

pothesis *overstates* the risk (as some pronuclear advocates believe) "we should lower the standard right now because that implies a quasi-threshold" beneath which there would be no detectable risk.

This is the sort of stuff that will be grappled with this summer when the EPA, NRC, and OSHA hold hearings to reevaluate radiation protection standards. Everyone is still waiting for the latest BEIR committee report to supply risk estimates.

An issue that has been riding along on a separate track from the occupational exposure debate is the matter of medical radiation. X-rays are on the increase, although the patterns of use have changed somewhat since the 1950's. Twenty years ago x-rays were used routinely for treatment of benign conditions such as acne, ringworm, and tonsillitis. Research since then has linked low doses of x-rays with increased risk of cancer. One major finding was made by Alice Stewart of Birmingham University, England, who is now working on the Mancuso project. In the "Oxford survey" she established that children whose mothers had been given low-dose diagnostic x-rays showed a higher incidence of leukemia and other cancers. Other studies have linked thyroid tumors with stray radiation—amounting to perhaps 6 or 7 rads—from high doses used to treat ringworm.

Estimates of how much unnecessary diagnostic radiography is going on vary widely. Ralph Nader has said 50 percent is unnecessary; Otha Linton of the American College of Radiology says the figure may be more like 10 percent. The FDA's Bureau of Radiological Health says maybe 30 percent. Superfluous exposures result from many things—faulty or outdated equipment, bad clinical judgment, bad training, pressure by patients, and fear of malpractice suits.

It is well to note that although x-rays are on the increase, the average diagnostic dose is now a fraction of a rad, three or four times less than it was 20 years ago. Better equipment, faster film, electronic image intensification, and more sophisticated use of the technology are responsible. A mammographic breast examination used to deliver several rads—now most exposure has been reduced to less than 1 rad.

Nonetheless, since medical radiation accounts for 90 percent of man-made radiation, the pressure is on to reduce it. The FDA since 1974 has issued standards of performance for x-ray equipment but has no say over its use. There has been considerable discussion about the desirability of requiring licensing for x-ray

technicians—at present only three states have active licensing programs. The HEW Task Force, in view of the paucity of federal leverage, has recommended a vast public education program and the development of model guidelines for accrediting technicians and standard dosages for x-ray examinations.

The amount of medical radiation seems very high in comparison with the occupational dose limit, particularly in view of the fact that more than half the population of the United States is x-rayed in any given year. Linton, however, says the two types of exposure are not readily comparable because the circumstances, timing, and energy levels and characteristics of the radiation are all different. Besides, a medical x-ray is a calculated risk designed to benefit the subject and not a gratuitous dose.

Questions surrounding hazards of low-level radiation are as important as they are tedious because their resolution is essential in redefining the limits of all radiation technologies. Sharper answers will also have to be found if the issue of government compensation for allegedly radiation-caused illness is ever to be settled. So far only a handful of awards have been made to veterans, shipyard workers, and uranium miners. Reducing the occupational exposure limit would weaken the government's defense against claims and against lawsuits such as those now shaping up against the DOE. Last September, 35 Utah cancer victims and their families initiated claims for damages, alleging government negligence in the conduct of bomb tests in the 1950's. The number of claimants, all of whom live in a 90-degree arc around the Nevada Test Site—the same area in which increased rates of leukemia among children have been found—has now grown to 500.

Cancer is, so to speak, the bottom line when it comes to health effects of radiation. There are many other effects, including genetic damage and alterations to the immune system, but these disorders would be extremely difficult to trace to radiation. Another imponderable, about which research has yielded little information so far, is the extent to which various toxic and carcinogenic substances interact synergistically with radiation. So complex are the variables that a colossal amount of research is required to achieve even a small reduction of uncertainty. As an EPA official put it, "when you say when will we get an answer to this question, that is tantamount to saying when are we going to have an answer to cancer."

—CONSTANCE HOLDEN

Supreme Court to Hear Case of Deaf Nurse

Frances Davis is a licensed practical nurse in North Carolina who has been plying her trade since 1967. She is also partially deaf. In 1976 she successfully completed a 1-year preparatory course so that she could enter training to become a registered nurse. But when she applied to the RN program at Southeastern Community College, she was turned down on the grounds that her severe hearing disability would make it impossible for her to pass the state licensing exam.

So Davis went to court. She lost the first round and appealed. The appeals court told the college to reconsider its decision. The college instead asked the Supreme Court to take the case. Now the Davis suit, scheduled to be heard later this month, has become a cause célèbre for the nation's handicapped people as the first Supreme Court case related to controversial section 504 of the Federal Rehabilitation Act of 1973.

Section 504 states that "no otherwise qualified handicapped individual . . . shall, solely by reason of his handicap, be . . . subjected to discrimination" under any federally assisted program.

Davis, who is being aided by the legal defense fund of the National Association for the Deaf, claims that the college, rather than judging her by her demonstrated capabilities, made an arbitrary judgment that her handicap rendered her unfit. According to her lawyer, Cy DuBow, the college based its decision chiefly on a statement from the director of the North Carolina Board of Nursing, who said that Davis's "hearing disability can preclude her being safe for practice in any setting allowed by a license as an RN or by license as an LPN." The director had not met Davis, nor was she aware that Davis had already been working as an LPN.

Twenty-seven states have filed an amicus curiae brief on behalf of the college, as have a number of associations representing higher education, including the American Council on Education and the Association of American Medical Colleges (AAMC). One state—California—has filed a brief supporting Davis. Although a

number of civil rights groups and organizations for the handicapped are backing Davis's case, only one non-advocacy organization—the AAAS—has filed a brief on her behalf.

The reason most states oppose the suit is simple: they do not know where they are going to get the money for architectural modifications, interpreters, and special equipment to accommodate the handicapped. The AAMC, on the other hand, seems to be afraid that if the Davis issue is not nipped in the bud it will lead to more extreme cases. One of the questions it presents in its brief is: Should section 504 be construed to require a school to admit a handicapped person "whose handicap makes it impossible to participate effectively" in the program?

The question, as DuBow points out, contains just the sort of implicit assumption that section 504 was designed to prevent. The AAMC brief poses a hypothetical case of a psychiatrist with deficient vision, strongly implying that such a person is incapable of "safely and effectively" participating in medical training. This is a strange example to pick in view of the fact that David Hartman, the first blind person to be admitted to an American medical school in almost a century, is now successfully completing his psychiatric residency at Temple University.

The AAAS devotes much of its brief to outlining the careers of successful handicapped professionals, including five deaf registered nurses whose hearing is said to be at least as bad as Davis's.

It is not clear why the higher education is rallying in such force against Davis's cause. According to Martha Redden of the AAAS, medical schools are doing well in accommodating the few qualified handicapped people who come their way; but non-discrimination is being confused in some minds with "affirmative action" and all the goals and timetables that implies. Section 504, however, has nothing to do with exercising leniency in academic standards, it merely calls on people not to make prior assumptions about a handicapped individual's limitations.

The AAMC, along with its brief, has submitted proposed technical standards for medical school admission (developed in response to section 504) which quite explicitly would remove from consideration applicants

with serious visual, hearing, or motor problems. Says DuBow, "It's quite alarming to realize that a number of people now actively practicing medicine would never have been admitted to medical school had the proposed standards been in force at the time."

Dolphins to Look for Nessie

Two dolphins are now training in Florida for a mission that, if successful, will catapult them to world fame—a rendezvous with the legendary Loch Ness monster. If all goes well, the dolphins will be members of a party that will fly over from Boston this summer to continue an 8-year search for the monster that is being led by patent lawyer, engineer, and doctor of philosophy Robert H. Rines. Rines's expeditions are privately subsidized and sponsored by the Academy of Applied Science (of which he is president), a group of citizens devoted to the encouragement of science and invention.

According to Howard S. Curtis of the Academy, the dolphins are being trained by a partnership affiliated with the Academy in a lagoon in Isla Morada, Florida. With advice from Navy experts at the San Diego Research Center, they are teaching dolphins to track large objects (sea turtles are being used) while carrying cameras and strobe lights. Although the dolphins are saltwater mammals, Curtis says the party has been assured they will suffer no harm from immersion in the fresh waters of the loch for 1 or 2 hours at a time.

If training is completed satisfactorily, the dolphins will be wrapped in wet cloths for the flight to Scotland, and then transferred to a special saltwater holding pen to be constructed at one end of the loch.

Why dolphins? Curtis explains that the loch, which is 25 miles long, 1 1/2 miles wide, and 700 to 900 feet deep, is just too big to be explored by divers. Besides, the water is "coffee-colored," and slabs of peat carried by rivers flowing into the loch add to the murk. In past summers, the Rines expedition has used cameras and strobes suspended from boats and platforms, but that setup lacked the needed mobility.

Une Grande Kermesse de l'Énergie Solaire

The French, inspired by the Yankee example set last year, are planning to have their own "sun day" on 23 June. Le jour du soleil is to coincide with the summer solstice (the longest day of the year). The main impetus for the idea has been supplied by French television man Louis Bériot, described by an American environmentalist as "France's Walter Cronkite" and by one French publication as "the Nader of the small screen." Bériot apparently became fired up by the idea when a French TV crew came over to film the American Sun Day last 3 May.

Activities for le jour du soleil have been in preparation since January, overseen by an association called Espaces pour Demain (space for tomorrow), equivalent to our Nature Conservancy, of which Bériot is general secretary. The committee in charge is peopled by well-known figures, both public and private, including Henry Durand, president of France's year-old Solar Energy Commissariat; Serge Antoine, research director of the Ministry of Environment; and Brice Lalonde, founder of Amis de la Terre, the French Friends of the Earth.

According to press releases and articles in the French press, the French sun day is envisaged as a grand, nationwide country fair to be celebrated with singing, dancing, art, and poetry. Special exhibits and colloquiums are planned in a half-dozen different towns on the sun and the sea, the sun and agriculture, the sun and health, the sun and architecture, the sun and regional development, and the sun and the future. Far from being merely an idea promoted by environmental activists, the affair appears to have the extensive involvement of government, industry, universities, and local and regional groups.

Le jour du soleil may be a bid by the French to lead the rest of Europe onto the solar path. French polls show that 50 percent of the public takes a favorable view of solar energy, up from 35 percent in 1974. Enthusiasm for nuclear power has correspondingly dwindled, with 43 percent now opposed to it. France's ecology party last year picked up a respectable 5 percent of the popular vote.

Constance Holden
