Acceptance of the Howland Award

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The Howland Award can only be appreciated if you consider the men and women who were honored with this prize by the American Pediatric Society in the past. Needless to say, I feel very humble in the illustrious company of my predecessors and very grateful to those who made me a member of this Society.

It was my good fortune to come to this country in 1932, at a time when a great adventure in pediatric research was implemented in Cincinnati under the leadership of Drs. A. GRAEME MITCHELL and GLENN E. CULLEN, at a period when a group of young pediatricians attempted teaching and research in a new style. I had been able to do research as a student and resident in Vienna also but there the atmosphere was rather depressed and pessimistic and support was minimal because of the poverty that followed World War I. Yet research we did. I remember phosphatemic curves gotten from a rabbit that freely gave of its blood until its ear veins resembled dried-up rivers in the desert. With trepidation I approached the chief who was quite pleased with my preliminary progress report until I confessed 'Herr Professor, I need a rabbit'. Whereupon his encouraging attitude changed to glum indignation and he said 'But you already have one'. It was a different world in Cincinnati where I could order 4 rabbits or 20 rats at a time, just needing GEORGE GUEST's signature which he gave with great liberality and without questions. Also, he introduced me to the young men who made up the new Society for Pediatric Research and who were the future members of the American Pediatric Society. It was a wonderful group of young people, the like of which I had not known before. They were full of plans and hopes; competitive in research but completely free of jealousy; generous in praise of their colleagues' work; neither xenophobic nor xenophilic, they judged their fellows by their attitude, not by background. It was a revolutionary generation of pedi-

atricians who chose to emulate Howland's pupils, devoting their lives to full-time pediatric research and teaching; they planned to forego private practice because specific treatments then were still very few. It must be difficult for today's young pediatricians to realize that—with some notable exceptions—treatment was mostly symptomatic and psychologic, which did not satisfy the critical and discriminating minds. Practice was not satisfactory to some of the young pediatricians who were often therapeutic nihilists or skeptics. The ideal was to find preventive measures by research. Although it was a revolutionary group they had no slogans, no banners and no flags; the only outward sign of rebellion was that the young rebels were clean-shaven in contrast to some of their bearded predecessors who represented the dignified pediatric establishment of the past. It was the time of the depression and salaries were small. Research life meant a Bohemian life. We did not dwell in attics, but we lived in furnished rooms. Some had automobiles, others enjoyed rides in the chief's rumble seat, which was considered a valuable fringe benefit. Those who were married and had working wives could afford an apartment and sometimes a house where rugs were looked upon as signs of stability and tenure. It was a time of happiness and hope, and research was the most enjoyable occupation in pediatric life. Outside support was nonexistent and there was no pressure to produce. The most important research equipment was the investigator's mind. Progress was made, some modest, some exciting. There were no promises for practical applications and no publications in daily newspapers and weekly handouts. Statements were made as understatements. Ours was a most fortunate generation. Our time in pediatrics was harvest time. Enteritis and diarrheas showed a continuous decline and those children who did get dangerously ill often could be brought back to health by restoration of their water and electrolyte balances. Rickets and

scurvy disappeared with the help of great contributions made by members of this Society. Contagious diseases, which had been the horror of our parents and grandparents, were declining when we entered pediatrics, but we still attended contagious wards and visited hospitals filled with patients for whom there was little meaningful treatment and often little hope. There were children with diphtheria and scarlet fever, cerebrospinal meningitis and poliomyelitis, and there were measles and pneumonia and their complications; syphilis threatened the young, the old, and even the unborn. Tuberculosis and tuberculous meningitis with its inexorable course were common experiences in a children's hospital. I could cite a long list of the diseases which have been reduced to a minimum and can be prevented now or quickly cured. We have witnessed miracles and victories which we could not have foreseen in our fondest dreams. And pediatrics is a young science: only three or four generations of pediatricians have achieved these successes, within the short span of eight decades. Of course, it would be ludicrous to claim that pediatricians alone deserve credit for these accomplishments. Not only pediatrics but also chemistry, engineering, agriculture, and nutritional and public health sciences have contributed to the victories over a hostile environment. But one point must be emphasized about the contributions of pediatrics. From its beginnings, this clinical specialty concentrated on prevention rather than on repair. Our generation harvested where our predecessors sowed, but there are many here and there are many we knew who participated in the great accomplishments of pediatrics, and contributed to the high regard of the general public for pediatric and medical research.

Acknowledging the successes of research, governmental agencies and private foundations began supporting medical investigations at an unprecedented scale. Research, begun as a sideline and considered an extravagance by some, became a recognized approach to treatment and prevention of disease. This favorable turn of events was an enormous incentive; it also led to some minor errors and abuses, although in general, the funds were expended with wisdom and foresight. True, there was waste and there were failures. But research, like all search is partly wasteful! The searching eye makes many unnecessary movements before it spots the object sought; similarly, research goes in many different directions before the way to success is found. The single steps may appear wasteful but the end results are often surprisingly economical. It was most satisfactory to see how pediatric research expanded and became a career for many young and able pediatricians.

And then, more recently, the reaction set in which often follows startling successes. Opposition developed to research from various sources and under various

guises. Errors and abuses were overemphasized; accounts and progress reports failed to satisfy some legal minds; and economy was demanded because of priorities in other areas. In general, the cuts of funds for medical research have not yet become disastrous. But from my vantage point it seems that a maximum of damage is being done with a minimum of saving. The young man or woman with an investigative mind is often denied training and research opportunities. Older investigators are disturbed by uncertainties which interfere with research design and planning. Writing of grant applications has become a major occupation which is threatening to replace research itself. Progress reports, requests for renewal, budget justifications, and similar literary efforts consume the remainder of the waking hours. I can foresee obituaries of contemporary investigators which will tell about the volumes of grant applications he left to posterity instead of scientific books and publications. In the beginning, the granting agencies showed great wisdom by establishing scientific panels who judged the plans and the work of the applicant. Short explanations were sufficient to obtain sound evaluation. But the direct communications between scientists were slowly interrupted by interposition of bureaucracies from both the granting agencies and the receiving institutions. This may have improved financial accounting, but it did not enhance the yield expected from research.

The complications of seeking research support were still well tolerated until the funds were actually cut for budgetary reasons. It is hard to understand why support should be curtailed for medical research which has proved so successful in the past. I wish I could calculate how many dollars this country saves annually by the absence or decline of the diseases we saw and treated when we were interns and residents. I am not able to make such difficult calculations but should like to direct your attention to some small segments of the huge area of declining or vanishing diseases. It has been estimated that about one billion dollars is saved annually since paralytic poliomyelitis has become preventable in this country [1]. And there are figures to show that since 1954 a comparable sum, over one billion dollars, is saved annually by the decreasing needs for tuberculosis beds alone [2]. What would we have to pay for medical care and treatment of patients if tuberculosis had continued at the rate prevalent in 1900 when mortality from tuberculosis was 90% higher than in 1954? What would we lose in productivity and earning power of men and women affected by this disease alone? Add to this the billions of dollars saved annually by the decline of other diseases during our lifetime. The millions clipped from the federal budget's funds for medical research seem rather small amounts compared with the billions saved and the billions to be saved by medical

research. I doubt that these budgetary savings are economical.

But not only dollar-conscious old men turn against research for budgetary reasons. Even some of our bright young men and medical students reprimand their professors for spending too much time in the laboratory. They demand exclusive teaching at the bedside where they can emulate the ideal image of the physician obtained from television and popular magazines. Most of them have never heard of the men and women who devoted their lives to prevention and eradication of diseases which need not be taught at the bedside, because they have disappeared. Some of these young men are disturbed, with obvious justification, by the deficiencies of medical care for the broad strata of the population. But why blame medical research for these deficiencies? It is true there is a lack of practicing physicians and a number of physicians have been diverted from practice by their research activities. But none have justified their absence from the bedside better than those who have contributed to preventive medicine. How much more serious would the doctor shortage be if the diseases eliminated or mitigated by research would still be rampant?

Surely, nobody wants to boast about achievements of the past when there is so much to be done. But there is a need to explain to the public, to the student, and to our young colleagues the priorities in pediatrics. The guiding lamp of history [3], as Dr. WEECH has called it, can help us in the future. In historical perspective we recognize those early pediatricians who advocated preventive measures as the great men and women of our speciality. They showed the general direction in which the true successes of pediatrics must be sought. The aim is not to nurture and perpetuate children's diseases but to do away with them.

Seen in this perspective, prevention of congenital malformations, cancers, mental retardation, and various infections must still be achieved. Many of these disorders are of a different nature than those that yielded to social and environmental improvements in the past. New approaches must be found and research reorientation and retooling are needed to solve the remaining riddles. The general public once recognized these needs, as shown by the generous support given by public agencies and private foundations to investigations in the fields which must be cultivated. But now we see signs of waning confidence and limitation of support. Could these changes be an expression of a general trend developing in many quarters against reason and research? At a time when astrology and mysticism flourish, at a time when large segments of our youth turn from the exciting vistas opened up by science to visions offered by hallucinogens and drugs, one must be wary and give consideration to early symptoms of

public madness. As one whose native land was once taken over by the forces of unreason and brutality, I may be too pessimistic, but there is no guarantee against quackery and insanity in medicine.

I do not want to be discouraging. As a one-rabbit investigator, at an age when one needs more a grant of time than a grant of money, I want to emphasize that money is not the main ingredient of medical research. Our younger colleagues should know that great discoveries were often made at little cost, with a modicum of equipment. Breakthroughs are sometimes not expensive; they have been made by men in private practice and by workers in basement laboratories. Money cannot produce ideas; it can speed up their conversion into useful commodities. It is the follow-up, the practical applications that are costly, and the financial limitations now imposed will interfere with the harvest rather than with planting. Withholding pennies from research while paying pounds for treatment and care is waste and not economy. We ourselves should keep in mind where the priorities are. We do not always appreciate that the highest type of pediatric research is etiologic research aiming at prevention. Diagnostic subtleties, study of mechanisms, and ingenious treatments are necessities while a disease flourishes, but once the disease is wiped out the erstwhile necessities become superfluous.

In closing, let us consider the great successes of pediatrics in the perspective of the times in which they were achieved. Unbelievable discoveries and inventions have been made in many fields in our lifetime, but at the same time there have been unbelievable relapses in human conduct and return to cruelty and savagery considered impossible by our parents' and grandparents' generations. Aviation, radio and television, harnessing of atomic energy, and many other discoveries in physics and chemistry have enriched man's life; but sometimes they have been so much abused that the scientists who created the new devices often regretted their role as Franksteins. In this chaos and confusion the scientists who contributed to preventive pediatrics, to reduction and eradication of children's diseases have nothing to regret. This is why I am so happy to receive this award which is owed to all of you who add knowledge to the understanding of children's diseases with the aim of eliminating them.

References and Notes

1. American Medical Association: Report of the Commission on the Cost of Medical Care, 1964. This figure is based on estimates prepared by the National Foundation—March of Dimes. It seems that over the years 1955–1961 an estimated \$ 6.7 billion in lifetime

income loss and medical care cost have been avoided. In 1970 the cited estimate of saving is probably low in view of the greatly inflated income and price levels, particularly medical care costs in recent years.

2. In 1954 the number of tuberculosis beds occupied in the United States was 95,239, and in 1967 it was 30,028 (U.S. Department of Health, Education, and Welfare: Tuberculosis beds in hospitals and sanatoria, quoted by LOWELL, A. M.; EDWARDS, L. B. and PALMER, C. E.: Tuberculosis, p. 33 (Harvard University Press, Cambridge, Mass. 1969). Based on the assumption that 65,211 tuberculosis beds had been

eliminated between 1954 and 1967 at a daily saving of \$ 40.00, one arrives at a figure of \$ 956 million per year. Since there has been a marked reduction of tuberculosis beds since 1967 the figure of 1 billion dollars saved is an underestimate in 1970.

3. WEECH, A. A.: The guiding lamp of history. *Amer. J. Dis. Child.* 119: 199 (1970).
4. Requests for reprints should be addressed to: JOSEF WARKANY, M.D., Department of Teratology and Genetics, Children's Hospital Research Foundation, Elland Avenue and Bethesda, Cincinnati, OH 45229 (USA).
5. Accepted for publication June 9, 1970.