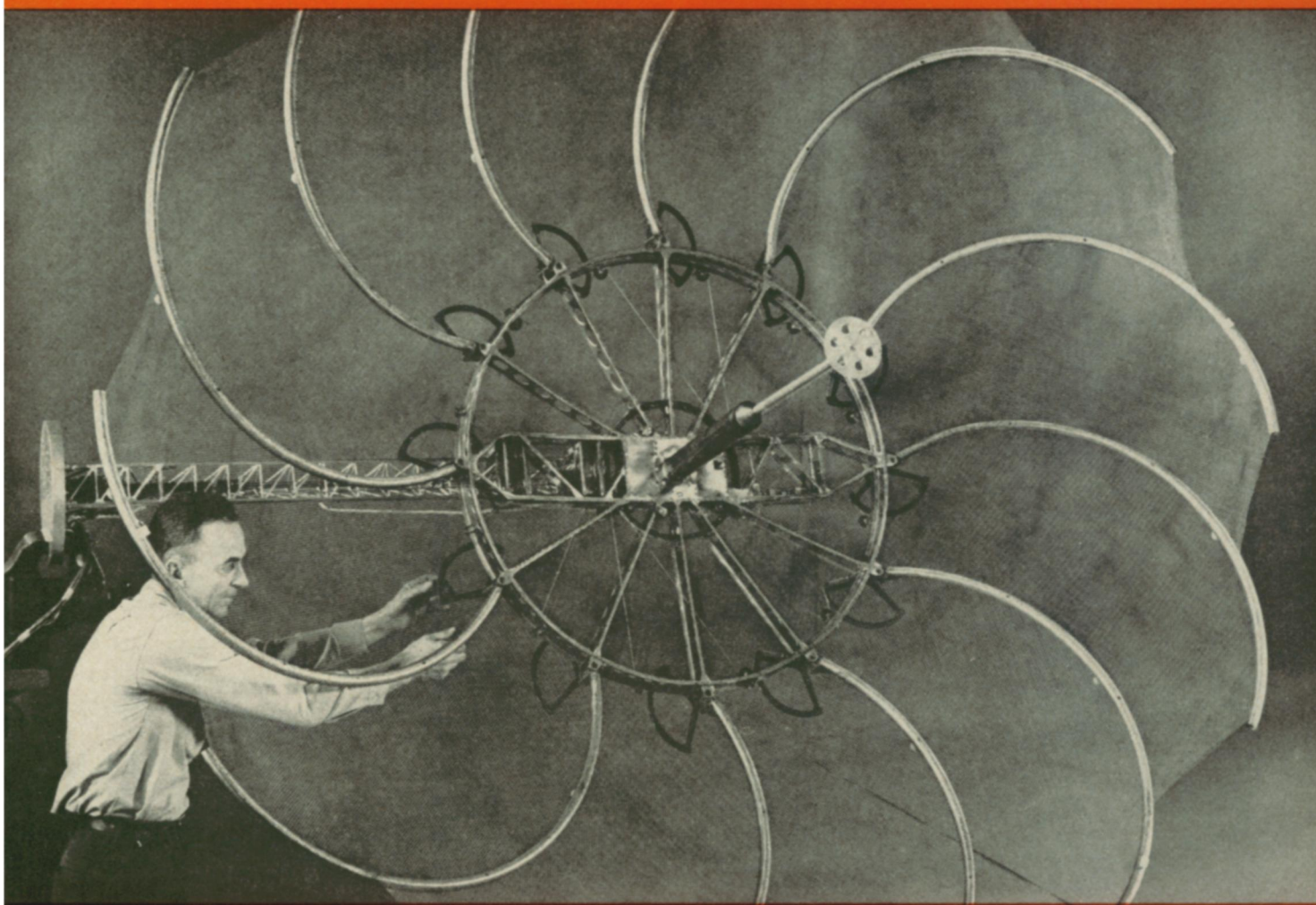
October 3, 1964

VOL. 86, NO. 14 PAGES 209-224

# SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Goodyear Aerospace Corp.

Spacecraft Antenna

See Page 213

A SCIENCE SERVICE PUBLICATION

*One of a series briefly describing GM's research in depth*

## From Mathematical Research: Automatic Approximations of Tables and Graphs

The search for unknown relationships is basic to science and engineering . . . and results in a steady outpouring of new tables and graphs. To store this mass of data economically and retrieve it quickly from a computer, mathematicians suggest the use of formulas that closely approximate or "fit" the data.

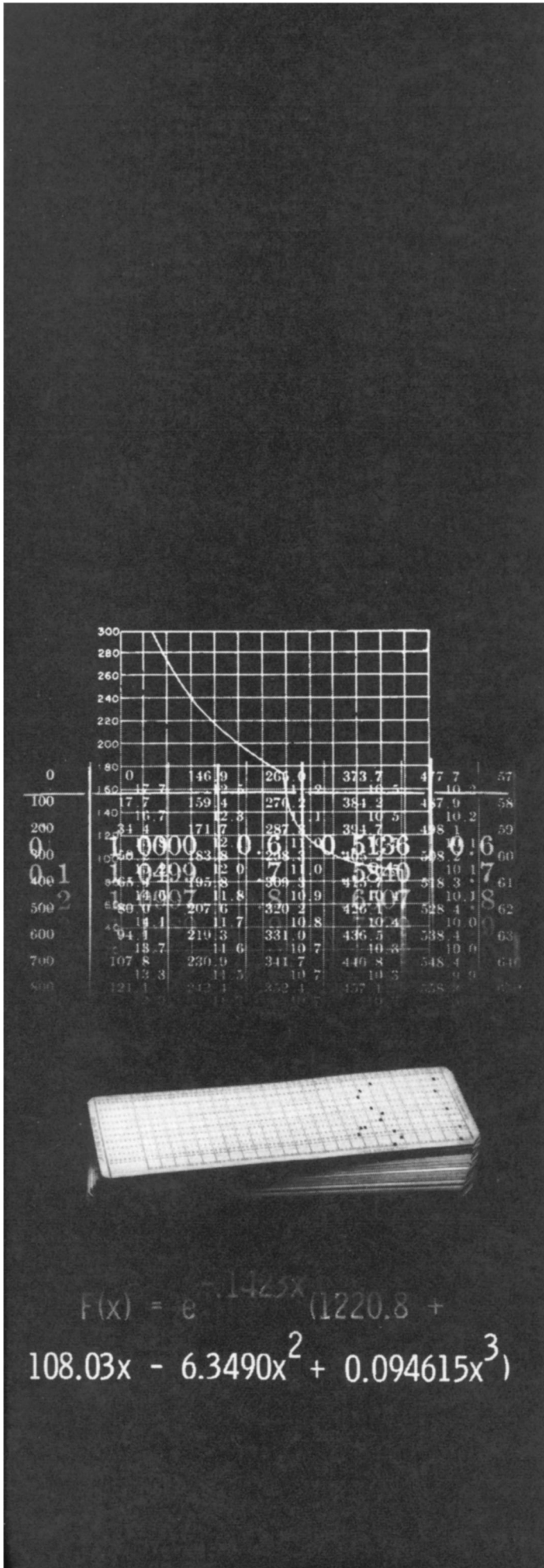
Here at the General Motors Research Laboratories, one of our four mathematical science departments has taken the first giant stride toward making such formulas easy to obtain. Through pioneering work in approximation theory, our mathematicians have been able to develop automatic computer procedures—"black boxes" that can crank out very efficient approximation formulas.

The formulas might be weighted polynomials . . . or the more flexible rational functions . . . or the little known, highly versatile spline functions. But in any case, their generation by delicately tuned computer programs goes well beyond standard "curve-fitting" techniques. In using these programs, for example, our scientists and engineers may ignore such mathematical subtleties as the Tchebycheff norm and unisolvence. Just feed the table in, pull a formula out.

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Warren, Michigan



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**ATOMIC CLOUD CHAMBER WITH PROJECTOR ILLUMINATOR**. See the vapor trails of alpha and beta particles, and of cosmic rays. **SPINTHARISCOPE**. Shows exploding atoms. **ELECTROSCOPE**—metal housed with **Scale** and **Magnifying Viewer**. Measures background radiation and tests sample sources. **SAFE RADIOACTIVE MATERIALS**. Alpha Source in handy container and Uranium Ore.

Full instructions and explanations open up the fascinating field of nuclear physics.

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*The land of retirement and vacation bargains—that's Mexico*

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If you want a delightful retirement area with plenty of Americans around to talk to, he leads you to all the principal retirement towns, as well as dozens of little known, perhaps even more delightful areas, where costs are way far down, there's plenty to do and meeting people is easy. Always, he shows you modern, flower-bedecked hotels and inns that charge hardly half of what you might expect to spend in even such a land of vacation and retirement bargains as Mexico.

There's a great deal more besides: everything from exploring ancient pyramids as old as Egypt's to finding fabulous hunting and fishing. If you might want to share in the high interest rates Mexican banks pay or to buy equally high-earning real estate or start a business of your own, this detailed guide to a fabulous land tells you what you must do to start your money earning so much more than in the U.S.

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where no one ever heard of nerves or worries**

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—Fabulous places like that undiscovered region where winters are as warm and sunny as Miami Beach's yet costs can be two-thirds less. Or that island that looks like Hawaii yet is 2,000 miles nearer (no expensive sea or air trip to get there). Or those many other low-cost exquisitely beautiful spots all over the United States and Canada which visitors in-a-hurry overlook (so costs are low and stay low).

Every page of **Off-the-Beaten Path** opens a different kind of vacationing or retirement paradise which you can afford—places as glamorous as far-off countries yet every one of them located right near at hand. Like these:

- France's only remaining outpost in this part of the world—completely surrounded by Canadian territory . . . or a village more Scottish than Scotland . . . or age-old Spanish hamlets right in our own U.S., where no one ever heard of nervous tension or the worries of modern day life.

- Resort villages where visitors come by the score, so you always meet new people . . . (but they never come by the thousands to raise prices or crowd you out).

- That remarkable town where a fee of 3c a day gives you an almost endless round of barbecues, musicals, concerts, picnics, pot luck suppers, smorgasbord dinners and a fine arts program. That southern island first discovered by millionaires who had all the world to roam in . . . and now their hideaways are open to anyone who knows where to find them.

You read of island paradises aplenty in the United States and Canada, of art colonies (artists search for picturesque locations where costs are low!), of areas with almost a perfect climate or with flowers on every side. Here are the real U.S.A.-brand Shangri-Las made for the man or woman who's had enough of crowds. Here, too, are unspoiled seashore villages, tropics-like islands, and dozens of other spots just about perfect for your retirement or vacation at some of the lowest prices you've heard of since the gone-for-ever prewar days. They're all in the United States and Canada, and for good measure you also read about the low-cost paradises in Hawaii, the Virgin Islands and Puerto Rico.

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But this book does even more—it leads you clearly through all the problems of foreign photography, answers such questions as which is the easiest-handling equipment to take, where to get good value overseas in films, cameras, etc. There's hardly a question about such technical matters as loading, focusing, using filters, lens, flashguns, cable releases, etc. which isn't answered.

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