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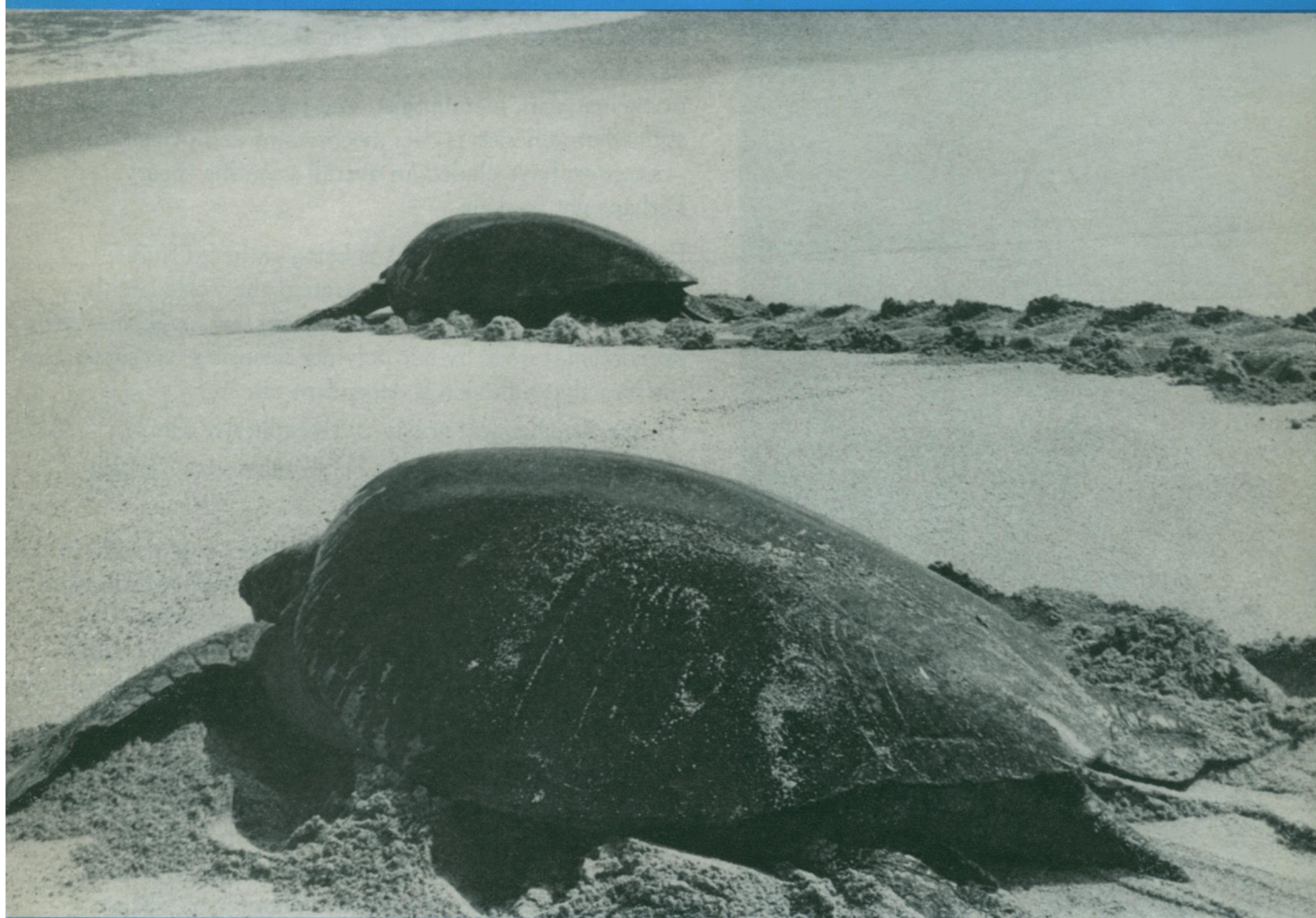
September 15, 1962

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SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Tortuguero Turtle

See Page 174

A SCIENCE SERVICE PUBLICATION

Adhesion: describing an elephant of science

Adhesion has certain similarities to the elephant the blind men were asked to describe. This interdisciplinary subject has occupied the talents of the physicist, chemist, mathematician, metallurgist, and polymer scientist. But still, what adhesion is—its mechanisms and principles—seems to have eluded an overall scientific theory. Perhaps not for long.

Food for inductive thought is being gathered from fundamental research studies around the world. At the General Motors Research Laboratories, for example, recent experimental work by our polymer scientists has supported the idea that adhesion is dependent on:

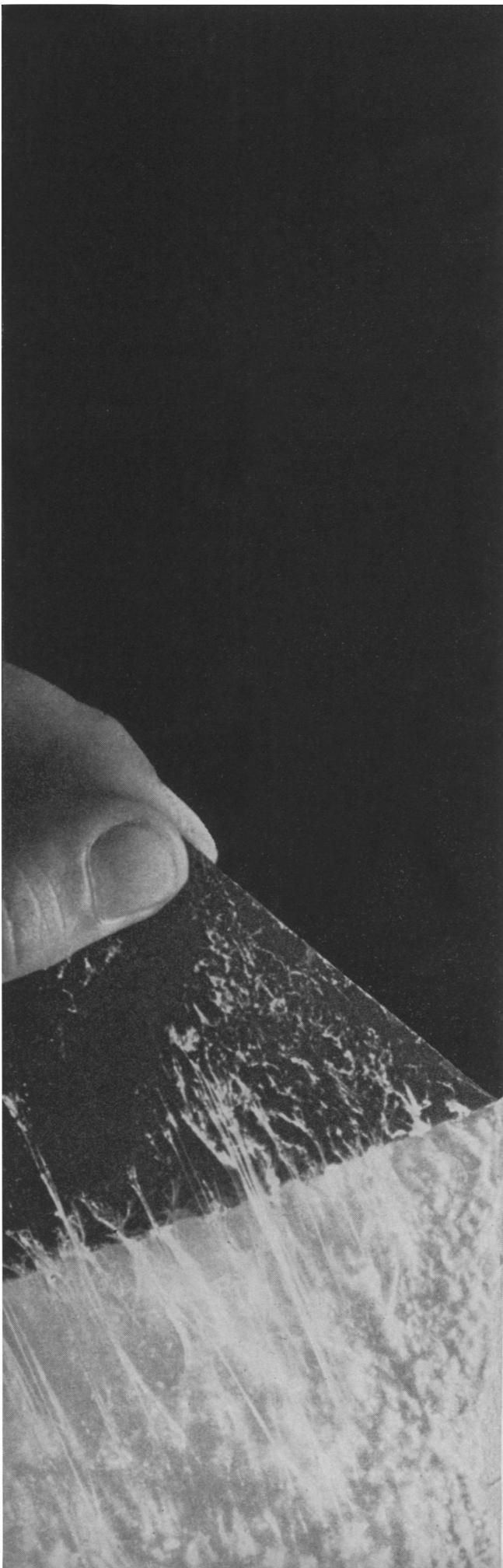
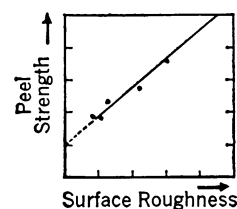
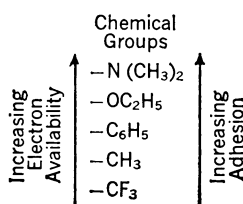
- (1) specific chemical groups in the adhesive film
- (2) surface roughness of the metal substrate to which the polymeric film adheres.

Particularly, through a range of polymers synthesized in the lab, they have found that the more available the electrons in the chemical groups, the stronger the adhesion. Similarly, the rougher the metal surface, the more force required to break the adhesive bonds between the polymeric coating and the substrate.

This experimental approach is enriching our understanding of some of the fundamentals affecting adhesion. It is also finding practical use in General Motors, helping in improving the adhesion of paint, rubber, plastics, and metals to each other. It's another example of GM's continual quest for—A BETTER WAY.

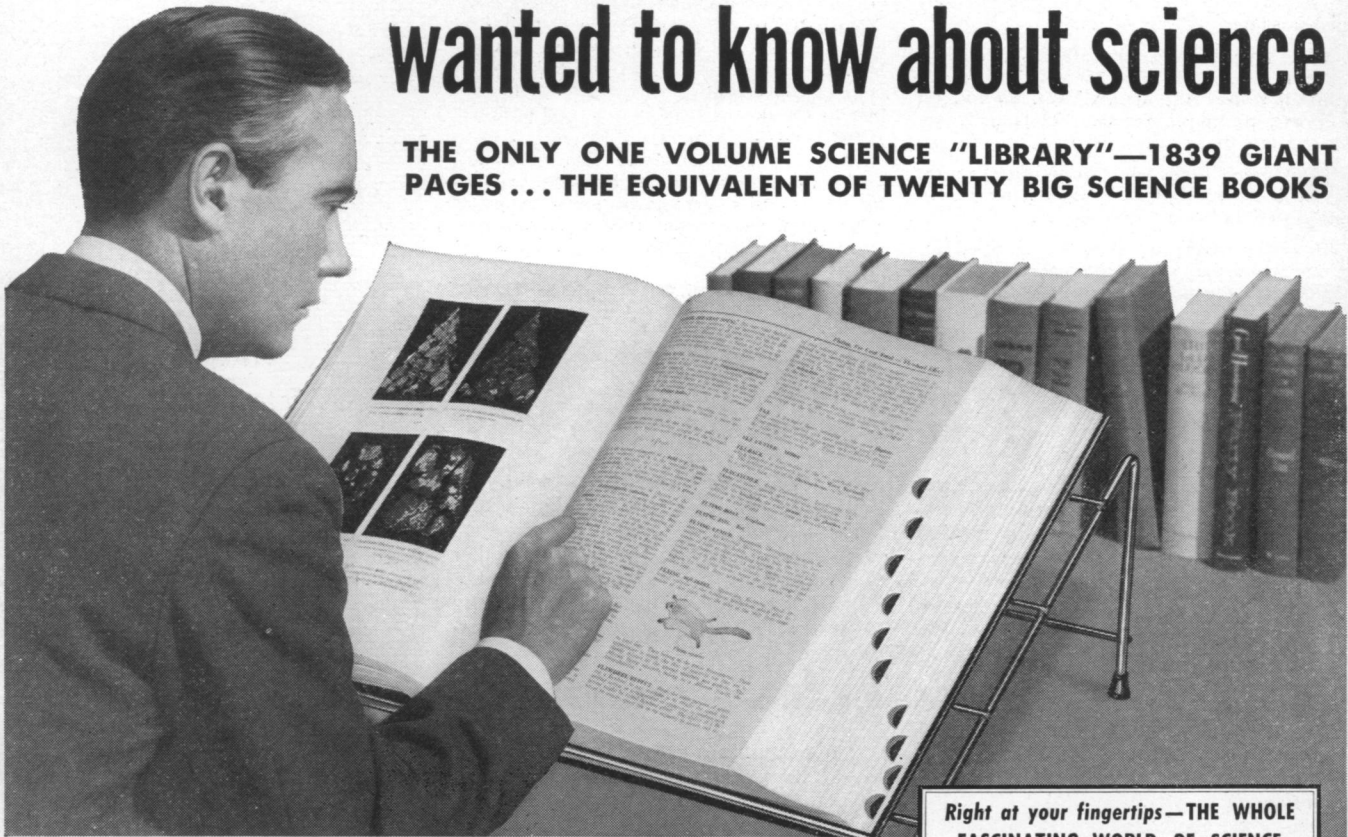
General Motors Research Laboratories

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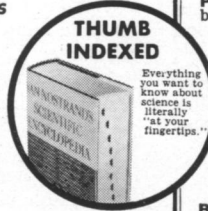
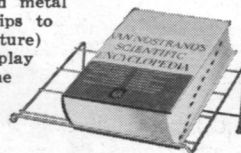
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