out of the Berkeley laboratories this past winter, that light elements may eventually enter the practical fusion picture. In other words, we might as well face it. We are, and in a truly big way, in for a nuclear power future.

This new nuclear future will pose a large set of new problems for public health. Garbage disposal occupied the attention of Mr. Shattuck a hundred years ago, but the public health engineer of tomorrow must be prepared to cope with radioactive garbage. An array of new regulations will clearly be necessary to control location, shielding, protection against accident, minimizing of risk in the transport of hot material, dispersal and disposal of radioactive waste, and so on. The radiation exposure history of an individual may very possibly turn out to be, in this new future, the most critical item of individual health data. Concentration of radioactive isotopes by sea organisms; storage of long-lived isotopes in the soil, in vegetation, and in dairy products; the slow accumulation of internal emitters, as strontium-90 gets built into our bones; the risk of increased incidence of leukemia; the general influence of radiation exposure in shortening life expectancy; and perhaps of the gravest, because of the most persistent, importance, the genetic damage caused by radiation—these are clearly problems of first magnitude.

At the present moment we can clearly see these problems facing us in ever increasing future impact. And at the present moment we simply do not have the organization, the personnel, or, most important of all, the knowledge with which to meet these problems.

It is all too clear that we must greatly accelerate our activities in that general field designated as radiation biology. It is equally clear that we have to know a great deal more about genetics, both at the most general and fundamental levels and at the more special, the specially difficult and the particularly relevant, level of human genetics.

I dare to suggest—indeed I run the risk of urging—that these may well be the most important public health problems of the next 50 years. The physical sciences have, in one sense, been guilty of creating these problems for you. Public health, medical science, biology, and the physical sciences must team up, in a new and closer and more effective comradeship, to meet these formidable challenges. The stakes are no trivial prizes of comfort or convenience. The stakes are survival.

—WARREN WEAVER

Sources of Social Infection

Of course we, in the wealthy countries, take it for granted that our local customs are better than those of the so-called underdeveloped countries. Many of our people are astonished to find that in Asia, for example, there are to be found some techniques and methods, particularly in the fields of mental and social health, far superior to ours. We know that maternal deprivation, that is, the loss even temporarily, of physically close, warm mother love, is a potent cause of physical, mental, and social ill health appearing in infancy, childhood, adolescence, or later life. The World Health Organization report, Maternal Care and Mental Health, by John Bowlby in 1951 and his summary in the Penguin book, Child Care and the Growth of Love, in 1953 document that knowledge. Much of our recent concern for mental and social health has been for early diagnosis of emotional disturbance, particularly in the early school years. It is well known, however, that in most cases the serious and often irreversible damage has been done before school age. Diagnosis of mental illness in childhood is not prevention any more than early diagnosis of cancer or tuberculosis is prevention. Diagnosis may lead to the recognition of causes, but only elimination of the cause or causes is prevention.

Though we know all this we still, even in some of our recently built hospitals, continue to keep newborn babies under glass in nurseries, allowing them to be with their mothers only for the short periods necessary for nursing. We still take babies and small children suffering from illness or injury into hospitals without their mothers, a procedure we know to be destructive to the child's physical, mental, and social development. In some extreme cases we even limit the hours in which mothers are allowed to visit their own children, sometimes to as little as 3 or 4 hours a day. Probably no young child can survive such an experience without some damage to his development.

In contrast, in most Asian, African, and the less highly "developed" European countries, babies are born at home and cared for entirely by their mothers, or in hospitals where the baby remains in bed with the mother or in a cradle close beside her or slung between the upward extended footposts of the bed, always within reach of the mother. Actually this system is far more efficient than ours, requiring far fewer trained nurses and less space, and insuring faster development and recovery from illness or injury. Relative freedom from damage to the necessary close mother-baby relationship is the most important advantage of that ancient system. When the mother with her first baby goes home from the hospital in those countries, she has none of the anxieties, tensions, or awkwardness so many of our new mothers show when they have only been taught to bathe the baby just before leaving the hospital. One of our barriers to better practices in this mother-baby relationship is the unwillingness some nurses show in giving up the babies to the mothers, but it is not sound practice to sacrifice the baby to the emotional desires of the nurses.

Unfortunately, we have succeeded in convincing many of the medical and nursing professions and the hospital architects of many countries that our ways are best, most modern, and most efficient. Most of the Communist countries, for example, have followed us in our hospital architecture and mistaken treatment of babies and children, still build nurseries in maternity hospitals, and in many cases do not provide accommodations for mothers in children's hospitals. It is encouraging to see that a few, but still only a few, of our maternity and children's hospitals in North America are beginning to allow mothers to have their newborn babies with them, and more rarely, even to stay in the hospital with their ill children.

On the basis of reliable evidence, it is in this area that we should be working most earnestly to try to reduce our heavy load of juvenile delinquency and other symptoms of mental and emotional ill health. As Bowlby puts it: "Deprived children, whether in their homes or out of them, are the source of social infection as real and as serious as are carriers of diphtheria or typhoid." In this enormously important aspect of public health we in North America are among the world's most backward people. We are still largely under the influence of obsolete attitudes and are finding it very difficult to change, though the damage we do our children has been obvious for some time.

This type of damage is of course, from the point of view of world peace and security, and even racial survival, far more dangerous than smallpox, diphtheria, typhoid, yellow fever, or malaria. We cannot expect children deprived of close mother love to be able to develop, to be able to "live harmoniously in a changing total environment," unless indeed they are unusually fortunate in other aspects of the early emotional situation, but we should remind ourselves that that ability has been included in the prescription of minimum requirements for peace and security, written by the nations of the world in setting up the United Nations and its specialized agencies.

—Brock Chisholm

A Tribute to the Social Sciences

Since the war several universities have new medical centers. The manner of their beginning is interesting, for in each instance there has been studied concern for the relation of the health sciences to the general disciplines of the parent university and to the community which these schools will serve. At the University of California in Los Angeles, at the University of Florida, Gainesville, and at the University of Kentucky, Lexington, the planning of the new schools was a university undertaking and not solely the responsibility of a quickly gathered group of department chairmen in the medical disciplines. The faculties of the arts and sciences and of the other professional schools shared in defining the goals and the relationship of the health center to the university and the community. Hence, it is not too startling to find that at the University of Florida the professor of medicine is an active participant in the teaching of undergraduate students in the department of philosophy; nor is it surprising that the building plans for this new health center include a wing for the social and behavioral sciences.

A few years ago, Kentucky determined to establish a medical center for education in the