THE SCHOOL OF MEDICINE

OF

THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

# MERRIMON LECTURE

*by*

**CHARLES A. JANEWAY, M.D.**

*October thirteenth, Nineteen Hundred and Seventy-six*

# THE MERRIMON LECTURE

## Vision and Reality

### Medicine Faces Our Third Century

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1976

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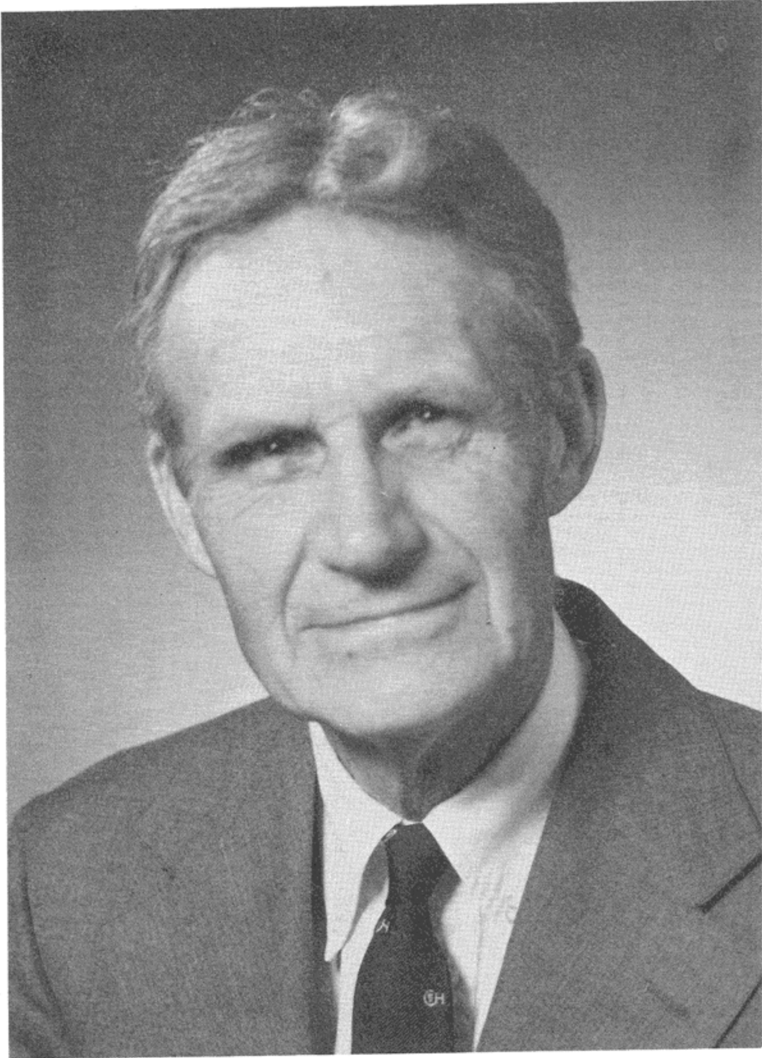

CHARLES A. JANEWAY, M.D.

CHARLES ALDERSON JANEWAY, Thomas Morgan Rotch Professor of Pediatrics, Emeritus of Harvard University was born in New York City in 1909. In entering medicine, he continued the tradition of a family which had produced physicians for four generations. His Ivy League credentials are impeccable. He attended Milton Academy and received his AB from Yale. His medical education was obtained at Cornell and Johns Hopkins and he was a house officer at the Boston City and Johns Hopkins hospitals. His academic professional career unfolded almost entirely within the ambit of Harvard Medical School. Although trained as an internist, he became the premier Harvard pediatrician, serving for 28 years as Physician-in-Chief of the Boston Children's Hospital.

Dr. Janeway became interested in infectious disease early in his career, serving in the group around Professor Edwin Cohn who developed human plasma fractionation during World War II. He is best known scientifically as an immunologist. Together with Dr. David Gitlin and later Dr. Fred Rosen, he contributed to the delineation of the immunodeficiency diseases and to our present understanding that cellular and humoral immunity are fundamentally different immune systems. He has contributed substantially to medical education, our present concern with primary medical care, and the urgency of improving health in the Third World. Many major posts here and abroad are staffed by his former students and residents.

Charles Janeway is recognized by all who know him as an example of a warm and decent but clear-headed and incisive human being. He is a prodigious worker and traveler who is both respected and loved by all who know him. In the words of his colleagues on his retirement, "You can use superlatives in terms of his administration, his research, and his teaching. . .". "He exemplifies the finest kind of human being in pediatric medicine. . .he is a peer, a partner, a colleague of an ideal sort." As a Merrimon Lecturer, Janeway fits naturally into a line containing Nicholson Eastman, William Castle, John Knowles and Peter Medawar.

# Vision and Reality

## Medicine Faces Our Third Century

*The Vision*

The Bible, in Proverbs 29:18, makes the simple but profound statement, "Where there is no vision, the people perish." Today, after 200 years of political independence, we the people of these United States find ourselves lacking a clear sense of national purpose and unity. And yet, our country was born with a ringing statement, in the Declaration of Independence, of the ideals which led to its founding:

> "We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain inalienable Rights, that among these are Life, Liberty, and the Pursuit of Happiness. That to secure these rights, Governments are instituted among Men, deriving their just powers from the consent of the governed. That whenever any Form of Government becomes destructive of these ends, it is the Right of the People to alter or abolish it, and to institute new Government, laying its foundation on such principles and organizing its powers in such form, as to them shall seem most likely to effect their Safety and Happiness."...

This was a truly *revolutionary* statement in the context of its time; it has been the inspiration for many of the new governments that have been formed from the breakup of empires in our day. It emphasized four basic principles: the *political equality* of all men; *democracy,* that is the sovereignty of the people, not their leaders, whether chosen by inheritance or even by election; *freedom of the individual* to pursue his own happiness within the bounds set by his government; and the *possibility of changes in the form of government* to meet new conditions.

After 7 years of chaos resulting from the too loose association of the 13 sovereign states under the Articles of Confederation, this vision of individual liberty coupled with responsibility was restated in the preamble to the Constitution adopted on July 2, 1788.

> "We, the people of the United States, in order to form a more perfect Union, establish Justice, insure domestic Tranquility, provide for the common Defense, promote the general Welfare, and secure the Blessings of Liberty to ourselves and our Posterity, do ordain and establish this Constitution for the United States of America."

What this *Liberty* implied was then spelled out in very specific terms, first in the seven Articles of the Constitution itself, and then in the first ten amendments known as the "Bill of Rights."

Thus, a new form of nation-state was created, with representative government replacing the arbitrary tyranny of a distant monarch and Parliament, who regarded the colonies as crown property. This governmental

system, based on the vision, experience and wisdom of a remarkably clear-headed group of men, has served us well through two centuries of phenomenal growth and change. We have been able to adapt peacefully to vast demographic, social, and economic developments in our country with two exceptions: first, in the conquest of the native Americans who preceded the white settlers on this continent, and whose treaty rights we have largely ignored; and second, in the terrible War Between the States less than a century after the country was founded.

Today, after another hundred years of economic expansion and growth of our population, we have been shaken by a constitutional crisis, which made it necessary to invoke the impeachment provision of the Constitution to protect our personal liberties, just as we were having to face a multitude of difficult problems. We must come to terms with the turbulent political consequences of the breakup of colonial empires which had governed much of the pre-war world, while we try to assist the "revolution of rising expectations" among the masses of people in these liberated areas and in the underprivileged sectors of our own society. And, we must find a way to promote the advance of science and technology upon which our future prosperity will be based, without the reckless expenditure of finite resources, or the unthinking damage to the fragile biosphere upon which our very lives depend, which has characterized our exploitation of this continent in the past.

In the face of these complex issues, we seem neither to have the clear sense of national purpose nor the leadership needed to unify the majority of our people behind constructive efforts to find solutions to the local as well as global problems which confront us. And, in the case of the latter, we lack a real government, capable of serving the rapidly increasing population of our shrinking planet, as our government has served the people of this country.

Yet, there are hopeful signs. We have recently made the Constitution work to protect our citizens from a "Father knows best" attitude which had developed in the Executive Branch. Many young people, though recognizing the courage and sacrifice of their peers who were drafted or voluntarily enrolled in our armed forces, have bravely faced punishment and exile in protest against a war which they deeply felt violated the fundamental principles for which this country had been established. Representatives of our government are actively working with those of other nations to solve concrete world problems such as hunger, nuclear energy, and the arms race; and statesmen are trying desperately to defuse conflicts, such as those in the Middle East, which threaten us all. Finally, we do have a vision of what the world might be, stated in the Charter of the United Nations, which is a lineal descendant in spirit, if not in substance, of our own Constitution. It is well to remind ourselves, as planetary citizens, that we have already come this far along the rough road to limited world government. The United States can take much of the credit for creating this hopeful trend, which at least pays lip service to the ideals for which our country was founded. I am now going to quote from the Preamble

and Article I of the United Nations Charter, as a reminder of the vision towards which we, as a nation governed by its citizens, have pledged ourselves to strive.

## CHARTER OF THE UNITED NATIONS

"We, the Peoples of the United Nations, Determined to save succeeding generations from the scourge of war, which twice in our life-time has brought untold sorrow to mankind, and

to reaffirm faith in fundamental human rights, in the dignity and worth of the human person, in the equal rights of men and women and of nations large and small, and

to establish conditions under which justice and respect for the obligations arising from treaties and other sources of international law can be maintained, and

to promote social progress and better standards of life in larger freedom,

And For These Ends . . . do hereby establish an international organization to be known as the United Nations."

### Article I

"The purposes of the United Nations are:

1. *To maintain international peace and security;* . . .
2. *To develop friendly relations among nations* based on respect for the principle of equal rights and self-determination of peoples; . . .
3. *To achieve international cooperation in solving international problems of an economic, social, cultural or humanitarian character,* and *in promoting and encouraging respect for human rights and for fundamental freedoms for all* without distinction as to race, sex, language or religion, and
4. *To be a center for harmonizing the action of nations* in the attainment of these common ends."

There is no flaw in the vision so eloquently expressed in these four basic purposes, particularly as the Charter, like our Constitution, contains a mechanism for change and for strengthening the organization by consent of a large proportion of its member nations. The problem is one of implementation. In the political sphere, the central difficulty in creating a limited government, to which the member states cede some of their sovereignty for the common good, is the one which faced the framers of our Constitution—how to reconcile the conflicting interests of large powerful states with those of the smaller ones. Considering the enormous disparities in population, economic status, military power, and cultural tradition between the U.N.'s 145 member states, this central problem of organizing a federal type of government, even for limited

goals, is extraordinarily complex. It will be many years before much sovereignty will be surrendered by the great powers, including the United States, to a world government really able to prevent armed conflict between them, and thus to end the current state of international anarchy and "balance of terror" in which we live. Nevertheless, the U.N. has unquestionably had a moderating influence upon foreign policy and overt conflict among all nations.

As members of a profession, based upon the slow step by step advance of scientific knowledge, we have learned that medical progress only comes by approaching concrete problems with imagination, persistence, hard work and increasing collaboration between different disciplines. While the politicians have been talking at the U.N., a better occupation at least than making war, the professional, scientific and technical communities, who are far more global in their outlook than politicians, have been working pragmatically through the U.N.'s specialized agencies to achieve the third of the U.N.'s purposes, "solving international problems of an economic, social, cultural or humanitarian character." Since these problems contain the seeds of domestic strife and international conflict, the work of the U.N.'s specialized agencies may in the end prove to be the most important means of achieving the common goals of mankind expressed in the Charter. For us in the health professions, all of these agencies are of great significance, for each has a bearing on health.

*WHO*, the World Health Organization, provides technical expertise to aid and advise governments in solving their major health problems.

*UNICEF*, the United Nations Children's Fund, provides equipment and fiscal support to programs aimed at improving maternal, child and family health in the developing countries.

*FAO*, the Food and Agriculture Organization, mobilizes scientific and technical expertise to increase the world's food supply and to improve nutrition, so essential to health in general, and critical for maternal and child health.

*UNESCO*, the U.N. Educational, Scientific, and Cultural Organization, through its support of international efforts to combat illiteracy, to promote science and to preserve and develop cultural values, plays an important role in relation to basic research, education in relation to health, and improvement in the quality of life.

*ILO*, the International Labor Office, is important to health through its concern with occupational diseases, and the promotion of legislation to protect the health of working mothers and their recently born children.

Although each of these agencies is governed independently and has a membership which may differ somewhat from that of the U.N., they are considered part of the UN system. Except when political considerations have

been allowed to intrude,[1] they have been remarkably successful in showing that people from very different national backgrounds can work together to solve world problems. The eradication of smallpox from all but a small area in Ethiopia, with every chance of this soon being totally eliminated, is a fine example of WHO at work for the benefit of mankind as a whole.[2]

As physicians and world citizens, I urge you to subscribe to World Health, the magazine of the World Health Organization. It will keep you informed of the global efforts of the health professions to improve the quality of life for all men; I think you will find it the most interesting and heartening of all the journals you receive.[3]

With this reminder of the basic ideals for which our country was founded, their modern expression in the stated goals of the United Nations, and the beginnings of their realization in specific fields, such as health, where all men are in substantial agreement, let us turn to our own country and examine our efforts in the health field.

*Reality in 1976*

In health terms, how well have we done in implementing the "self-evident" truth "that all men are created equal and entitled to life, liberty and the pursuit of happiness"? The authors of the Declaration of Independence took it for granted that being "created equal" did not apply to slaves, Indians or women. This was understandable in those days, but is no longer tolerable. Genetics has taught us that people are not biologically equal, but biologically similar and individually different. In today's America, the phrase "created equal" should really mean that each individual is entitled to one vote and to equal treatment before the law, but above all, to *equal opportunity to develop* to his or her full potential from the time of conception to maturity.

Is this true in the United States in 1976? Emphatically no! From almost every point of view, opportunities for the average black, Chicano or Indian child born in this country today are less than those for the average white child. Health statistics tell the story eloquently, with infant mortality in non-white children constantly above that for whites, as shown in Figure 1. The same is true if we examine mortality or morbidity statistics for a number of other diseases.

[1] Some examples of this are U.S. insistence for a number of years on the exclusion of the People's Democratic Republic of China, containing nearly a quarter of the world's population, from membership in the World Health Organization, and the recent explusion of Israel from UNESCO by the Arab countries.

[2] It is of interest that this was originally proposed as a WHO program by the Soviet delegation to the World Health Assembly, together with an offer of generous supplies of vaccine for the program. It was opposed by the United States at the time, but we have subsequently strongly supported it.

[3] Subscription costs are: one year $10, two years $18, three years $24; order English edition from World Health, WHO, Avenue Appia, 1211 Geneve 27, Switzerland.

## INFANT MORTALITY RATES PER 1,000 LIVE BIRTHS, BY COLOR; UNITED STATES, 1916-73

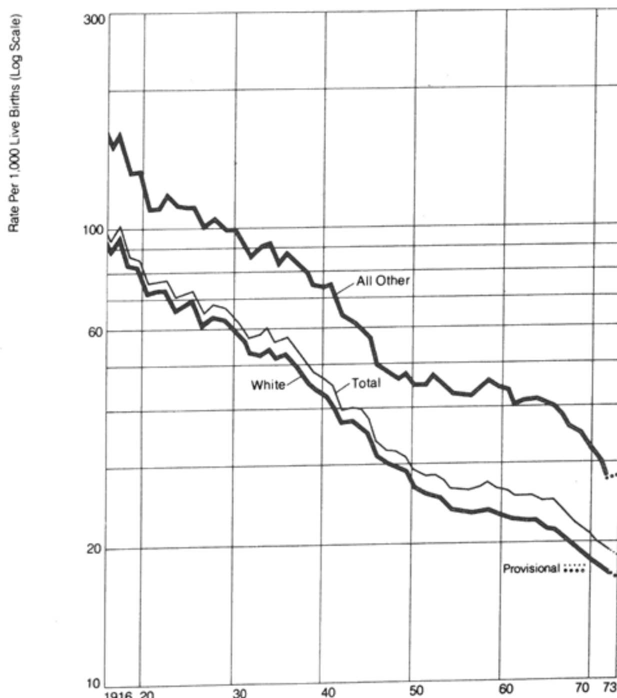


*Fig. 1.* Infant Mortality Rates per 1000 live births from 1916-1973, showing differences between rates for whites and those for all other non-whites. (From "Infant, Maternal and Childhood Mortality in the United States 1968-1973, Bureau of Community Health Services, Health Services Administration, Public Health Service, Rockville, Maryland, 1975, DHEW Publication No. (HSA) 75-5013, p. 13)

Even more serious discrepancies between whites and non-whites are apparent in comparative unemployment rates during our current recession, as shown in Table I, or in the numbers of minority students and faculty members in our universities. Do these discrepancies relate to genetic or environmental factors? Obviously there are genetic differences between racial groups, but, when it comes to intellectual potential, this question cannot possibly be

*Table 1.—U.S. UNEMPLOYMENT RATES—2nd QUARTER 1976*
*(U.S. Bureau of Labor Statistics)*

| | |
|---|---|
| Total | 7.6% |
| All Whites | 6.7% |
| All Blacks | 12.8% |

| *Over 20 yrs* | | *Youths 16-19 yrs* | |
|---|---|---|---|
| Whites | 5.8% | Whites | 16.3% |
| Blacks | 10.5% | Blacks | 39.3% |

answered until there actually are equal opportunities for all children. But that poor health, poor educational opportunities and performance, limited job openings and high rates of crime and delinquency are correlated with low family income in our urban society is beyond debate. That our non-white citizens are comparatively poor is shown in Figure 2. Professor Roland Scott's studies of growth in Washington children clearly indicate that it has been poverty, not blackness, that was associated with the slower growth rates previously reported for black children.[4]

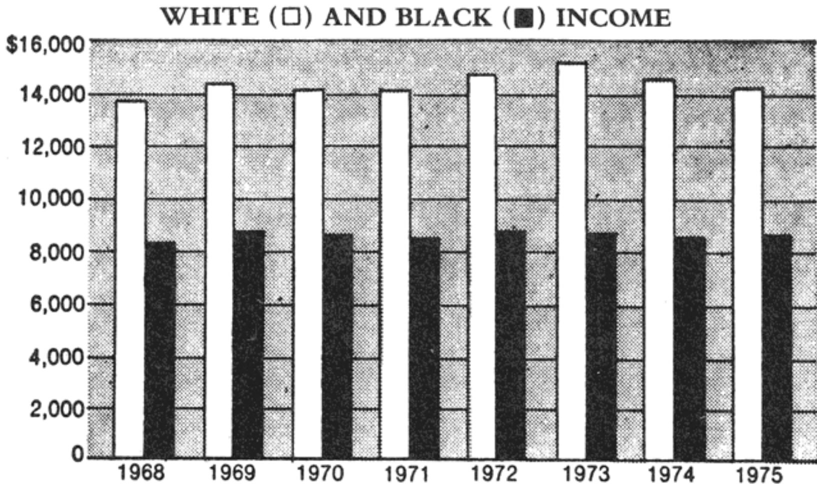


*Fig. 2.* Comparison of median family income from 1968 to 1975, adjusted to eliminate the effects of inflation, between whites and blacks in U.S.A. (Source: Bureau of the Census. Published in NEW YORK TIMES Sunday Edition September 26, 1976)

Exceptional people can rise above poverty, as the history of many a leading business, professional or political figure in the United States has shown. But members of the many ethnic groups who immigrated voluntarily to this country brought with them established traditions from western or eastern cultures as well as intense motivation to succeed in this new land of their own choice.

For Afro-Americans, who were forcibly uprooted from their own culture, brought here against their will, restricted to menial tasks and excluded from participation in education or social development for many years, the situation is totally different. In the past few decades, many of them have been uprooted

[4] *Scott, R.B., Cardozo, W., Smith, A.D., DeLilly, M.D.:* Growth and Development of Negro Infants III. Growth during the first year of life as observed in private pediatric practice. J. Ped. *37*:885-893, 1950.

After preparing this lecture, I had the opportunity to read *Newberger, E.H., Newberger, C.M., and Richmond, J.B.*: Child Health in America: Toward a rational public policy. Milband Memorial Fund Quarterly, Health and Society: 249-298, Summer 1976. Here the interested reader will find documentation of our current health care system, as it affects the more affluent as well as the poorer segments of our society, and suggestions for more effective use of our current resources and manpower.

once more from the familiar life of the rural South as a result of technological advances in agriculture. Migrating into our cities in huge numbers, their special needs have seldom been understood nor adequately met, while color has facilitated their segregation. Discrimination is not unique to the South. In fact, in Boston, the birthplace of the American Revolution, we suffer from racial antagonisms which are a late manifestation of resentment against the discrimination to which immigrants were formerly subjected by many native Bostonians upon their arrival from Ireland and Italy. Discouraging as this is, as a nation we *have* recognized our failure to live up to our expressed ideals and are making great efforts, on a national scale, to rectify injustices and inequalities, with real, though sometimes painfully slow progress.

Thus, poverty and racial discrimination, two major diseases of society, have stood in the way of the equality in which we believe, and remain major impediments to equal health for all. Nevertheless, our health care system has much to be proud of, such as the great national effort in biomedical research or our teaching hospitals and clinics, in which patients have generally been accepted and treated without regard for race, creed, color or economic status. These university-based medical centers have set standards for tertiary care throughout the world, while community hospitals, built under the Hill-Burton program, as well as many private group clinics, provide a high level of secondary care to the economically fortunate 80% of our population who can afford their services.

President Johnson's implementation of John Kennedy's goals on behalf of citizens handicapped by poverty—his illfated "War on Poverty"—was far

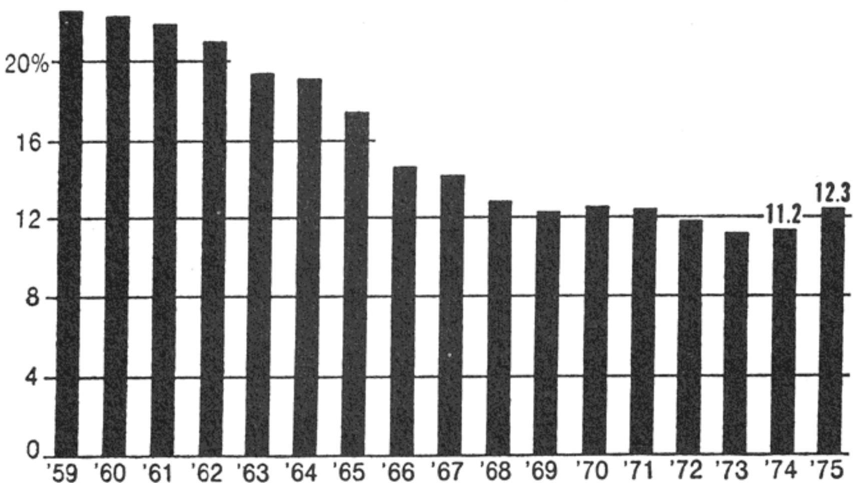


*Fig. 3.* Graph showing the percent of our people below the officially defined poverty level of income corrected for inflation from 1959 to 1975. (From the N.Y. TIMES Sunday Edition, September 26, 1976)

more successful than its critics have been willing to admit. As Figure 3 shows, there was a steady drop in the proportion of our people below the poverty line from 1962 to 1968. But the sad fact is that, as the colossal waste of the Viet Nam War had its impact, and the Nixon Administration took over, expenditures for community health and service projects, unique in that they were selected and governed in large part by the communities in which they operated, were cut back. This was done by direct budget cuts, as well as by administrative reorganization through the special revenue sharing programs, with the result that the numbers of those below the poverty line levelled off and are now beginning to increase. There is a sense of discouragement among workers and the people served, as we shall have to fight hard to regain lost ground, let alone initiate a number of other programs, such as day care centers, which are greatly needed as more and more women enter the *work force.*

The preservation of *"life"* is the primary obligation of a physician. How effective have we been in assuring a full life span to our people? The virtual disappearance of diphtheria, whooping cough, measles and poliomyelitis in childhood and the falling case fatality rates for many diseases which used to be "killers," are dramatic proof of the effective application of clinical and biomedical research. In the past, the surgeon stood out as the successful therapist. Recently, the physician has been armed with potent new drugs, which are not only therapeutically specific, but potentially injurious through their toxic or sensitizing effects. This means that all doctors now have the capacity to make their patients sick as well as to cure them. Moreover, the development of life support systems, which enable us to maintain failing vital functions for long periods, place doctors and the families of their patients in the agonizing position of having to decide whether or not to allow life to terminate. Difficult as the choice may be, it must remain their responsibility. I cannot believe that our obligation to preserve life requires us to maintain circulation and respiration indefinitely, when the consciousness and brain function which gives them meaning has been lost.

Medicine's primary concern is with the individual patient; thus medical practice is an expression of our national ideal of the equal worth of each person. Because modern treatment has dramatically lowered case fatality rates for a whole series of life-threatening illnesses, the medical profession tends to take most of the credit for the remarkably low death rate and long life span which characterize societies like ours, where scientific medicine is readily available. However, a look at what has actually occurred during the past two centuries in those countries where good health statistics have been kept does not fully justify this.

In contrast to medicine, public health is concerned with populations rather than individuals. Professor Thomas McKeown of Birmingham University has recently analyzed the extraordinarily rapid increase (Figure 4) of the population of England and Europe, as a forerunner of the current world-wide

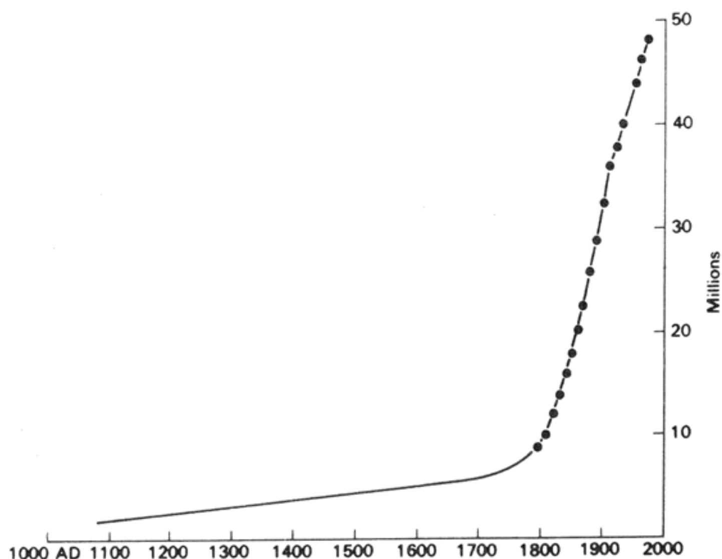


*Fig. 4.* Population of England and Wales from 11th Century to present. Dots mark points actually available from official figures. From McKeown, T.[5]

population explosion.[5] We tend to look on population growth as a public health problem, but his analysis reveals it as a manifestation of steady improvement in the general health of the population during modern times, largely independent of medical advances. He gives impressive evidence that, even though the birth rate has been declining in Europe, the death rate has fallen even more, especially during the past 110 years (Figure 5). This resulted in the rapid rise in population, which antedated by at least a century the drop in case fatality rates due to recent progress in preventive and curative medicine, as shown for tuberculosis in Figure 6. He concludes that a decrease in the incidence and séverity of infectious disease has been the principal cause of this decline in the mortality rate. In the latter part of the nineteenth century, some of this was due to advances in environmental sanitation, but even more perhaps to gradual improvement in nutrition. McKeown believes that better agricultural practices, leading to more and better food, certainly part of a general rise in the standard of living, has subtly increased host resistance and reduced the severity and dissemination of many infectious diseases among the population. This should be no surprise. The incidence, severity and mortality of most infectious diseases is positively correlated with the extent of poverty, ignorance and crowding. The devastating course of measles in young African children with severe malnutrition[6] underscores the vital connection between nutrition and

[5] McKeown, Thomas. The Modern Rise of Population, Edward Arnold, Ltd. London. 1976.

[6] In Cameroun, for example, the disease predominantly strikes very young children from 6 months to 2 years of age and accounts for approximately 25% of hospitalizations and half of the hospital mortality in young children. (Guillozet, N.: Measles Revisited. To be published)

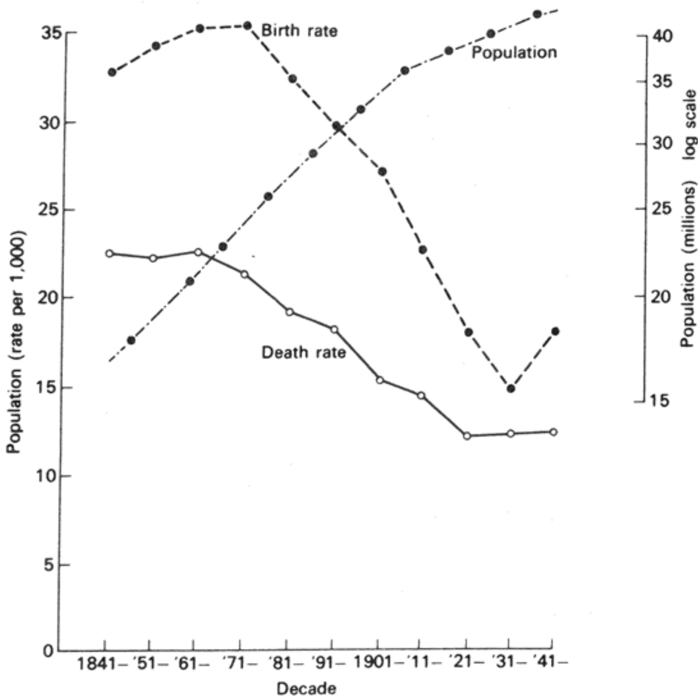


*Fig. 5.* Birth and death rates and population in England and Wales since 1841. From McKeown, T.[5]

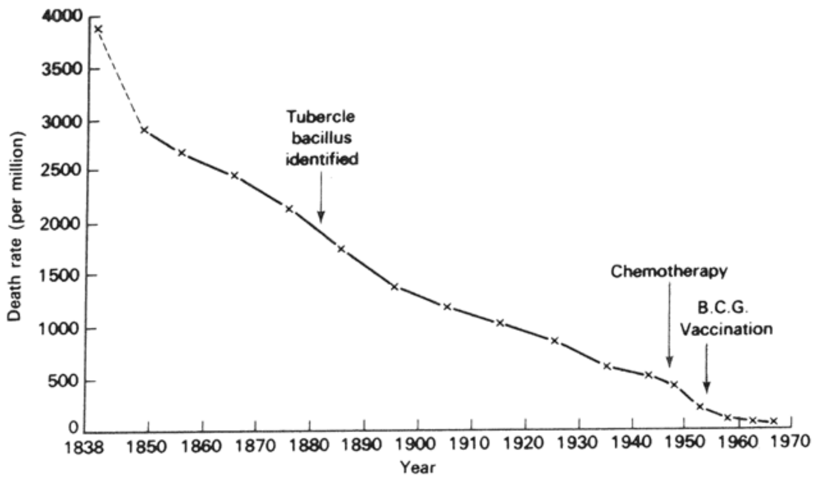


*Fig. 6.* Death rates due to respiratory tuberculosis in England and Wales with times of major medical advances in treatment and prevention. From McKeown, T.[5]

host resistance. Thus, the population explosion may indeed be an index of better health and a rising standard of living, but it will neutralize these gains unless the birth rate is lowered sufficiently to permit a more rapid rise in per capita food consumption and income. Achieving this is one of the great problems of the developing countries (Figure 7).

**FOOD AND POPULATION IN DEVELOPING COUNTRIES, 1960-75**

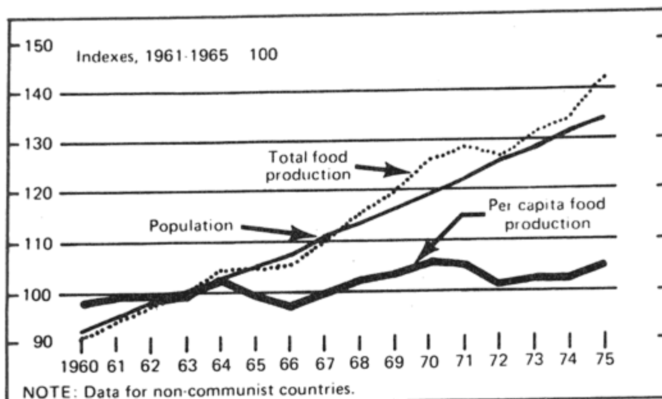


*Fig. 7.* Relationship between food production and population in developing countries. (From Population Program Assistance—United States Aid to Developing Countries. Annual Report 1975. Agency for International Development, Bureau for Population and Humanitarian Assistance, Office of Population, April 1976, p. 16.)

Many of the major causes of death in the U.S. today are problems over which doctors have little control. In general terms, they fall into two groups.

I. *VIOLENCE*

1. *Accidents*, especially due to automobiles
2. *Personal Violence*—suicide, murder, child abuse
3. *Mass Violence*—war
4. *Natural Disasters*—floods, earthquakes, fires

II. *DISEASE*

5. *Congenital Defects and Prematurity*
6. *"Degenerative" Diseases*—atherosclerosis, hypertension, renal disease, diabetes and slow virus diseases of CNS
7. *Cancer* (neoplastic diseases)

We can do little about the first four, except to investigate their root causes

and to improve treatment for the injuries and health problems of the survivors.[7] However, the last three categories represent true biomedical problems, which challenge medical research directly for their solution and confront the practice of medicine with the necessity for the acute and long-term care of their victims.

*Mortality* has been the conventional measure of health in the past, but is no longer an adequate index of current health needs in the U.S.A. *Morbidity*—the incidence of disease, rather than of death, which must come to us all sooner or later—is more significant. In terms of health, mortality is a measure of the quantity of life, morbidity of its quality. The problem is how to measure it. We know from experience that the legally mandated reporting of disease is usually incomplete. We can measure the overall incidence of disease indirectly by hospitalization rates, but these are influenced by many factors, such as the availability of third party payments for physicians' and hospitals' services and prepaid insurance to cover the patients' expenses. Absenteeism—from school for children and from work for adults—provides a functional measure of the impact of disease, particularly during epidemics. Probably the most effective method of acquiring pertinent health data is by periodic surveys of carefully selected samples of the population, as in our National Health Survey. These data can define changing health needs and can be used to measure the success of health programs in meeting them.

"Liberty" is a right which we all prize. It implies freedom to choose between alternatives. To organized medicine, it connotes freedom of choice for both patient and physician and hence lies at the root of the opposition to what is called "socialized medicine." Free choice of physician can only be exercised if there are several alternatives and if the patient really knows what they are. In many rural areas, alternatives may be completely lacking—in fact, there may be no physician nor primary care provider available at all. In metropolitan areas, there is a bewildering array of emergency room and hospital clinic facilities, neighborhood health centers, private group clinics and solo practitioners, to which a patient may turn for care.

Leaving freedom of choice completely to the patient exposes him to the dangers of falling into less competent hands than are required by his problem and tends to underemphasize preventive medicine or continuing health care. Freedom of choice of physician inevitably becomes bound up with mechanisms of payment. A patient who is medically indigent may have very little freedom of choice, since physicians may choose not to accept patients on Medicaid, Medicare, or public welfare.

The basic shortcoming of our current medical care situation is lack of any

[7] It does seem that, as doctors, who must treat the victims of violence, we should be more active than we have been in urging greater governmental efforts to curb the unconscionable slaughter of our highways, the sale of handguns, the commercialized displays of violence on television and the lack of effort to strengthen the U.N.

organized system for providing primary medical and health care to all, or for its integration with facilities for consultation, referral and specialized treatment. Another is the lack of adequate mechanisms for assuring optimal quality of care for the patient, especially at the primary care level. Specialty board certification has done much to improve this situation, particularly now that there is a Board of Family Practice. But I shall never forget a remark Sir James Spence, England's first Professor of Child Health, made when I described our system of Board examinations and certification to him, "Ay, but it's the rogues in medicine you want to catch, and examinations will not do that." The medical profession has always been more hesitant than the legal profession to use its own disciplinary machinery to control professional incompetence or abuse of privileges by individual physicians. As a result, it exposes itself to the danger of outside regulation and control. The PSROs recently set up to encourage physicians to regulate professional abuses themselves, particularly over-hospitalization or over-treatment, probably represent one of the last chances for the profession to exert active control over the quality and cost of medical care.

Because payment for medical care is increasingly being made by third parties, these agencies inevitably become involved in the regulation of medical practice. At the same time, a new deleterious influence upon the quality and cost of medical care has appeared—namely the rise in suits for malpractice. Insurance against malpractice has generally been carried by physicians to protect themselves and their patients from the inevitable failures, occasional accidents, or lapses of judgment inherent in the practice of medicine. In recent years, the public has become increasingly litigious. Doctors often feel themselves forced to practice defensive medicine, carrying out superfluous tests and procedures to protect themselves against suits for negligence. This has boosted the costs of medical care with rising premiums for malpractice insurance. Moreover, the psychology of confrontation, so important in the courtroom, has tended to erode the relationship of mutual trust between doctor and patient. Worst of all, this atmosphere of belligerence, which seems to be part of a general decline of civility in our society, has taken some of the fun out of medicine and thus may discourage able and sensitive candidates from entering the profession.

Now let us consider *"the pursuit of happiness."* Once a reasonable life span and liberty to choose one's course among known health alternatives has been assured, as it has been for many people in this country, they expect the medical profession not only to help them achieve physical health, but happiness as well. This might be equated with "mental health" in the broadest sense of the term. The problem is that knowledge, upon which the practice of mental health can be based, is still limited, and most physicians' understanding of even this is restricted. We are still at the point we were in general medicine at the turn of the century, with a dichotomy between the rapid advance of basic medical

science and the purely empirical practice of clinical medicine, which was more art than science at that time. The behavioral sciences have been moving forward rapidly, toward rigorously tested concepts of human psychology and social behavior, but this is usually not taught to students of medicine nor well understood by many physicians. Certain basic principles seem established—first, *the early periods of infancy and childhood are critical for personality development*, and thus set the individual's pattern of subsequent response to other human beings and institutions; second, *unconscious emotional drives and conflicts can strongly affect conscious behavior and disturb physiologic functions*.

Functional disorders, based in whole or in part on emotional stress, make up an increasing proportion of the illness problems faced by the primary care physician. How does he cope with this clamor for help from so many patients? The pharmaceutical industry has jumped into this void with a bewildering variety of psychotropic drugs. Many of these drugs have been extremely helpful in the management of seriously ill mental patients. Likewise, tranquilizers and sedatives are useful in palliating anxiety or diminishing insomnia in patients with functional disorders, but the extent of their use in contemporary American medicine suggests that, above all, they provide an easy way out for the busy, harassed physician. It takes a lot more time to let a patient talk out his problems than to suppress their anxiety-producing effects with drugs. We need to encourage a more "grin and bear it, do it yourself" attitude in our patients rather than the over-dependence on pills constantly encouraged by TV commercials.

At the same time, "deep psychotherapy" or psychoanalysis can hardly meet the needs of the majority of patients who are emotionally disturbed, because of the lack of manpower and the expense of such time-consuming methods of treatment. Widespread feelings of personal inadequacy in our population, particularly in the upper socio-economic groups, has not only led to an increase in drug dependence (alcohol is still the major one), but to a proliferation of methods for group psychotherapy of one sort or another, utilizing everything from intense physical contact to transcendental meditation. Many of these techniques help people and are being incorporated into a movement for *holistic medicine*, to me a new word for an old truth: that most sick people need help in all three spheres of human experience—physical, emotional and spiritual. One thing is certain—the rapid changes in our life styles, the loss of a deeply shared sense of national purpose such as clearly exists in China, and the longing for the diminishing certainty of religious conviction, have made mental health one of medicine's most important fields today.

To sum up, in 1976, despite remarkable progress in biomedical research, a widespread system of hospitals with superior capability in tertiary and secondary care, and a high ratio of doctors to people (1 for every 650 people), this country is facing a number of serious basic medical care problems as we enter our third century.[8] These include:

[8] Primary Care: Where Medicine Fails. Spyros Andreaopoulos, Ed. Wiley, New York. 1975.

1. A real deficiency in the general availability of high quality primary health and medical care as a result of overspecialization and poor distribution of physicians.
2. Lack of a comprehensive system for integrating the various levels of medical care.
3. Lack of a comprehensive system for controlling the costs of medical care.
4. Unequal opportunities for optimal medical care between upper and lower socio-economic groups.
5. Depersonalization of medical care, with an erosion of mutual trust between doctors and their patients.
6. Slow progress in our capacity to deal effectively with the mental and emotional aspects of illness as compared to the rapid growth of understanding and control of physical disease.

### *A Vision for Our Third Century*

We began this lecture with a brief recapitulation of the ideals, derived from our British heritage but modified by life on this continent, which were embodied in the founding of this country and restated again in the creation of the United Nations. In the second part, we discussed the extent to which these were being striven for but only partially realized in health and medical care as it is in this country today. In this final section, I should like to look ahead to what might be if we live up to our own ideals. As Sol Linowitz has put it so eloquently, "What we need today is not a *reformulation* of national purpose, but a *recollection* of national purpose. What is called for is not a further articulation of the things for which we *should* stand but a real effort to begin to stand for the things for which we always said we *do* stand."[9]

### *The Role of Research*

American medicine owes much of its preeminence to the strength of its research effort, which was initiated by the Rockefeller Foundation and a few leading universities at the turn of the century and originally financed by private philanthropists. Since the second world war, medical research has been supported generously by the Congress. This governmental program has been wisely administered by the Public Health Service through the National Institutes of Health, utilizing leading representatives of the medical scientific community and intelligent laymen to guide its policies on the Advisory Councils, and panels of experts in the Study Sections to judge scientific merit. It has been an extraordinarily successful example of cooperation between the federal government and the academic and research community. The system may be a bit clumsy at times, but it has been as fair as anything could be, particularly under the difficult financial circumstances of the past few years. One disquieting development in its recent history, because it may reflect the

[9] *Linowitz, Sol M.*: Reflections on the American Promise. Saturday Review. September 18, 1976, p. 16.

ever present threat of Congressional interference and bureaucratic intrusion into an endeavor which strives to encourage human creativity, is a tendency to substitute research contracts to answer very specific questions, for research grants which permit the investigator more freedom to follow his own imagination. It is essential for the future of American medicine and health that research, particularly in the universities and teaching hospitals, where the medical scientists, teachers, and physicians of the future are recruited and educated, be strongly supported as a national policy.

Outstanding basic medical scientists must have ample freedom to follow the roads down which their curiosity takes them. There also must be adequate support to permit young investigators, whose ability may be unproven, to demonstrate to themselves and their elders whether or not they have the talent for a research or academic career. Every effort should be made to see that there is equal opportunity for all young people so that we may draw from the widest possible base of talent.

In the future, there should be increasing opportunities for close collaboration between basic scientists and clinical investigators, as well as between scientific disciplines, so that there is unbroken communication from laboratory to bedside, clinic or field investigation and back, and each link in the chain comes to respect the expertise of the others. Clinicians need to understand the theoretical origins, rigorously controlled experiments, and critical thought that have gone into any discovery they plan to apply to the study of patients, while scientists gain fresh stimulation from clinical observations of phenomena that can't be duplicated in the laboratory nor in experimental animals. From personal experience as a member of a large scientific and clinical team, led by an outstanding chemist and engaged for over a decade in a broad program of biomedical research, I learned that the give and take between basic scientists and clinicians, voluntarily engaged in jointly attacking a specific applied problem, can be productive of both clinical and scientific knowledge. Therefore one must hope that effective teams of investigators will be supported adequately and for long enough to gain the maximum benefits for society from their collaboration. The essence of such effective teamwork is good basic scientific leadership as well as voluntary collaboration and mutual respect between the participants.

As we gain understanding and greater medical control of organic diseases, it is essential that we apply an increasing proportion of our research resources toward the solution of what are becoming our major clinical problems—emotional, mental and social illnesses. Here again we must bring together multidisciplinary groups, basic behavioral scientists, as well as basic biomedical scientists and those engaged on the frontiers of clinical action and research from medicine, public health, education, law, social work, architecture and city planning. This multidisciplinary concept was embodied in the Institute of Human Relations founded at Yale in the thirties, then considerably ahead of its time. Today the situation seems ripe for this type of collaboration in

approaching the new problems created in our society by technological and economic changes, our increasingly urbanized environment and the influx of immigrants to our cities from other countries as well as from rural areas and small towns in the U.S.A. Universities, particularly state universities, would seem to have a special responsibility to explore health and social problems peculiar to their regions, to bring together the breadth of knowledge to forecast future difficulties and to propose, and hopefully test, possible solutions on a pilot basis in collaboration with governmental and private agencies. For social research, without any impact upon social action, is in an ivory tower.

In fact, a problem of behavioral scientists has been that, in order to preserve their objectivity, they have played the role of observers without involvement in action. Somehow, I believe that the principles of clinical investigation as they have evolved in academic medicine, need to be adapted to applied social science research. We should develop a system for research, development, and pilot studies before we embark on huge and costly governmental programs, except in the face of extreme emergencies. When established, such large-scale programs need built-in preparations for periodic evaluation of their cost-effectiveness, so that the need for their continuation, expansion or cessation can be established. University groups, not directly involved in program administration, can be extremely helpful in developing sound plans for monitoring these service programs. This type of cooperation between government and private groups has been one of the strengths of our pragmatic American way of doing things. When taken together, our federally funded programs in health, education, welfare, urban renewal, crime prevention, drug abuse, and law enforcement now represent the next biggest block of funds to defense in the federal budget. If we add the states' contributions to these programs, the amount probably exceeds the defense budget. Hence, we need a more systematic effort to utilize the talent in our universities and research institutions in the attack on the major health and social problems in our society. To try to meet them by drawing on expert but sometimes biased testimony before congressional committees, ending with legislation for large, expensive national programs before these have actually been tested critically on a pilot basis, seems the height of folly. This is a major challenge for the future, so that the best brains of the country, as well as the best intentions of a sympathetic Congress and public, can be mobilized to improve our society.

*Towards Better Health Care in America*

The predominant preoccupations in most academic medical centers have been with biomedical research, the treatment of the serious diseases found in our tertiary care hospitals, where most clinical teaching is done, and the training of specialists, all of which has been carried out at a high scientific level. But it has left us with too many specialists[10] and has neglected the nation's

[10] In Great Britain there are nearly 3 general physicians for each specialist, whereas in the U.S.A., there are 4 specialists for every general doctor, a ratio which helps to promote the high cost of medical care. Janeway, C.A.: Family Medicine—Fad or For Real? NEJM *291*:337-343, 1974.

increasing demand for primary health and medical care. Fortunately, this problem has now been recognized by medical educators, and there is a strong push to make sure that approximately half of the graduates of U.S. medical schools will not only be adequately trained for, but actually will enter, some form of primary medical practice. Such a primary physician will be responsible for supervising and coordinating the continuing medical and personal health care of a definite group of patients. He should be able to look after the great majority of his patients' health problems personally, and to see that those few that require consultation or special treatment are properly referred. On the basis of such referrals, the continuing care of the patients' chronic or serious diseases can then be coordinated by the primary care physician with the patients' routine health care and life styles in their own communities.

As a nation we are just embarking on this new direction in medical education and practice. If it is to succeed, it must provide better care for the patient and greater personal satisfaction for the practitioner. Otherwise patients will revert to their established habits of going anywhere they want for their care, often for poor reasons, and many practitioners will abandon their practices and go into other specialty training. Moreover, two current questions will have to be answered. The first of these is a rational delineation of the roles of the various professional personnel involved in primary care, e.g. the physician, the nurse practitioner, the midwife, the social worker, the physician's assistant, as well as locally selected and trained aides, so as to make the most effective use of each. Second, if family medicine is to be a viable primary care *specialty*, for which a physician can be rigorously prepared, then some university departments of medicine, pediatrics and family or community medicine, must determine, through research, the body of basic theoretical as well as practical knowledge which is uniquely relevant to this professional activity. If the specialty of family medicine is to survive, it will have to present intellectual challenges and research opportunities comparable to those in other medical specialties concerned with primary care. I believe that it can do so, but basic theoretical questions still remain to be formulated and answered for the new field of family medicine, which is now competing with primary pediatrics, primary internal medicine, and even primary obstetrics and gynecology. What are some of the unique features of primary care?

*The family focus.* The family is a major focus for primary care.[10] There are multiple reasons for this. One is that whatever happens to one member of a family group will affect, and be affected by, the behavior of other family members. The second reason is that the conventional American family is in trouble. More than one of every three marriages ends in divorce. There are an increasing number of family units consisting of one or more children and only one parent—male or female. A large percentage of children are born out of wedlock. Breakdowns of family functioning are manifested in pediatrics by the symptoms of a child—failure to thrive nutritionally, child abuse, or other evidence of parental insufficiency; in geriatrics by depression, incontinence or

weight loss; or in gynecology by amenorrhea, loss of libido, or excessive use of alcohol or cigarettes. Such instances cannot be considered as purely pediatric, geriatric, or gynecologic. The whole family unit, as so often happens, is involved, and treatment, which must consider the whole group, may not only be medical, but may involve the law, social agencies, or governmental services, and must aim to restore family function while protecting and treating the affected member. A third reason for a family focus is the principle which I believe has been firmly established by studies in child development—namely, that the first few years of life are critical to the development of the child and determine his later patterns of behavioral and social response. In these early years the young child must be cared for in some sort of family group, even though it may not fit the conventional norm.

*The importance of human development.* Primary care, particularly from a family physician, must be based on an appreciation of the whole range of human development. We are just beginning to recognize that many medical practices, although they represent technological *"tours de force,"* often run counter to the best developmental interests of the patient. Nowhere is this more apparent than in obstetrics and pediatrics, two medical specialties which are more often concerned with normal events in the lives of their patients than with disease. Changes are beginning to occur, partly as the result of the impact of developmental studies on clinical practice and partly in response to pressure from the consumers' and the women's movements.

Pregnancy and delivery are not diseases, but normal physiologic processes, in which, on occasion, things go wrong and lead to life threatening emergencies. Modern obstetrics has made the rare obstetric death a very unusual personal tragedy. But technical progress has turned a happy human event, one of the great experiences of family life, into a surgical procedure in a psychologically sterile environment. Hence, the increasing pressure for natural childbirth, conscious delivery, the presence of the father, and even home delivery. Most obstetricians deplore home delivery, because of the risks involved if an emergency should arise. But there is little reason why some of an obstetric hospital's accommodations and delivery rooms should not be made like home for those women whose deliveries are expected to be normal and who wish to share their experiences with those they love.

In pediatrics, we were guilty for a long time of interpreting quiet behavior in hospitalized infants as "good" behavior, rather than what it really was, depression as a result of separation from their mothers. The need of hospitalized babies for human contact was recognized by Harry Bakwin[11] and later popularized as a result of the studies of Bowlby and his colleagues in England.[12] Sir James Spence in Newcastle particularly emphasized the importance for the

[11] *Bakwin, H.*: Loneliness in Infants. Am. J. Dis. Child. *63*:33–40, 1942.

[12] *Bowlby, J.*: Maternal Care and Mental Health. A report prepared on behalf of the World Health Organization. Schocken, New York 1966.

mother's own development of caring for her child during illness.[13] These observations have changed the whole management of children in hospitals in the western world.

Some years ago, Julius Richmond presented his collaborative studies with veterinarians at Cornell, showing the critical period in the hours immediately following birth for sheep and goats. If the mother did not lick and establish physical contact with her own lamb or kid at that time, she would not nurse it and would even actively reject her young.[14] Now finally, this type of physical contact of a mother with her infant to create an emotional bond between them has been demonstrated to affect subsequent mothering and the development of the baby in humans by Klaus and Kennell.[15] This is beginning to change practices in the best obstetric units.

Women in many developing countries threaten to give up breast feeding their babies to be "more modern and up to date," like the elite of their own country and most women in the developed countries.[16] This trend faces health authorities in the developing world with the prospects of a marked increase in malnutrition, infant deaths, and unnecessary economic burdens. Pediatricians are beginning to recognize that, even in this country, breast feeding has real physical and psychological advantages over the formula feeding which today is so cheap, convenient and safe. As the ecologists have been saying, nature's way often proves to be the best. People are now having to learn how to do what used to come naturally, and it is the women who are intellectuals, not those in the lower social strata, who are leading this movement.

*Predictive medicine.* Another important aspect of primary medicine is the identification of persons at special risk and those with special abilities. I like to call this predictive medicine, as opposed to curative and preventive medicine.

Advances in genetics are presenting us with increasing opportunities to identify families at risk for a number of inherited diseases. Family history has therefore become a much more important part of a medical history. In families with certain hereditary diseases, amniocentesis during the first half of pregnancy may yield fluid which can be subjected to chromosome analysis or to biochemical study to determine whether the infant being carried actually is or might be affected by the disease. This prenatal diagnosis then gives the woman the choice of an abortion, if she desires it, or possibly of specific treatment of

[13] *Spence, J.C.*: The Care of Children in Hospitals. Brit. Med. J. I 125, 1947.

[14] *Hersher, L., Moore, A.U., Richmond, J.B.*: Effects of Post Partum Separation of Mother and Kid on Maternal Care in the Domestic Goat. Science *128*:1342, 1958. *Hersher, L., Richmond, J.B., Moore, A.U.:* Modifiability of the Critical Period for the Development of Maternal Behavior in Sheep and Goats. Behavior, *20*:311, 1963.

[15] *Klaus, M. and Kennell, J.:* Maternal-Infant Bonding. C.V. Mosby Co., St. Louis, 1976.

[16] Authoritative summaries will be found in: Colloque sur l'Allaitement Maternel - Centre International de L'Enfance, Paris, 1973; *Raimbault, A.M.:* Breast Feeding: Influences on the development of the child. The Child in the Tropics, No. 96, 3-24, 1974.

## GROSS NATIONAL PRODUCT (GNP) AND POPULATION FOR DEVELOPED AND DEVELOPING NATIONS

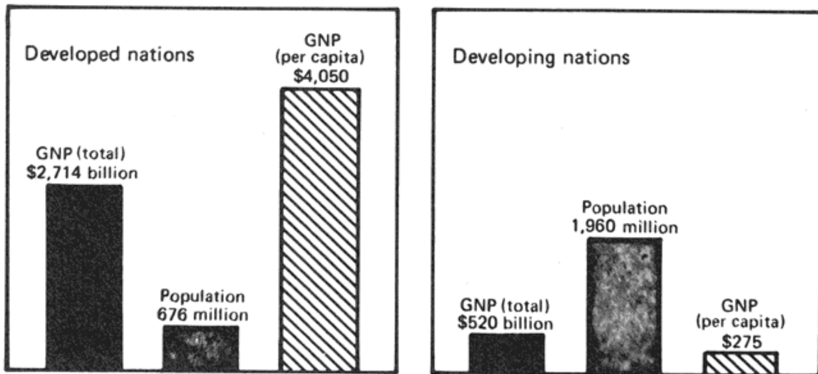


*Fig. 8.* Comparison of the gross national product and population of the non-communist developed and developing nations. (Ibid Fig. 7.)

## WORLD POPULATION GROWTH, 1970-2020

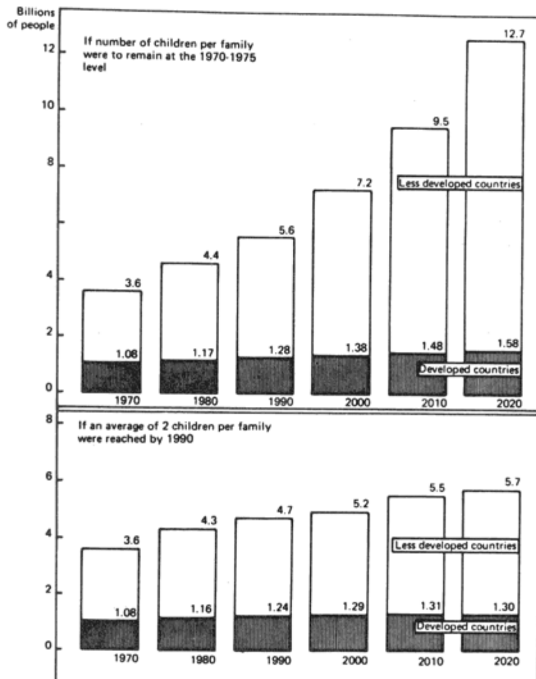


*Fig. 9.* Growth of population as projected from 1970 for developed and developing nations. (Ibid Fig. 7, p. 15.)

development of a more appropriate and more effective health care system here. There is much to be learned from experiences in other countries, each of which has its own special set of medical needs and priorities as well as cultural traditions which must be considered in any development program.

But we are part of a shrinking, interdependent world and cannot allow the terrible gulf that separates the wealth of the industrial nations from the poverty of the developing countries to persist unchanged, not only to prevent future world conflicts, but because it's the right thing to do. The realities of today's world can be seen in Figure 8, showing that the *developing nations, with three times as great a population as the developed countries, have a per capita gross national product which is one-fifteenth as much*. And the population of the developing nations is growing much faster than ours (Figure 9), so that the differences are likely to be accentuated with time, if the world continues on its current course.

So we return to our original theme, "Where there is no vision, the people perish." As citizens of the world's most powerful and one of its richest nations, we must make our forefathers' dream that "all men are created equal" and entitled to "Life, Liberty, and the Pursuit of Happiness" become a reality for all people in this country.

But, beyond this, unless, as a nation, we are willing to sacrifice some of our super-prosperity, in the form of superfluous luxuries and consumer goods, in favor of a far greater effort to narrow the gap between the people of the rich and the poor nations, we will have betrayed our great heritage, which has given the American people a reputation for generosity, decency and faith in freedom and democracy. This will require great leadership: (a) to work boldly through the United Nations to change it into a more effective world government; (b) to lighten the insane burden of nearly $300 billion spent annually for armaments in the world, which could be much more productively used for development; and (c) to work with the U.N. agencies to help three-fourths of the world's people lift themselves from poverty, ignorance and ill health to a state in which they can begin to look forward as free men to equality of opportunity for "life, liberty and the pursuit of happiness." This is a challenge for many generations to come, but it is a vision well worth the sacrifices required to reach it.

*Acknowledgement*

As Merrimon Lecturer for 1976, I wish to express appreciation for the cordial reception my wife and I received from the Dean, Faculty and students of the School of Medicine, as well as from its Merrimon Lectureship Committee - headed by Dr. John Graham - during our week in residency, which was organized so well by Dr. Campbell MacMillan and Ms. Maria Leon. To have been invited for this Lectureship is a great honor, to give it a privilege, which would not have been possible without the patient typing and retyping of the manuscript by my secretary, Mrs. Nancy Hurst.

The lecture presents convictions which have grown from over 40 years of experience in academic medicine in New York, Baltimore, and Boston. Since 1942, I have been learning about pediatrics and child health from my colleagues on the staff of the Children's Hospital Medical Center and the faculty of the Harvard Medical School, as well as from former house officers, fellows and professional friends from the six continents I have been fortunate enough to visit during that period. These people, who have shared their ideas and experiences generously, are too numerous to mention individually, but particular acknowledgement must be made to a few: the late Dr. Edwards Park, Professor of Pediatrics at Yale and Johns Hopkins; the late Dr. Marshall Balfour, former Rockefeller Foundation representative in India, who first opened our eyes to the health problems of Asia, and the late Professor S. T. Achar of Madras, who showed them to us; Professor Robert Debre, the late Dr. Nathalie Masse and their associates at the International Children's Center in Paris, who have worked so constructively for the children of the developing countries; and my good friends and colleagues on the Executive Committee and Advisory Board of the International Paediatric Association.

I must also express my gratitude to Dr. George P. Berry who, as Dean of the Harvard Medical School, with the backing of Dr. Lester Evans of the Commonwealth Fund, helped us to develop teaching and research in family health care in our department in the early 1950's. This program enabled its successive directors, Drs. Robert J. Haggerty, Joel Alpert and Richard Feinbloom, to share with me their evolving insights into the fundamental problems of the delivery of health and medical care to families.

It was my good fortune to have been launched into clinical investigation at Johns Hopkins by my classmate, Dr. A. McGhee Harvey and my friend, Dr. W. Barry Wood, Jr.; to have been initiated into becteriology and immunology by the late Professor Hans Zinsser and by Dr. John Enders; and finally to have been given a start in infectious diseases by the late Dr. Soma Weiss, when he became Hersey Professor and Physician-in-Chief of the Peter Bent Brigham Hospital. During the Second World War, I had an extraordinary opportunity to work in a major multidisciplinary applied research program directed by the late Professor Edwin J. Cohn, from which grew the modern system of blood fractionation and blood component therapy. Since then, I have had the privilege of close association with two younger colleagues, Dr. David Gitlin, and later Dr. Fred S. Rosen, whose scientific knowledge and imagination has enabled them to carry our interest in human immunity and immunodeficiency far beyond the limits of my capacity.

Finally, I owe an immense debt to my wife, who has shared in the learning opportunities of our travels, has given me the benefit of her experiences as a medical social worker, and, with our four children, has taught me about the realities of maternal, child and family health.

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