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# SCIENCE NEWS

SCIENCE NEWS LETTER<sup>®</sup>



THE WEEKLY SUMMARY OF CURRENT SCIENCE

Kookaburras:  
Becoming Extinct?  
P. 483



A SCIENCE SERVICE PUBLICATION

## Sometimes it takes a light touch to make plastics.

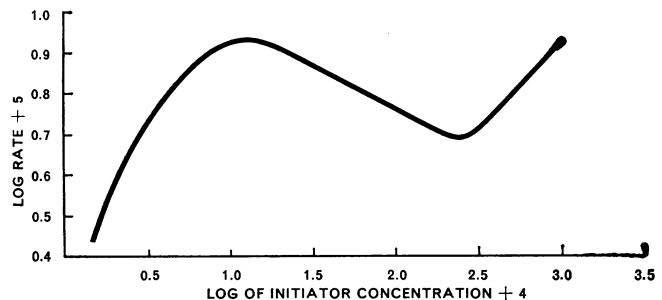
To make a plastic—take a monomer, add an initiator, and then add some energy to kick off the reaction. When it's over, you have polymer molecules—a plastic. The needed energy often comes from heat. But heat can evaporate the monomer before it has a chance to polymerize. Or it can damage a material being plastic coated.

A good alternate energy source is light. Just recently, our chemists discovered an initiator that is particularly effective in forming acrylic polymers on exposure to ultraviolet light.

It's triphenylphosphine. Several other triphenyl compounds are known as effective polymerizing agents at about 200°C. But we've found that these, and the phosphorus derivative, can also initiate *photopolymerization*. And triphenylphosphine is effective at room temperature.

Suppose you want to "pot" a delicate electronic circuit that would be harmed by heat. Take a methacrylate monomer to which our new initiator has been added. Drop the electronics into a bowl of this watery liquid and expose it to ultraviolet light. In a few minutes the circuit is encapsulated in a clear, solid plastic that is potentially very stable. (Many initiators leave a residue in the polymer that hastens its degradation. Triphenylphosphine doesn't.)

The suggested explanation of how and why all this happens gets into molecular complex formations and electron exchanges. Detailed discussion is available on request. It's all part of our continuing search for a better way.



Effect of triphenylphosphine concentration on rate of polymerization of methyl methacrylate.



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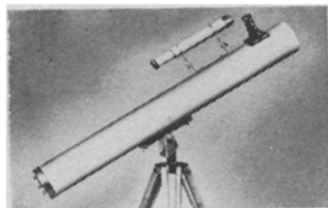
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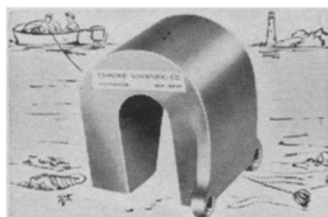
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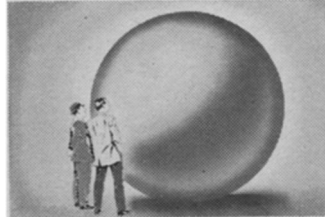
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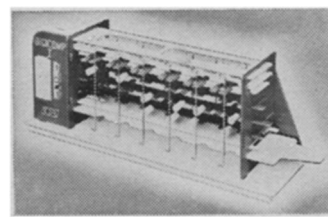
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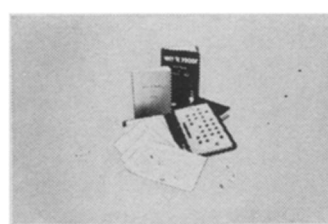
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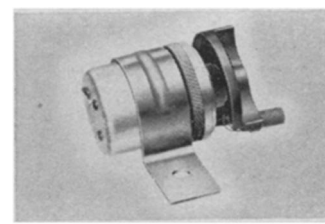
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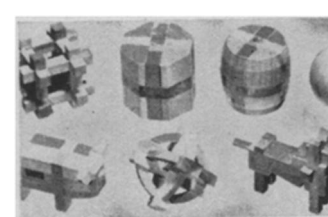
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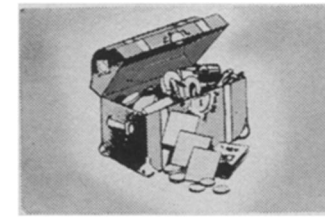
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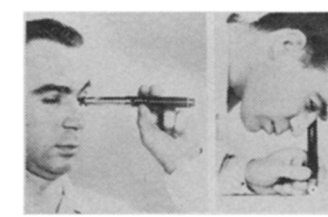
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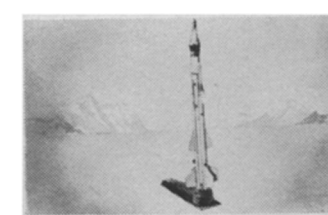
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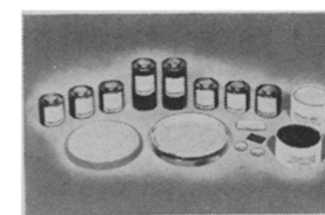
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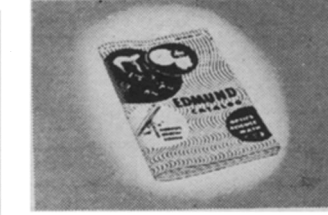
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