tween presence or absence of hydrogen bonds." Most of the molecules will be hydrogen bonded to each other, but some few, because they are too far apart perhaps or because mutual orientation does not favor the formation of the bond, lack a bond. They have dangling hydroxyl groups.

As the molecules rotate under the influence of thermal energy they possess, the location of the broken bond shifts from molecule to molecule. The way the molecules reorient themselves and the way the broken bonds migrate can account for the way the dielectric depolarization takes place, Minton says.

Minton believes that his model, devised to explain one bulk property of water, can also account for others. He is now at work relating it to certain temperature-dependent properties such as density change with temperature or changes in the static dielectric constant with temperature. In mixture models these properties are supposed to result from the changing proportions of molecules in two different physical states, and it would be a great advantage for Minton's model to explain them without resorting to that. □

The planetesimal that formed Mare Imbrium

In its early years, according to theorists, the solar system contained large numbers of small bodies similar to the present asteroids and meteoroids. The cratered surface of the moon is supposed to be a witness to their existence. As time passed, objects with unstable orbits fell into the sun, and most of those with stable orbits were swept up by the larger planets. Again the moon is a witness to the activity.

The maria of the moon, and particularly Mare Imbrium, were supposed to have been dug by collisions of fairly sizable bodies. Now it seems that the Apollo 14 expedition brought back debris from the body that made Mare Imbrium.

The report, in the Jan. 7 NATURE, is by R. Ganapathy, J. C. Laul, J. W. Morgan and Edward Anders of the University of Chicago. The chemical composition of some of the Apollo 14 material leads them to suggest that it came from a planetesimal the size of the island of Cyprus that struck the moon.

The composition of the planetesimal does not represent that of any known class of meteorites, they say, though the class called group IV A irons comes close. It does not appear to have undergone the segregation of metals and silicates characteristic of planets, and thus it is apparently not matter thrown off by the earth or by the moon in the process of their formation.

The body appears to have struck the moon about 700 million years after the formation of the moon. Since its velocity of impact was very low, 2.4 to 6 kilometers per second, the question arises how a body with such a low velocity with respect to the moon could have survived for 700 million years without capture. The answer favored by the Chicago group is that it was also an earth satellite. Gradually, tidal forces would have changed the orbit of the smaller body until it crossed the moon's orbit. At this time, it could have been swept up by the moon. □

Seeding Stormfury's Ginger: Nothing definitive

Project Stormfury, though contributing much to theoretical understanding of hurricanes, has had singular bad luck in applying its models to hurricane modification in the field. After Hurricane Debbie of 1969, the next seedable hurricane to come along was Ginger last September (SN: 10/2/71, p. 226), and Ginger just barely qualified.

Ginger was seeded on Sept. 26 and 28. In a preliminary report on the results of these seedings, released last week, Stormfury director R. Cecil Gentry said effects of seeding on the hurricane's structure were much less spectacular than on Debbie. He emphasized, however, that the meteorologists had known beforehand that Ginger could not be dramatically altered. The potential for modification is greatest in storms with well-defined eyes, large convective clouds, lots of supercooled liquid water and sharp wind and pressure gradients. Ginger had none of these characteristics. She was so diffuse, in fact, that the scientists wonder what kept her running.

In spite of Ginger's drawbacks, the scientists decided to experiment. "After all," Gentry said, "Ginger was available and the project had had no storm on which to experiment in two years. Obviously, storms such as Ginger do occur in nature and the project would be well advised to take advantage of such an opportunity to learn as much as could be learned about this type of storm and to determine if, and under what conditions, such storms can be modified beneficially."

Lacking a well-defined eye, Ginger was unsuitable for the eyemod experiment used on Debbie, in which clouds surrounding the hurricane eye are seeded. Instead, the researchers for the first time attempted the rainsector experiment. In this procedure, the curved bands of clouds with heavy precipitation located 70 to 100 miles from the storm center are seeded in an attempt to draw off some of the energy flowing inward to the storm's center.

Seeding apparently produced some modification of clouds; seeded clouds became brighter and fuzzier. Wind speeds decreased following the seedings on the 28th. Because many more clouds were seeded on the 28th than on the 26th, Gentry says this result was encouraging. The radius of maximum winds increased following the seedings on both days. These wind changes, however, were no larger than typical natural variations, says Gentry, and there were natural forces present that could have caused the observed effects. He concludes that evidence at present is insufficient to justify saying that the seeding caused wind decreases, and that the experiment's major value was that it produced a wealth of data on a peculiar storm.

A legal challenge to AEC's dual roles

Atomic Energy Commission chairman James R. Schlesinger told electric utilities and the nuclear power industry last fall that the AEC is no longer in the business of promoting and protecting them (SN: 10/30/71, p. 290). Additionally, AEC has upgraded its environmental reviews of nuclear plants. Environmentalists are not satisfied. They feel that the Atomic Energy Act of 1954 places the AEC legally in the position of both regulating and promoting nuclear power—a position they regard as an untenable, and unconstitutional, conflict of interest.

Last week, a group of local environmental groups filed a complaint asking that the District of Columbia Federal Court set up a three-judge tribunal to hear their plea that the two AEC roles constitute a denial of due process to opponents of any given nuclear power plant. Joining in the suit are the Conservation Society of Southern Vermont, the Chesapeake Bay Foundation, the Lloyd Harbor Study Group of Long Island, Businessmen for the Public Interest of Chicago and the Cortlandt Conservation Association of New York. □