

Health Administration has set strict exposure levels for workers in asbestos-related industries, but there are no such standards for consumers in their home workshops. And home handypersons may be getting, through the use of these spackling and jointing compounds, exposure to asbestos that exceeds by several times the permissible industrial exposure.

A.N. Rohl, A.M. Langer, I.J. Selikoff and W.J. Nicholson report tests on 15 consumer spackling and jointing compounds and 10 industrial drywall taping compounds (sometimes used by consumers) in the Aug. 15 *SCIENCE*. They found that the two major types of asbestos fibers, talc, quartz, feldspar, mica, clay, calcite, dolomite and Plaster of Paris together constitute 80 to 90 percent of the weight of most of the products. All of these minerals, Rohl says, have been implicated in respiratory diseases or, in the case of asbestos and talc, tumor induction. Nine of the 10 industrial drywall taping compounds tested contained asbestos fibers, and most had one or more of the other suspicious mineral particulates.

Measurements of asbestos fibers in the air during three home repair tasks—mixing the powdered compounds with water, sanding the hardened compounds and cleaning up the work area—showed concentrations of asbestos frequently in excess of the current occupational standard of 5 fibers (longer than 5 micrometers) per milliliter of air. Fiber counts during mixing were 7 to 12 times greater than the standards, the team reports.

Would exposure to even high levels of asbestos fibers over, say, just a week-end, really be a significant exposure? Rohl says yes. "Even the incidental exposure—for example, of a day or so—to levels less than occupational exposures have been shown to produce fatal tumors," he says. "Our problem is that we haven't come to grips with the lower end of the dose-response curve. We just don't know exactly how low an exposure level can induce tumor formation, so we have to look at exposure very conservatively." Also, he says, the genetic susceptibility factors are still unknown.

The team has called for warning labels (none of the 25 tested products had warning labels) and for the elimination of potentially toxic or hazardous minerals from the compounds. In the meantime, though, Rohl says consumers should take these precautions:

- Avoid raising dust while working with spackling, patching and jointing compounds. If possible, buy pre-mixed products.
- Smooth over moist compounds with a wet cloth instead of sanding them smooth after they harden.
- Small amounts of dust will be raised regardless of precautions. Therefore, approved respirators (white, molded face masks available commercially) should be worn. □

## An end to the 'Little Ice Age?'

One of the chief factors determining whether the world can stave off famine until population can be brought under control is the weather. After decades in which the climate over the Northern Hemisphere's critical grain growing regions had remained unusually benign, temperatures suddenly began cooling off, renewing fears that a new ice age might be upon us (*SN*: 3/1/75, p. 138). Average hemispheric temperatures reached a peak in 1940; having risen nearly 1.1 degrees C. in 55 years, the temperatures then plummeted nearly 0.6 degrees C. in just over two decades. By the late sixties, sea ice was threatening navigation in northern Icelandic waters, England's growing season had decreased by two weeks, and spring production of the ocean's vital phytoplankton had been markedly delayed.

Now a team of British and Icelandic researchers (R.R. Dickson, H.H. Lamb, S.-A. Malmberg, and J.M. Colebrook) report that the cooling trend seems to have reversed, at least for the North Atlantic region. The results of their studies of air pressure, temperature and ocean salinity around Iceland and Greenland are reported in the Aug. 7 *NATURE*.

In general, a cooling trend in the weather is accompanied by "meridional circulation" of winds in the northern temperate latitudes—a breaking up of

prevailing westerlies into stagnant pressure cells that may cause abnormally long hot or cold spells for particular areas. The problem over the North Atlantic has been a stationary high pressure area over Greenland that resulted in increasing northerly winds over the Norwegian-Greenland Sea and a sharp decline in mean winter air temperature. This high pressure region almost entirely collapsed, however, in the winter of 1970-71, say the authors, apparently leading to the succession of mild winters throughout most of Europe since then.

Why the "Greenland ridge" weakened so dramatically (or formed in the first place) still remains a mystery. The change has been accompanied by increasing salinity of the ocean as measured along north-eastern Iceland, and by a general warming trend of the water, which presumably reflects "changes both in the heat loss from the sea to the atmosphere and changes in the poleward transport of warm water by the principal Atlantic current branches." Sea ice has retreated and chilling northerlies have been weakened. Conclude the authors:

"The 'little ice age' observed in northern Icelandic waters in recent years seems to have ended with an amelioration of the marine climate during 1972-74. It should be stressed, however, that this conclusion is diagnostic rather than prognostic." □

## Baboons cast the first stone

As if the rigors of research weren't enough, it now appears that some baboons have made a granite-like resolve not to be observed and have entered the stone age—with a vengeance—in order to protect their privacy. Researchers back from the Kuiseb Canyon in South West Africa bring with them the strange tale of being stoned by their research subjects—three troops of baboons. The report, by William J. Hamilton III, Ruth E. Buskirk and William H. Buskirk of the University of California at Davis, is in the Aug. 7 *NATURE*.

Tool use by chimpanzees and baboons has been well documented, but the use of offensive or defensive weapons by such animals has been noted in only a few accounts of chimps throwing branches at predators (including humans). Anecdotal accounts of stone throwing by baboons have generally been dismissed, say the researchers, because of the unreliability of the correspondents but mainly because of the improbability of well-aimed shots coming from an animal anatomically incapable of overhand throwing. Nevertheless, say the researchers, during the course of a one-year study of baboons, "we observed numerous incidents of stone release directed towards us."

The baboons overcame their anatomical handicap by retreating up the side of a steep canyon. From such heights, they were able to pick up stones and tumble them over the side of the cliff. Stones were "aimed" in the sense that they were released in such a way that they fell toward the observer, the stoning baboon having moved into position directly above the targeted observer. "This," say the researchers, "frequently resulted in stones whizzing over our heads. Usually we could dodge, but occasionally two or more individuals released stones at approximately the same time, complicating evasion." The mean weight of 22 stones thrown was 583 grams (more than one pound). The average weight of the stones found directly below the cliff was only 88 grams. Evidently, the baboons select relatively large stones to release toward intruders. The baboons could be persistent. When they ran out of stones, they sometimes worked vigorously to free loose rocky material from the canyon walls.

The stoning activities were accompanied by typical "wahoo" alarm and barking calls. This further identified the stone throwing as a predator-directed activity.

It appears that the safest place to observe baboons is from above. □