

Center in San Francisco conducted experiments to see if the SV40 virus, harmless to human cells, contained a gene that would code for a missing enzyme in an inherited disease called xeroderma pigmentosum. The condition, associated with a sometimes lethal sensitivity to sunlight, emerges because of the absence of an endonuclease, a gene that repairs DNA damaged by ultraviolet light (SN: 10/18, p. 348). "The SV40, regretfully, does not work," Dr. Cleaver reports. "Most of the genetic information it introduces appears to be characteristically viral." It is not useful to mammalian cells. Dr. Cleaver adds that while there may be a safe, natural virus capable of inducing endonuclease synthesis in defective human cells, the search would be monumental and is not on the drawing board.

The alternative to employing the genes of innocuous natural viruses is to tailor-make synthetic genes that can be incorporated into Shope, SV40 or other passenger viruses, which will then carry them into human cells. To this end, Nobel laureate Dr. Gobind Khorana of the Massachusetts Institute of Technology has made some advances with his first synthesis of a yeast gene (SN: 6/6, p. 547). However, the transition from such work to human medicine is complex and does not loom in the immediate future. □

AMENDMENT BOUND

Feminism moves on

As militant women gathered last week across the nation to celebrate the 50th anniversary of female suffrage, there was little mood of self congratulation. Rather, the demonstrations and the publicity served to make the people, males and females alike, conscious of the incipient changes in woman's role in society.

A major focus of the events was the proposed equal rights amendment to the United States Constitution. At present, the extent to which women may invoke the Constitution against laws that discriminate on the basis of sex is unclear. Many state laws place special restrictions on women with respect to hours of work, working in certain occupations and equal admissions to institutions of higher learning. Some legal observers maintain that women are relegated to second-class citizenship because they cannot invoke the Constitution against discriminatory treatment.

Although resolutions proposing an equal rights amendment to the Constitution have been introduced in every Congress since 1923, they have been killed. But revival of a modern feminist movement in the past four years, par-



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Women's role: A new consciousness.

ticularly among young women, has brought new life to the issue.

Two major forces in the feminist movement are the liberal National Organization for Women (NOW), and the radical Women's Liberation. NOW, which has been described as the NAACP of women, receives its main thrust from the efforts of Betty Friedan, a critic of woman's traditional role of housewife and subordinate to her husband. "Support for Friedan's organization comes largely from women over 30 who are quite often following a professional career," says Dr. Laurel Walum, a sociologist from Ohio State University.

"Whereas the more radical women want a total restructuring of society, NOW simply wants a bigger piece of the action," she says.

Women's Liberation has its roots in the civil rights and radical student movements. "Women who were fighting to liberate blacks quickly discovered that they themselves were not liberated," explains Dr. Walum. "Radical women went to make revolution and found themselves as secretaries and coffee makers. The same happened to hippies who joined communes. The women were dishwashers."

These radical advocates seek to change women's role in society, particularly regarding child-rearing.

"Women have absorbed a second-class self-concept," says Theo Wells, an activist for women's rights in Beverly Hills, Calif. "From early childhood they are always asking permission, seeking approval. The woman is relating as the other person, not the primary person. She becomes a function of others."

That this is an important psychological barrier has been shown in a number of studies. For example, the 1966 Cole-

man report on equal opportunity in education, directed by Dr. James Coleman of Johns Hopkins University, indicated that self-concept is one of the areas that is directly related to achievement. Yet competent women find that their sense of achievement is undermined when they are relegated to low skilled, low paying jobs.

From early childhood they are told to play in Henrik Ibsen's *Doll's House* while males are encouraged to engage in problem solving, achievement-oriented behavior. Females are counseled into secondary roles such as being a nurse to a doctor, a secretary to an executive. "If a girl is interested in male subjects she is channeled elsewhere. She's told 'be a sex object, don't develop your head,'" says Wells. "But in the feminist movement she is joined by other women who feel the same and serve to reinforce the new concepts of womanhood." □

ALASKA EARTHQUAKE

Living on the edge



Army

Anchorage's Fourth Avenue dropped.

"Once bitten, twice shy" is a proverb that may run true in human-canine relations, but evidence from a recently completed survey of human behavior during and after the Alaska earthquake of 1964 shows that it does not apply to where people build their houses. Having had houses knocked down by earth movements during the quake, Alaskans went back and rebuilt on the same sites.

The citizens had been warned even before the quake. Four years earlier, the U.S. Geological Survey had said that much of Anchorage was built over layers of unstable clay. When the quake came the clay slipped and did great damage to structures that stood above it.

In Fourth Avenue in downtown Anchorage the land dropped 11 feet and slid horizontally 14 feet. In the L Street area 30 blocks suffered similar

sliding. In the suburb of Turnagain Heights a bluff subsided as much as 70 feet, carrying houses with it.

After the earthquake officials declared some of these areas ineligible for federally supported reconstruction aid because of the danger of rebuilding on the unstable clay.

But the people went right back.

Businessmen complained that plans to move the main business district to a safer area south of where it had been would be too disruptive of the economy. Federal officials relented part way and made funds available to rebuild existing structures in the Fourth Avenue area, but not to construct new ones. An earth buttress costing \$4 million was built to stabilize part of the Fourth Avenue slide.

Even where the Government kept the brakes on, in the area of the L Street slide, the people insisted on coming back. New buildings have been built on the slide and an apartment house and a luxury hotel have been built nearby, all with private financing.

On the whole, whether during or after the disaster, people changed their accustomed habits very little, the report, conducted for the National Academy of Sciences by the National Research Council, notes. People did what they were trained or used to do and responded slowly if at all to extraordinary situations.

There was a great need to look for persons trapped in fallen-down buildings, but in Anchorage systematic search and rescue operations were delayed until the morning, 12 hours after the quake, although some volunteers had searched in certain parts of the town during the night.

Instead of rescue work, the fire department did what it had always done: It looked for fires to put out. This was a most necessary activity, but, the report complains, "no effort was made to take on novel tasks" such as search and rescue.

One of the report's recommendations is that communities prepare for possible disaster by forming organizations whose primary functions would be to take up unusual tasks such as search and rescue and leave regular public agencies to continue with their usual activities.

Experiments involving simulated disasters have indicated that such preparation could be effective (SN: 8/1, p. 103).

Another area of concern was the unwillingness of many to take part in aiding the stricken. People who might have contributed their energies to rescue work bent their efforts instead to protecting damaged property. The report complains that fear of looters was "a misplaced concern." It cites the example of Kodiak, where there were widespread reports of thefts, but only

one instance where investigation resulted in charges being brought. Many things that people first thought had been stolen were washed out to sea.

Financially the earthquake may have been a disaster that was not a disaster at all. The report says flatly, "Alaskans bore little in the way of losses."

About \$300 million worth of property was destroyed, but, says the report, Federal relief funds exceeded some categories of loss. Private property damage, for example, amounted to \$77 million, but by September 1966 the Federal Government had spent \$114 million to repair it. Some businessmen, says the report, may have found themselves better off than they had been before the quake. Reconstruction provided a spur to the economy and population rose.

In sum, the earthquake, one of the most significant geophysical events to happen in the United States, had very little effect on the land or the people. Even though urban renewal funds were available, there was very little reloca-

tion of homes or businesses away from dangerous spots except for the town of Valdez and some of the villages. In fact, the Anchorage experience shows a strong desire to return to dangerous locations.

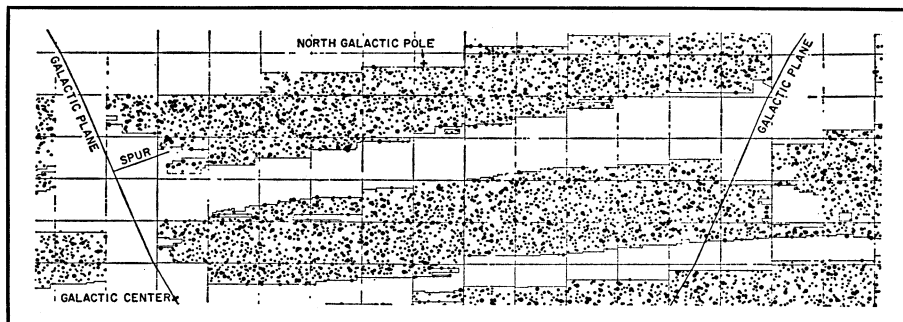
The report recommends a national policy to reduce losses in future earthquakes, which might not be convenient enough to happen in sparsely populated areas at times when office buildings are mostly empty, as the Alaska one did. Environmentalists frequently warn, for instance, that Californians building along the San Andreas fault (SN: 6/10/67, p. 550) are courting disaster.

Agencies that govern where people build, the report says, should discourage building on risky land and stimulate safe construction practices as a normal part of their function.

"The dispersal of population and human works into areas of high seismic potential is accelerating," the report says. "We will have to labor mightily merely to keep future losses at present levels." □

RADIO SKY SURVEY

The curving universe



Nature

Some of the 8,100 radio sources: As the sources get fainter, they are fewer.

In past centuries astronomers believed in a universe in which space was flat and extended in all directions to an infinite distance. This was the simplest and most reasonable assumption. Modern cosmologists have been forced to give it up, however, by modern theories of the nature of space and the behavior of gravitational forces. Twentieth century considerations lead to belief in curved space and a universe that is perhaps not infinite.

So strong are the theoretical reasons for believing in a curved universe that few cosmologists today would argue for a flat one. Yet it is important to have observational confirmation of a curved one.

Evidence to that effect is now provided by a survey of radio sources that has been made at the Ohio State University Radio Observatory in Delaware, Ohio, by Drs. Beverley June Harris and John D. Kraus.

Astronomers periodically make surveys of the sky, locating and cata-

loguing different classes of objects. The surveys are useful not only for locating individual sources of radiation that may be of interest for one reason or another, but also for their contribution to astronomical statistics. From such statistics conclusions can be drawn about the shape and gross properties of the universe.

Radio surveys are especially useful for drawing cosmological conclusions, since they record sources that are much farther away than any that are recorded in visible light. In five years of observing Drs. Harris and Kraus located more than 8,100 radio sources that radiate at 1,415 megahertz. The survey covered most of the sky between plus 37 degrees and minus 36 degrees declination and 0 hours and 24 hours right ascension.

The Ohio State survey provides, in the words of Drs. Harris and Kraus, "the deepest and most extensive survey at frequencies above 408 megahertz and the largest number of sources cata-