

new CFC-manufacturing facilities. The controversy may yet pit the United States government, which is spending \$25 million annually to study the problem, against the Common Market countries as well as against U.S. CFC manufacturers, who claim that the risk posed by CFCs has not been demonstrated. "The government's going to get caught in the middle of the most divisive environmental issue I've ever seen," says Miller.

Bob Watson, an atmospheric chemist with NASA's Earth Sciences Division in Washington, D.C., says scientists are only starting to understand the set of chemical processes that both produce and destroy atmospheric ozone. "I feel sorry for policy makers," says Watson, who acted as technical adviser to the U.S. State Department representatives to Vienna, "because they have to try to make international policy just as predictions about damage to the ozone layer are changing substantially — every time there's been an assessment report, the numbers change."

Watson says NASA's latest estimates show that a 5 to 7 percent reduction of ozone may occur by the year 2050. But in the last 10 years, he says, scientific calculations have ranged from 3 percent to 18 percent (SN: 4/12/82, p. 244). The calculations continue to get more complex, he says, because they have to incorporate all the interactions of CFCs as well as of a variety of other gases — including carbon dioxide, nitrogen oxides and methane.

— J. Mathewson

## Social channels tune TV's effects

The lessons youngsters learn in television's electronic school of hard knocks, careening car chases and bad-guy bashing are apt to vary from child to child, depending on the attitudes toward violence and aggressive behavior fostered by parents and peers, psychologists reported at the recent American Psychological Association meeting in Los Angeles.

In a study of Israeli kibbutz and city children, L. Rowell Huesmann of the University of Illinois at Chicago and Riva Bachrach of the Kibbutz Child and Family Clinic in Tel Aviv find that members of both groups watch a good number of violent TV shows, most of them produced in the United States. But only among city youngsters were high levels of violence viewing related to aggressive daydreaming and aggressive behavior toward peers, says Huesmann.

In previous research, Huesmann and his co-workers found that for U.S. children, aggression, academic problems, unpopularity with peers and violence viewing feed on each other to promote violent behavior (SN: 9/22/84, p. 190). In the latest project, the investigators looked at two types of Israeli child-rearing societies, explains

## Micro-g earth lab for space studies

The idea of using the near-weightless or microgravity environment of space to produce new materials such as new alloys and ultrapure crystals has been around for years. If it has not exactly proceeded by leaps and bounds, some of the reasons have been the limited opportunities and high costs of space flight. In the last three years, however, the Reagan administration has sought to encourage more private-sector involvement in space, a task that includes finding ways to involve corporations and universities that heretofore may not have been active in space research.

With this in mind, NASA's Lewis Research Center in Cleveland last week opened a new Microgravity Materials Science Laboratory (MMSL) designed specifically "to help experimenters make better decisions about what is and is not feasible for science experiments in space." In short, says Salvatore J. Grisaffe, chief of Lewis's Materials Division, "it is dedicated to helping industry and university people take the first step toward space."

It can be pretty inhibiting, Grisaffe notes, if an organization just starting to contemplate an idea for future space study, but without experience in such matters, finds that it may need something like a \$200,000 furnace to design an experiment. Thus the MMSL offers potential experiment designers furnaces, acoustic and electromagnetic levitation equipment and other devices, sometimes including "functional duplicates" of equipment that would actually be

used if such a study were conducted on the shuttle.

Such gear would be for use in experiment development on the ground, not in space, and NASA Lewis has not developed an antigravity machine. It does, however, offer a pair of 500- and 100-foot "drop towers," each providing a few seconds of weightlessness, as well as a Lear Jet that can achieve the same result by flying over the top of a parabolic arc. Even those short periods, says Grisaffe, can be valuable in preliminary studies of flowing liquids or the cooling of melted solid droplets. The MMSL also would be providing consultation, as well as computing facilities that include a Cray supercomputer.

One of Grisaffe's hopes is that the combination of the MMSL and spaceborne experiments will lead to a set of "benchmark materials" — carefully measured samples that will document the best that can be accomplished in space, versus on the ground, in various characteristics such as crystal structure and magnetic properties. It is even possible, he suggests, that detailed computer modeling of the behavior of materials produced in space may someday make it possible to achieve their desired properties by ground-based manufacturing, without the expense of going into space at all. And to further encourage private-sector interest, the "catalog" describing the new facility offers potential users first rights (subject to a royalty-free license to NASA) to any inventions that may result.

— J. Eberhart

Huesmann. On the kibbutz, youngsters attend school in the morning, work with peers in the afternoon, eat dinner with their families and return to communal barracks where they sleep and can watch TV. The city children, much like those in the United States, attend school most of the day and have more time to watch TV, either alone or with a few others.

Over three years, the researchers interviewed and tested 74 children from a kibbutz and 112 from Tel Aviv, half from grades 1 through 3, the rest from grades 3 through 5. They also collected data from each child's parents, peers and teachers.

City boys and girls watch television far more regularly than their kibbutz counterparts, notes Huesmann, but kibbutz children are just as likely to choose violent programs as nonviolent shows. In Israel, foreign TV programs run from shoot-'em-up fare such as "Charlie's Angels" to less violent shows like "The Love Boat" and "Upstairs, Downstairs."

City children in the sample reported a greater tendency than kibbutz youngsters to regard violent programs as accurate reflections of real life and to see themselves

as similar to all types of TV characters. City boys identified the most with aggressive TV characters, says Huesmann. On the kibbutz, the researchers were surprised to find that girls identified more strongly with aggressive characters than did boys.

In another surprising finding, children of more highly educated parents generally watched the most television and the most violent programs. City boys were an exception, watching fewer shows of all types as parents' education increased. "This is an unusual finding that we can't explain," says Huesmann. In the United States and several European countries, the researchers have found that children's TV viewing tends to decrease with more educated parents.

But all of the data support the notion, stresses Huesmann, that "social norms mediate the effects of television violence." Aggressive behavior was more acceptable in the city, where a child's popularity rating with classmates was not hampered by his or her aggression, Huesmann found. On the kibbutz, however, popularity with peers sank among the more aggressive children.

— B. Bower