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SCIENCE NEWS LETTER

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THE WEEKLY SUMMARY OF CURRENT SCIENCE



NASA

Heat at 9,500 MPH

See Page 147

A SCIENCE SERVICE PUBLICATION

The unsettled mobility of gases in solids

One of the more elusive phenomena of nature—the diffusion of gases into solids—may cause peculiar, even detrimental, metallurgical effects.

To explain these mysterious meanderings, physicists at the General Motors Research Laboratories are measuring the mobilities of gas atoms in metal lattices. Their goal: fundamental knowledge on which to base improvements in the properties of metals and other solids.

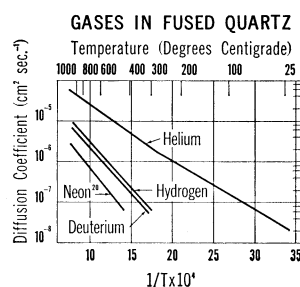
Diffusion rates for hydrogen in iron or steel have been found to drop off more than predicted as the temperature is lowered. For the theoretician, these results suggest that diffusion models will have to account for more than simple interstitial migration of hydrogen atoms. For the more practical minded, the new room temperature values can be correlated with the performance of hydrogen-embrittled steels.

In addition, the delicate nature of mobility measurements has diverted our experimentalists into investigating gases diffusing through glass lab equipment. The detour has proven fruitful. Their studies of gases in natural and synthetic fused quartz—the simplest form of glass—have furnished further clues to the basic structure of the glassy state.

It's another example of how General Motors engineers and scientists are working to find a better way—with research in depth.

General Motors Research Laboratories

Warren, Michigan

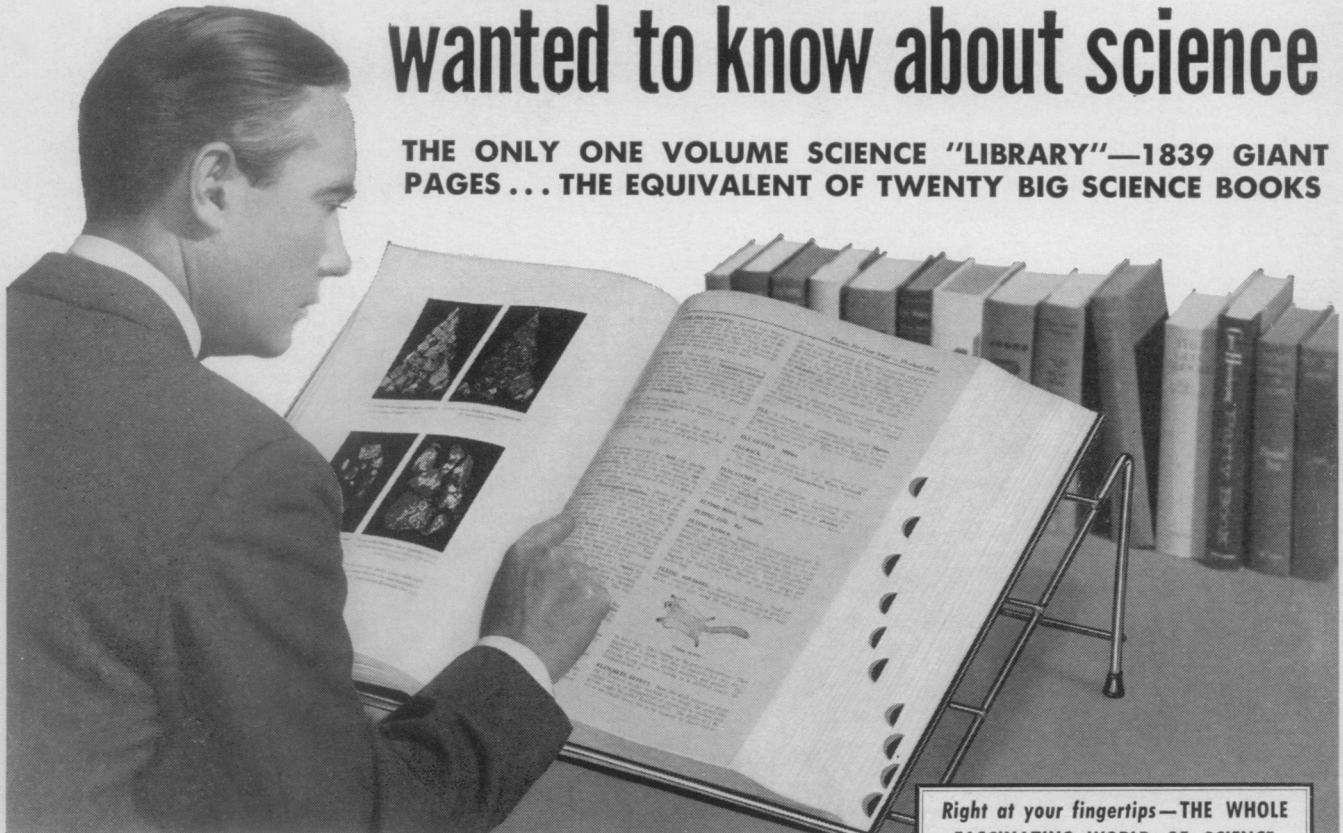


Compiled from recent GM publications in *J. Chem. Phys.* List available upon request.

Screw at left loaded with hydrogen by electrolysis and suspended in a hot oil bath.

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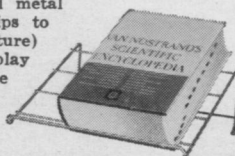
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