Stoner's footsteps. In the May-June AMERICAN SCIENTIST they discuss their own work, review the literature on group discussion and expand on Stoner's original conclusions. "After about five years of research and speculation on the great risk-proneness of human groups," they note, "it became evident that the risk shift was not as general as first thought. For example, some dilemmas did *not* yield a reliable risk shift, and some items were found to yield reliable shifts to greater caution after discussion."

A dilemma similar to Henry's demonstrates the cautious shift: Roger is a married man with two school-age children and a secure but low-paying job. He can afford the necessities, but not the luxuries of life. From a reliable source Roger has learned that the stock of a relatively unknown company might triple in value in the near future. Roger has no savings. Should he take a flier and invest his life insurance money in the unknown company?

Just as with Henry's problem, research subjects were asked individually and after group discussion what Roger should do. In this case, the groups tended to be more cautious than the individuals—the opposite of the risky-shift phenomenon.

So group discussion does seem to have an effect on human thoughts and behaviors, but the shift can be toward either risk or caution. The authors suggest there might be a "general principle that will allow us to predict in advance the likely direction of a shift." They found a strong relationship between the average initial response on an item and the average shift elicited by that item. Individuals were more likely to suggest risk-taking for Henry than for Roger. Group discussion only enhanced the already dominant point of view.

"The group-change effect discovered in dilemmas," Myers and Lamm conclude, "is therefore better described as a *group-polarization* phenomenon: The average post-discussion reponse will tend to be more extreme in the same direction as the average of the pregroup responses."

Social psychologists have long been divided on the question of whether group interactions have mostly beneficial or mostly destructive outcomes. Group therapy is based partially on the assumption that group discussion will be beneficial. Mob violence, on the other hand, shows the destructive aspects of group behavior. The group-polarization theory does not say whether group discussion will be beneficial or destructive. It does, however, yield some understanding of human behavior in certain social situations and suggests the importance and effectiveness of group discussion in bringing about behavior change. And because of this apparent effectiveness, say the researchers, it is "not surprising that, in Western culture, group discussion seems increasingly integral to our social and organizational existence." □

Rubber telescope bounces on

The earth's atmosphere has always been a barrier to astronomers. Its turbulence limits the sharpness of the sky. Astronomers would love to get from their telescopes the resolving power that the laws of optics allow, the so-called diffraction limit, but the images shimmer and dance and will not come sharp.

The atmosphere cannot be made to go away, but recently a number of ideas have surfaced for compensating for its damage. One of these is the so-called rubber telescope, a concept based on a flexible mirror surface that can be moved and wrinkled to compensate for the distortion (SN: 8/24-31/74, p. 132). A group at the Lawrence Berkeley Laboratory comprising Frank S. Crawford, Arnold J. Schwemin, Robert G. Smits, Richard A. Muller and Andrew J. Buffington, is working on such a project, and Crawford reported at the conference on Imaging in Astronomy held at Harvard University last week that it has gone from concept to experimental reality.

Atmospheric distortion varies from place to place and time to time—it changes about 50 times a second—but over a small enough patch of sky it will be virtually the same at a given instant. So the rubber mirror is divided into a number of small elements which can be driven in and out and tilted independently under the control of a computerized servomechanism.

A large observatory mirror of this type would contain hundreds of such elements. The models now being tested contain only six. There is a hexagonal array of circular elements ⅜ of an inch in diameter and two linear arrays of half-inch squares.

The group has been concentrating on the linear arrays because these can be used in the 30-inch telescope at the Leuschner Observatory in the Berkeley hills. A 12-inch telescope was built for laboratory tests. The light source was a laser beam that had come through 1,200 feet of turbulent atmosphere. The first test, on June 10, used the two outermost of the six mirrors to produce interference fringes that were stable despite atmospheric shimmering. On June 12 two adjacent mirrors were used in the attempt to get a stable image simply of the aperture itself. The result was just what was expected under the conditions of the experiment, Crawford says. So the idea seems to be beginning to work. The next move is to gradually bring more segments into the act until all six are working. At that point the astronomers will go "out to the Leuschner telescope and look at real stars." □