agreement. In an op-ed piece in the Washington *Post* on 29 July, Senator John H. Glenn (D–Ohio) acknowledged the value of improved U.S.–Indian relations, but expressed disappointment at the failure to gain Indian acceptance of full-scope safeguards or assurances against further nuclear tests. His main point was admonitory, however, saying that, "In any case, it is extremely important that our cooperation in obtaining an alternative supplier for India under the special circumstances surrounding Tarapur not be considered a precedent for moving us away from the provisions of the NNPA in the future."

Representative Richard L. Ottinger (D–N.Y.), a persistent critic of the Administration on nonproliferation issues, called Reagan's action "unconscionable and ironic. He is playing fast and loose with the U.S. nonproliferation law enacted because of India's past misuse of nuclear technology."

Some critics of the Administration action are raising the question of its legality, asking whether the understanding reached by diplomacy does not amend the law in a way that requires congressional action. Whatever the legalities, the realities are that it is late in an election-year congressional session and, as one Hill staffer conceded, "When two heads of state meet and make an announcement like this, it's awfully hard to turn it around."—JOHN WALSH

Butler Leaving Institute on Aging

America's number one advocate for old people warns that rapid changes are necessary to accommodate the aging population

"We have before us one of the most extraordinary demographic changes in history, not only in this country but in the world," but "we're just not facing the music yet," says Robert N. Butler, who will be leaving as director of the National Institute on Aging (NIA) on 16 August. In a conversation with *Science* Butler, who has headed NIA since its inception in 1977, argued that we have barely begun to deal with the problems posed by an aging population. Federal policy is shortsighted and often conflicting, and research into the medical, social, and psychological aspects of aging is still in its infancy in many respects.

Having pioneered as the first director of the institute, he will now be breaking new ground as head of the first department for geriatrics at an American medical school, at Mount Sinai School of Medicine in New York. There he will occupy the newly established Brookdale Chair in the new Gerald and May Ellen Department of Geriatrics and Adult Development. The chair and the department each has an endowment of $2 million.

A psychiatrist with broad gauge expertise in the social, economic, and political issues surrounding aging, Butler is well aware of the deep irony in the fact that while society has enthusiastically supported research to increase life expectancy—26 years have been added since 1900—it is now becoming alarmed at the consequences. People are now asking whether we can afford an aging population and "we have got old people scared to death as to whether they're going to get Social Security."

Butler is particularly concerned about what will happen as the huge blip in the population curve known as the baby boom—people born between 1946 and 1964—moves toward the end of the life cycle. He's even thinking of writing a book about it, called "Generation at Risk: When the baby boom grows gray." The baby boomers are the ones who have had trouble finding spots in schools and colleges; currently many are having trouble finding jobs and housing. By 2020, they will comprise most of the population over 65, estimated at 50 million, or 20 percent of all Americans. "We have not really in a very serious way looked at what's coming, and it's happening very fast," warns Butler. "The implications could be staggering."

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Butler sees conflicting and ill-thought-out policies everywhere. For example there is talk of raising the Social Security age to 68; yet this overlooks the fact that because of life-prolonging measures there are more disabled people in every age group. The government has proposed that employers' contributions to health insurance be raised for older workers, but this will cause companies to hire fewer older people—just when the retirement age has been raised and there is talk of eliminating it entirely.

Butler thinks there really should be a policy council formed within the Executive Branch so the directors of the NIA, Social Security, the Office of Management and Budget, the Health Care Financing Administration, and the Department of Education could coordinate their policies. He notes that despite their common concerns the directors of the NIA and Social Security have never gotten together.

Butler has also been working on introducing more coordination in scientific research related to aging. For example, the NIA has given money to the National Institute of Mental Health (NIMH) so it can add people over 65 to an epidemiological study of psychiatric disorders it is conducting in New Haven. The NIA is also working with the National Heart, Lung, and Blood Institute on hypertension studies, and with the National Cancer Institute to include older people in clinical trials of chemotherapy. "The tendency of all the disease institutes is not to study older people" says Butler. They are more difficult to manage since they usually suffer from a handful of different diseases and they commonly manifest distinctly different reactions to drugs than younger people. Yet to omit them from studies is to omit representatives from the population that suffers the most—50 percent of all cancer, for example, occurs in individuals over 65.

The NIA has been growing, relatively

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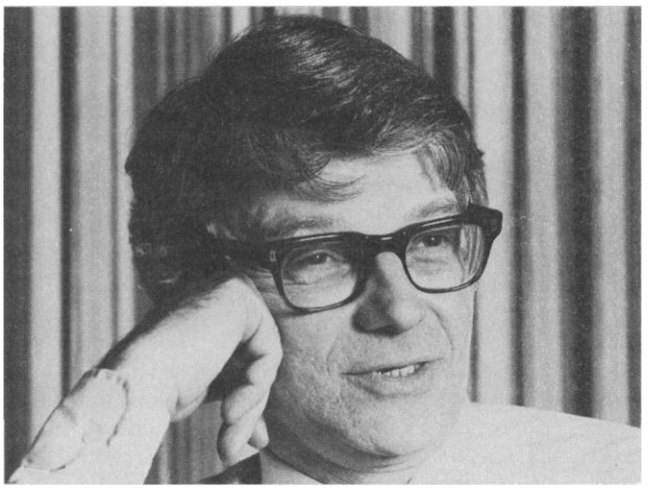
speaking, by leaps and bounds since its functions were broken off from the National Institute of Child Health and Human Development. Yet its current budget of $82.5 million is only 2.2 percent of the National Institutes of Health budget.

One of the NIA's chief research concerns has been Alzheimer's disease, more properly called Senile Dementia of the Alzheimer's Type (SDAT), which in its most severe form currently afflicts some 500,000 Americans. It is perhaps indicative of the sparse resources allotted to aging research that not long ago most senility was chalked up to cerebroarteriosclerosis. When the NIA was founded, says Butler, there were only 12 operating grants relating to senility. Since then it has been ascertained that about half the cases of senility are in fact owing to SDAT, a neurological disorder. Most of the rest are a result of multiple infarcts or a combination of the two, and 10 percent of what is perceived as senility actually stems from reversible conditions such as poor nutrition, depression, alcohol abuse, drug reactions, and other factors including what Butler calls "obsolescense." Currently there is about $15 million—including money from the National Institute of Neurological Diseases and Stroke and the NIMH—going into research on SDAT, which amounts to about 150 grants. But this, says Butler, is still a "drop in the bucket."

Social and behavioral research relating to aging has also gotten a boost and now occupies about 20 percent of the NIA budget. A major finding of recent years is that intellectual decline associated with aging is nowhere near as rapid or pronounced as was thought following studies conducted in the 1930's. In those studies, different age cohorts were compared with each other. Thus what looked like precipitous intellectual decline could mainly be accounted for by differences in education and health between younger and older groups.

NIA is putting special emphasis on looking for links between biology and behavior. Prominent areas, for example, are the impact of bereavement on morbidity and mortality, and the impact of retirement on health. Butler says the data tend to show that people who die shortly after retirement were already mortally ill before they retired—which would suggest that even when retirement has a bad effect on morale it does not necessarily cause a breakdown in health. Indeed, the throngs of depressed people who cling to life year after year in nursing homes testify to the fact that mind and body can go separate ways.

There is a world of research waiting to be done on behavioral concomitants of aging which could lead to a better understanding of what is inevitable and what modifiable. We still know very little, for example, about how aging affects peoples' memory, emotional resilience, creativity, adaptability, and spiritual lives.



Robert N. Butler

Breaking new ground as the first head of a department of geriatrics at a U.S. medical school.

Better knowledge about the diseases of aging is essential if old people are not going to become an intolerable burden on the young because of their growing numbers. But at least as important will be the development of an imaginative new array of services, community support systems and housing alternatives to prevent the isolation of old people and keep them as active and self-sufficient as long as possible. Housing that supplies a continuum of arrangements from apartments with common dining facilities to inpatient homes could take some of the burden off nursing homes, which now absorb 40 percent of all Medicaid money.

And finally, Butler sees a need for society to come to terms more realistically with the matter of death. "We don't even know the epidemiology of dying," he notes—there are no statistics on how many people die in their sleep, or in pain, or unexpectedly. He believes the hospice movement, with its emphasis on middle-class cancer patients, is too narrow in its approach. What of the right to die movement and the movement urging the right to suicide for the terminally ill? Butler, while sympathetic to their purposes, sees "great danger" in these. He recalls that in the last Administration a white paper was circulated in the Department of Health and Human Services urging support of right to die legislation because it could cut health costs. Butler sees in these movements not solutions to a problem but a symptom of a larger one—the failure of health and community support systems.

Although some see the problems of aging as unique to mature, industrialized societies, this is far from the case. By 2000, the number of people in the world over 60 will double and 60 percent of the total will be in the developing world. Indeed, the United Nations has begun to worry about this and held a World Assembly on Aging from 26 July to 6 August in Vienna.

Butler hopes in his new job to help lead the way for American medical schools to come to grips with the problem. Currently, very few medical students take courses in geriatrics which are usually available on an elective basis. But geriatric specialists will not be able to handle the growing population and the time has come, he believes, for all doctors to be trained as geriatricians.

Summoned last winter to help Mount Sinai set up its program, Butler soon emerged as their top choice to head it. They have complied with all his desires, including the provision of inpatient beds for the department and required rotation of medical residents in a nursing home. Butler is especially keen on having close ties with the nearby Jewish Home and Hospital for the Aged, which will give the school a "teaching nursing home." Butler notes that the country now has 416 teaching hospitals: 126 teaching nursing homes—one for each medical school—"would be nice," he says. Mount Sinai is also gaining the services of Leslie Libow, of the Jewish Institute for Geriatric Care in Long Island, as chief physician in the new department. Thus, said medical school dean Thomas C. Chalmers, "we will have the two best men in aging in the country."

According to Chalmers, Butler "has done an enormous amount in getting the world waked up to the fact that next to nuclear war aging is our biggest problem. . . . It's impossible to overstate what he's done in this cause."

—CONSTANCE HOLDEN