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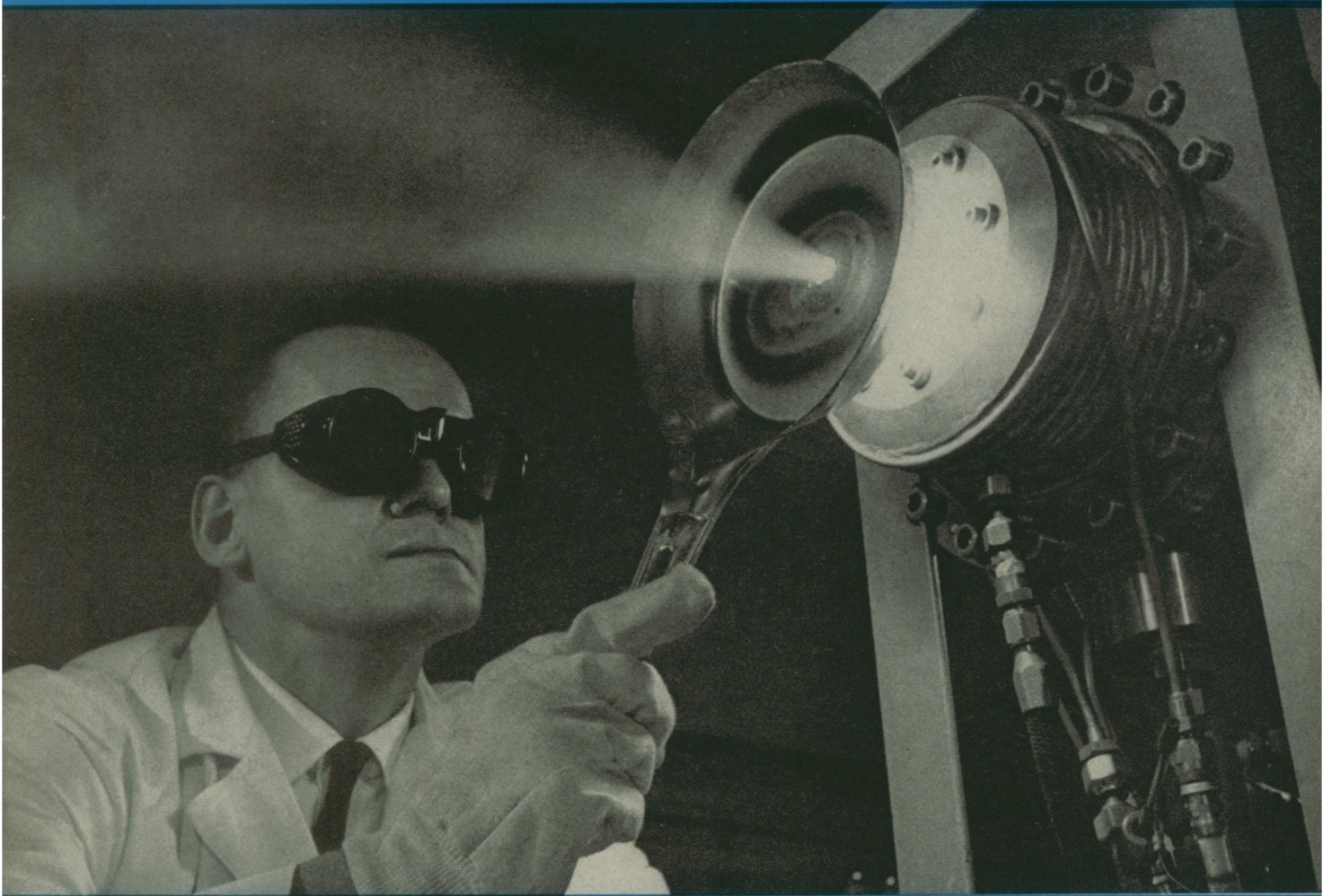
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THE WEEKLY SUMMARY OF CURRENT SCIENCE



Westinghouse

Through the Frying Pan

See Page 359

A SCIENCE SERVICE PUBLICATION

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

How Do lubricants affect fatigue?

Everyone knows what a lubricant does. Or do we?

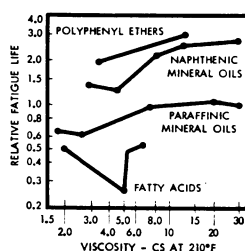
Besides reducing wear and friction, there is growing evidence that a lubricant profoundly affects the fatigue life of the component being lubricated. Members of our staff, for example, have observed 30-to-1 differences in the fatigue life of bearing balls due to lubricant variation. The study covered some sixty base oils from eleven chemical classes.

True, the evidence comes from bench tests. Its exact prediction of service experience is open to question, since tests were run at greatly elevated loads to shorten fatigue times to minutes.

But it offers some highly intriguing leads . . . leads we're following up by evaluating the many possible lubricant properties that may control the fatigue process. Viscosity is one. Antiwear characteristics, reactivity, and polarity are others. More rings in the lubricant molecule, for instance, usually result in longer life. And apparently there's an optimum wear rate for maximum life. Additives and precoatings play significant roles.

Research such as this is adding to our knowledge of the chemical and physical processes going on at contacting surfaces. It may well lead to improved performance of tomorrow's mechanical systems through controlled friction, reduced wear and fatigue. It's another illustration of how General Motors research people are working to find a better way.

General Motors Research Laboratories Warren, Michigan



Effect of lubricant composition on fatigue.

