# JOURNAL

## *American College of Dentists*

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# JOURNAL

## American College of Dentists

Presents the proceedings of the American College of Dentists and such additional papers and comment from responsible sources as may be useful for the promotion of oral health-service and the advancement of the dental profession. The Journal disclaims responsibility, however, for opinions expressed by authors.

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*Address of the Editor:*

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# American College of Dentists

*Objects:* The American College of Dentists "was established to promote the ideals of the dental profession; to advance the standards of efficiency of dentistry; to stimulate graduate study and effort by dentists; to confer Fellowship in recognition of meritorious achievement, especially in dental science, art, education and literature; and to improve public understanding and appreciation of oral health-service."—*Constitution, Article I.*

### *Announcements*

*Next Meeting, Board of Regents:* (date to be announced).

*Next Convocation:* Miami (date to be announced).

### *Research*

The American College of Dentists inaugurated plans to promote research in dentistry and set apart funds for that purpose at its annual meeting in 1937. [J. Am. Col. Den., 4, 100; Sept. and 256 Dec. 1937.] During the years following plans were carried out resulting in extensive researches within dental schools and to some extent, elsewhere. *Grants* in support of and *awards* for achievement (William John Gies, Grants and Awards) have been provided. In addition to these, *Teaching Fellowships, Grants to Research Workers* for travel expense, and *Emergency Funds* for loss through disaster have been established. A standing committee of the International Association for Dental Research will actively co-operate with the College in carrying out these plans. For application or further information apply to the secretary of the College—Dr. Otto W. Brandhorst, 4221 Lindell Blvd., St. Louis, Mo. (See J. Am. Col. Den. 5, 115; 1938 (Sept.); The William J. Gies Dental Research Fellowship and Awards for Achievement in Dental Research.)

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(TRI-STATE SECTION)

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The Heritage of the Past is the Seed that Brings
Forth the Harvest of the Future.

. . . Inscription – National Archives Bldg.

# *EDITORIAL*

## THE ART OF LIVING

We have been living in an era when it seems that all the World's people have been placing increased emphasis on the importance of being identified and "classified." We have been trying so hard to attach special attributes and qualities and identities to ourselves that we have fairly well succeeded in developing an almost philogenic-like system of specialization.

As we have worked toward narrowing our interests and our spheres of activity and pin-pointing our identities in this scheme of classification, we have become increasingly narrowed and pin-pointed in our lives and in our thinking: we have led ourselves into being classified as Iron-Curtain or Free-World folks; of the Eastern Seaboard, the Midwest or Southern; Labor or Management; Professional or Non-professional; Economist, Physician, Engineer, Dentist; General Practitioner or Specialist; Oral Surgeon or Orthodontist; and on down to the fine differentiations of Edgewise-Arch-Orthodontist and Gingivectomy-Periodontist. However, as we have learned more and more about less and less we have been able to multiply our knowledge in fabulous proportions.

But during this period of phenomenal increase in specialization and knowledge, have we tended to become lop-sided? Have we been losing touch with things even more vital to man's existence than his increasing skills in increasingly restricted fields? That we have done these things is apparent in many ways: More and more our colleges have been rightfully alarmed that they were becoming little more than vocational training centers and the leaders in education have been vigorously setting about to show the ultimate fallacy of the thinking which permits this sort of development. Industry has rapidly become aware that for its own survival and progress, it must have men of broad vision who appreciate human values and who understand that these values are at least equally important with such things as nuclear fission. It has become apparent, too, in the upward sweep we have seen in our religious emphasis, an upward sweep not accountable to a fear of annihilation by the atom bomb or

through war. God and all that He implies has become an increasingly real entity in our consciousness.

In this age of busy materialism and specialization, with most of the world seeking—many times blindly—a fulfillment of those infinite values so necessary to whole living, it is deeply significant that it should be a dental organization that should respond so dramatically to the call for help. When the Tri-State Section devoted its Annual Meeting to a public forum on "THE ART OF LIVING" it demonstrated real leadership and made a real contribution to human welfare. But we should not be unduly surprised that the Section exhibited this initiative, for its response to the need is so very much in keeping with the ideals and noble objectives of the American College of Dentists.

Through the pages of this Journal we are fortunate in being able to share with the Tri-State Section the pooling of wisdom aimed at achieving a wholeness of life by so many leaders in diverse fields of endeavor. We commend the Section and thank its officers for this privilege. We can only hope that other sections will emulate the Tri-State in this good service.

JOHN E. BUHLER, D.D.S.

*THE AMERICAN COLLEGE OF DENTISTS*
*TRI-STATE SECTION*[1]

# *THE ART OF LIVING*[2]

The annual meeting of this Section was held in Memphis, Dec. 12, 1953, the following pages being assigned the responsibility of bringing the fruits of this meeting to our readers. This is a good thing to do for two or three reasons; it is good material to read and to become a guiding influence in our individual conduct; it is good for this Section for it will encourage these Fellows to do the same and even better work; finally, it is good for the College, because it should serve as a guide and a spur to other Sections to do similarly and at a time when it is so essential that Sections exercise more of their latent powers. Just to cite an example; relations with the medical group have long been desired and promulgated, but the time has now come when something of this kind should be conducted in all sections of the country and our Sections should be the proper agencies to attend to that. This should hold for all social groups and not for the medical profession only. It offers a splendid type of program to be effective in producing a unity of effort as is needed for the benefit of the public, whom the professions serve. What Section will be the next?

(ED.)

## PREFATORY STATEMENT

ROBERT S. VINSANT, D.D.S., *Memphis*, Secretary

*The Tri-State Section of the American College of Dentists through a period of seven years, and through a natural evolution from the stage of complete inactivity, has gradually evolved into one of great service to organized dentistry in the states of Arkansas, Mississippi and Tennessee. This evolution has come about not through suppressing our objectives and ideals nor in substituting something else for them, but in reconstituting them and in amplifying them so that they function in accordance with our existing situation.*

[1] Annual Convocation of the Section, Memphis, Dec. 12, 1953.

[2] Each speaker used the double title: The Art of Living: contribution of ————. The reader will bear this in mind, knowing that each article is a contribution to The Art of Living.

*There was a time in which the average dentist throughout the area we serve asked the questions, "What is the America college of Dentists," "What does it do," "What are its objectives," "How is it related to dentistry?" But through these seven years the Tri-State Section has tried to answer these questions, not specifically, but through an educational process, soliciting attendance of non-members, and giving them a program built around the fundamentals of the American College of Dentists. It has built respect for dentistry and the American College of Dentists. There are requests each year that they be given invitations the following year. We have tried to keep our programs on such a high plane as to demand respect. This year we reached the point where we could include the public and recognize the other professions, vocations, businesses, etc., in the part that they have played to bring about the great objective of dentistry, namely the art of living. We invited the other health professions, the press, agriculture, science, public health, government, religion and education. Approximately 400 members of the various organizations represented on our program came to spend a full day with us on this symposium. With the exception of an hour executive session in the morning the whole day was given to these representatives in other fields of endeavor. All papers are published here with the exception of the State Government's contribution which was most ably given in an address by the Honorable Frank Clement, Governor of Tennessee. The committees of our organization which make annual written reports were told they would not be able to read them this year because of lack of time, but that they would be expected to turn them in as usual. They are included in this published report so that our own members along with other Fellows of the College may see the progress that is being made by them.*

*We are pleased to present a letter and preliminary statement from our friend and benefactor, Dr. Gies:*

*New York, Dec. 9, 1953*

*Dr. Robert S. Vinsant*
*1726 Madison Ave.*
*Memphis 4, Tenn.*

*Dear Dr. Vinsant:*

*Your letter dated Nov. 12 was received with great pleasure. I heartily wish that I could accept your invitation to attend on Dec. 12, the meeting*

Woodard's Photo

"The Art of Living" Meeting of the Tri-State Section of the American College of Dentists. Peabody Hotel, Memphis, Dec. 12, 1953

*of the Tri-State Section of the A.C.D., and there to greet you and others of my old friends—and to cooperate with you.*

*Instead of a brief speech that I would try to make, if I could be with you, please regard the enclosure (pp. 107 and 108) as an up-to-date expression of my conclusions on the status of dentistry—in* 1927 and also today. *I believe all of it is suitable for presentation to the public at any meeting. I hope it can be read, conveniently at your meeting, as my direct contribution to the proceedings.*

*I continue to be very busy every day, doing "something useful," at every opportunity, for the general advancement of dentistry.*

*My kindest regards and best wishes accompany this letter.*

*Yours cordially,*

WILLIAM J. GIES

## DENTAL EDUCATION: A FACTOR IN PUBLIC WELFARE[1]

WILLIAM J. GIES, Ph.D., F.A.C.D., *New York*[2]

Before considering dental education as a factor in public welfare, I shall refer briefly to some common terms. Dentistry is a natural division of "*health service.*" This term, which seems to have an unmistakable meaning, obviously refers to any measure, art, science, or all of them, employed to *keep people well* or to restore their health when they are not well. Dentistry, in this view, is primarily a method to promote public welfare by advancing the physical and mental well being of the individual person. Dentistry is "*oral health-service,*" which, as a descriptive term, is synonymous with "*stomatology.*" For laymen, oral health service is not a term of mystery like stomatology.

Dentistry achieves health service largely by mechanical and esthetic means, which are being steadily improved. Dentistry must

[1] Address at a meeting of the First District Dental Society of the State of New York New York Academy of Medicine, November 7, 1927. Reprinted from The Journal of Denta Research **9:** 107, 1927 (April). This is Part 1 A of that address.

[2] Carnegie Foundation for the Advancement of Teaching.

also attain this purpose with increasing efficiency in its medical agencies. Oral health-service may be said to stand on a tripod, the legs of which are medicine, mechanics, and esthetics, and the platform of which is hygiene, the legs being equal in length although not in thickness. By this figure of speech I mean that each of the three primary phases of dental practice must be sufficient in quality to keep the whole system of oral health-service balanced and adequate for the patient, but the proportion of each phase need not be the same either in practice, or in education for practice. And of course normal conditions, and hygienic measures to maintain or restore the normal—prevention, in short—are the alpha and omega of every division of health service.

I use "health service" as a synonym of the term "medicine" in the academic sense—the broadest modern sense—of "medicine." Originally "medicine" meant remedy; now the most significant part of its import is quite the contrary—*to make remedial or curative treatment unnecessary*. I distinguish between "medicine" and "*practice of medicine*," the former being a general concept of the whole of health service; the latter, a special concept of only a part. In the most general sense, "medicine" is health service in all its divisions, among which is the part that may be practised in, say, New York by a licensed person who has received the degree of M.D. from a registered medical school. But "medicine" in its most general sense also includes the practices of dentistry, nursing, midwifery, community health education, public health administration, pharmacy, optometry, chiropody, etc. All of those who practise any of the arts implied by these terms are practitioners of "medicine" in the sense that they are practitioners of *health service*. But only those who receive the M.D. degree may practice "medicine" in the legally restricted sense of the term (which does not include dentistry), and these alone are "physicians." While the statutes remain as they are, dentists are not and cannot become physicians unless they obtain the M.D. degree and pass license examinations for admission to the legalized practice of medicine. And physicians are not and cannot become dentists unless they obtain the D.D.S. or D.M.D. degree and pass license examinations for admission to the legalized practice of dentistry. Much confusion in thought, discussion, purpose, and action arises from indifference to these obvious distinctions.

# *THE ART OF LIVING*

The following addresses were delivered under the above General Title and are presented herewith under specific titles as assigned to each speaker.

## 1. AGRICULTURE

C. E. BREHM, Ph.D., *Knoxville*[1]

I wish to commend the dental profession for the marvelous progress and development that have taken place in the art and science of dentistry within my life-time. This is the result of research in the development of modern techniques and materials, not only to take away pain, but to preserve the teeth. And in addition, now, today, December 12, 1953, I think it is a very fine thing socially, that the dental profession, in the Tri-State Section, in its discussions is considering and discussing the function of the profession in its relation to other basic functions, professions and charactristics of our complex American economy and civilization.

We live in a very complex civilization, a society that is made up of many different groups, many different professions and group interests, yet they are all inseparably dependent upon each other for their welfare, and even their existence.

Our society and our civilization become more complex from decade to decade. We become keenly aware of how dependent we are on others when periodically a heavy snow blows in and paralyzes a community; when the telephone lines are down and we can't call the grocery store for food; and snow will not permit deliveries of food; the power is off and we can't heat our homes, et cetera. We realize that even in a land of more comforts than any nation in the world, paradoxically we can be equally helpless when some unforeseen physical element makes it impossible for these comforts to function. We did not have many of these problems when we heated our homes with wood, and had the woodpile close by; and a cellar full of canned goods and meats that we had grown and preserved ourselves.

Similarly, the welfare of the country as a whole and of the individual citizen, is dependent on the best possible relationships and

[1] President, University of Tennessee.

integration of these various group interests in the various civic levels of our society, municipal, county, state and national; and one of the functions of government has been to safeguard and promote an integration that is in the best interests of the common welfare and the individual citizen. Of these various groups on which all of us are entirely dependent, is agriculture; and the products of this great industry. It is the most basic and fundamental to our existence

I shall not attempt in this brief address, to present to you a technical discussion on farming and its problems. But I am going to discuss briefly its relationship to you and other segments of our society; and why you should be concerned about the welfare of the farmer and his family. Many of these things you already know. I merely wish to re-emphasize them.

Food and fibers are commonplace things to most of us because we rarely know what it is to go hungry, or without clothes. As long as we have these things, we do not think much about them, or the economic relationship of the farmers who produce them to the other segments of society, the consumer the manufacturer, laborer and the professional groups.

Life begins with food; and life cannot be sustained without it. Try sometime, and see what happens to you when you go several days without food. The well-fed person is usually a contented person. But the hungry man is a discontented person and sometimes desperate.

The student of history, religious and secular, cannot but be impressed with the influence the production and handling of a nation's food supply has had on the religious, economic, political and social life of people. It has largely determined the destinies of nations.

There are two distinct phases of agriculture's contribution to the Art of Living:

1. The distribution of a nation's food and fiber supply, so that the great mass of the population may get sufficient food and clothing at prices they can afford to pay. All of the population of the United States are consumers of these products, but 85 percent of the population are not engaged in their production.
2. The economic and financial status of the farmers who produce these products demands that they get a fair price for their product.

You in the dental profession may not be conscious of it, but each of you has a stake in three acres of tillable land in the United States. It takes that much to feed and clothe each of you. You may not be plowing and planting that acreage, but some one is doing it for you, and if he were not, you would not be practicing dentistry. You would have to be plowing and planting that acreage yourself.

What happens when people do not get enough to eat? The story in the Book of Exodus, of Pharoah's dream of seven years of full production and seven years of drought, and Joseph's interpretation of the dream, is one of the earliest of a nation's experiences on record. Out of it, Joseph became the first national food administrator. Through faulty administration and distribution of a nation's food supply, Joseph reduced the country to dependency.

As a sequel came a WPA. Devices to distribute food and create work, such as this country went through in the depression days are not new. They had their precedents in many countries many years ago. In these days, in Egypt, WPA labor was used to build tombs and pyramids for the Pharoahs. The largest pyramid was erected by Kufu, whom the Greeks call "Cheops." Herodotus, the Greek historian, is authority for the statement that it took "100,000 slaves," or WPA laborers, twenty years to build it.

To some people, the monuments to ancient civilizations are a symbol of power and greatness. To others, students of sociology and economics, they are a symbol of poor national policy and planning and poor handling of food and farm problems.

One of the chief contributing causes leading to the French Revolution in 1789 was hunger and starvation of the great mass of the population. As Thomas Carlyle expressed it in his history of the French Revolution:

> "Out of city funds (Paris) some 17,000 utterly destitute are employed digging ditches on Montmarte at 10 pence a day, which buys them at the market price almost two pounds of bad bread."

Paris had a WPA in those days, digging ditches and raking leaves. It is highly probable that on that eventful night of July 14, 1789, when 20,000 hungry, dissatisfied people were roaming the streets of Paris, and the impregnable Bastille fell, that if they had had a good supper and full stomachs, they would have been at home in bed.

It is also highly probable that if in those days, the great mass of French people had had enough to eat, the leaders would not have had sufficient support to start a revolution.

I would remind you that the New Deal, back in 1933 in the depression days, was born out of bread lines, approximately 12,000,000 unemployed; and fears on the part of many other people that they would lose everything they had and be confronted with unemployment and hunger. The New Deal brought about a new philosophy of the relationship of Government to its people. We have this philosophy with us today. Along with it has come bigger Government and an increasing paternalism in Government for the welfare of its citizens; and for security from Government, citizens have surrendered some of their liberties of action. Similarly, I could cite to you the influence the distribution of a nation's food supply has had on governmental philosophies; and determined in large measure the destinies of nations.

The hungry man, with a hungry family, is a discontented, dissatisfied individual, and in time becomes a desperate individual. He is easily lead and influenced by any kind of demagogic leader who will promise to alleviate his hunger; or provide a better status of living.

The well fed person is a well contented and satisfied individual; and also, well satisfied with the existing order of things.

It is for the foregoing reasons that the people of the United States have gone to such lengths and have spent huge sums of money to alleviate human misery and suffering throughout the world, in which hunger and starvation are so elemental. The alleviaton of hunger is one of the chief weapons in the cold war of ideologies in which this country is engaged at the present time. We are using it to win friends and support among many nations of the world.

Now, let me discuss with you briefly, the second phase of agriculture's relationship to you and to the economy of all the people in the United States, including the economic and social status of the farm population who produce the foods and fibers. The prices they receive for these products determine to a great extent, the social conditions of the entire nation.

If the farmer's prices fall and get to the point that purchasing power dries up, as it did back in the thirties, then it reflects itself in many other industries and other professions, and we have an eco-

nomic collapse and depression. This has been the case in every depression that has hit this country.

There are just four sources of wealth in the United States; 6½ million farms, our forests, our mines, and available water and air.

The raw materials that come from these sources each year are new wealth, added each year to that previously accumulated. Producing them, and converting them to some utility that somebody wants and is willing to pay for or work for, is the foundation on which the social and economic structure of this world is built. Sixty-five (65) percent of this wealth comes from the farms and forests. High production is going to be particularly important in the years ahead, to create the wealth and maintain high employment and high income, to meet defense commitments, and to pay the financial obligations of the Government.

The production and processing of these raw materials from the farms and forests is the most fundamental and the biggest business in the United States. The production, manufacture, distribution, packaging, merchandizing of them is the greatest source of commerce business and employment of labor in the United States. The foods and fiber business extends to every cross roads in the country.

In the United States, there are more than 500,000 firms engaged in the food business. More than 25 percent of the 63,000,000 employed persons in the United States are employed in some phase of the food industry. There are over 25,000 food processors. During the past forty years, there has been an increase of 268 percent in the amount of manufactured foods. In the food and beverage industry, there is an average of more than $10,000 capital invested for each worker. In 1939, the average retail grocery store carried about 1000 items. Today, the average store carries 4000, and many carry more than 5000 separate food products. In 1952, approximately 500,000 retail stores sold $40 billion worth of food; and the total value of foods consumed in 1952 amounted to $64 billion.

In the last eight years, 28 cents out of every dollar has been spent on food. This 28 cents not only rewards the farmer for his crops, but it also pays the processor for the value and convenience he adds, transportation costs, and the wholesale and retail merchants for making food products readily available to consumers. Incidentally, the average American housewife opens 1,696 packages a year. That is where a good lot of your money goes as heads of families.

Mention is made of the foregoing figures to give you some idea of the magnitude of the foods and fiber industry, the products of farms. It touches every individual citizen. It is obvious that if the farmer's purchasing power declines or dries up, and food production declines, it has its repercussions in every phase of our economic and social life. Few people seem to realize this, particularly those remote from the actual operation of producing these products. In food and fiber production, the people of the United States are the most productive of the people of any nation in the world; and the people of the United States are the best fed of any nation in the world.

Americans buy enough food to supply the average consumer with 3220 calories daily, well above the necessary amount. In fact, we have so much that we must watch our waistlines. Furthermore, we are eating far better than Grandpa ever did in the good old days. We are consuming about 85 pounds more milk and cream; 10 more pounds of meat; and 99 additional pounds of fresh vegetables, not to mention the frozen fruits, juices and vegetables of relatively recent origin in the super-market.

The productive capacity of the American farmer has not come about by chance or accident. On the contrary, it is the result of agricultural research and resident and extension instruction to farm people; youth, 4-H Club members and adults, through County Extension Agents, by the Land-Grant Colleges, and in Tennessee, The University of Tennessee.

In the early days in this country, it took nine farm workers to produce enough food for themselves and one city dweller. Today, one farmer can produce ample food for his family and fourteen city dwellers. The farms of the United States are producing over 100 percent more today per man than they were in 1914, with fewer people on farms than ever before. The unprecedented ability of the American farmer to produce agricultural commodities to supply the needs of the population, and with fewer farmers, has made possibe the rapid technological development of this country, its rapid industrialization, and in this respect the greatest country in the world. It is this ability to produce that has made it possible for you to practice dentistry and depend on some one else to produce the foods and fibers to sustain you.

It is obvious that no country can advance industrially if the vast majority of its population must be engaged in the basic and most

fundamental work of growing its food. It is this basic principle that is retarding industrial development in many nations of the world at the present time.

There is another reason why you professional men should be interested in the most important products of the farms, and that is, its boys and girls.

City populations do not reproduce or maintain themselves. As we increase our farm production, and fewer boys and girls are needed on farms to feed the population, they come to the cities and towns for jobs, and become the future citizens.

The farm population has declined rapidly in recent years and will continue to decline. This means the cities and towns will have to absorb these boys and girls. They bring new life and vigor to the towns and cities. In view of the fact that they become the future citizens, business men should be greatly interested in the kind of training they have in 4-H Club work and Future Farmer and Homemaker organizations. Logically, you should encourage these activities for farm youth in every way that you can. Simultaneously, as the United States has progressed technologically and industrially, our civilization has become more complex, and there have developed many professional, labor, industrial, commerical, economic and social problems including closer knit groups of people engaged in the same profession. We have our labor groups, farm groups, professional groups, manufacturers, dentists, physicians, etc.

We have come a long way in creating a civilization of group interests. Each of these groups many times is seeking to promote the interests and welfare of its own group, and is resorting to many devious ways to do it, including government. For example, we have had the government enact legislation providing for the promotion and safeguarding the welfare of industrial and manufacturing groups; tariff and foreign trade policies; fair trade practices; and others, all of which make it possible for these groups to maintain prices at certain levels. The Government has also provided minimum wage scales and declared policies safeguarding the interests of labor which vitally affect the farmers, the farmers' income, and the farmers' purchasing power.

It follows, therefore, if Government by legislation sets aside the well known economic law of supply and demand to promote the larger earnings and a higher standard of living for other groups, the

Government also must resort to devices to stabilize to some degree, the income of farmers, at levels comparable to other groups of our society. This is necessary to keep the economy of all the people on a more or less even keel. An effort is being made to maintain and stabilize the farmer's income comparable to other segments of our society through Government price supports at parity levels, soil conservation payments, commodity credit loans and in various other ways.

If the farmer's prices are fairly stable and the farmer reasonably prosperous, the business of the country is fairly stable and the country is fairly stable and the country prosperous. When the farmer's purchasing power declines, it is a danger signal and inevitably forecasts a decline in business and prosperity generally. Therefore it is to the best interest of all the people, many only remotely related to the farm industry, to be concerned that the farm industry be reasonably prosperous.

The interests of the various groups that comprise the complex civilization in which we live are inseparably linked together. It is axiomatic in economics that no one group in the long run can profit at the expense of other groups. None can continually get more than a fair share of the national income, without pulling down the whole economic structure. Some groups in seeking to advance their own standards of living have frequently been in economic conflict with each other. For the welfare of each group and the welfare of all these various groups, they must work in close cooperation with each other, rather than at cross purposes.

For that reason, each group seeking to advance its own interests and welfare, particularly when resorting to legislation, should always look beyond the horizons of their own group and ascertain what effect it may have on other groups, and on the economy of all groups that comprise our society.

This, in the long run, is in the interests of the welfare of all the people and their own group.

## 2. THE PRESS

EDWARD J. MEEMAN, *Memphis*[1]

This is an age of specialization. I will not here consider whether it has been carried too far. Certain it is that Man in an age of speciali-

[1] Editor, Memphis Press—Scimitar.

zation needs more than ever, what he has always needed to achieve wholeness, to establish a right relation with the universe at all points, to be total Man and to achieve total living. Only by total individual living can we achieve that wholeness in our society and wholeness is only another word for health, which we must have if our civilization is not to be destroyed. That a dental organization should have a program on "The Art of Living" is a dramatic response to this crying need. Today you have explored broad fields outside your own, or rather fields in which your own is included, the fields of agriculture, education, science, government, public health, and Christianity.

The editor of a daily newspaper is fortunate. He has the best possible vantage point from which to view society as a whole and men and women as individuals. For the daily newspaper is the meeting place of all the elements of society, agriculture, labor, industry and business, the professions, the church, schools and colleges, the theater, and radio and television, philanthropic organizations, and government in all its branches, local, state, and federal. In the press all these elements of society are reported, and they report each other. Here they are praised and criticised, and here they praise and criticise each other. All these elements and individuals from all these elements come to the newspaperman to tell what they want society as a whole to know. The newspaperman comes to them to draw from them what some of them may not wish to tell, but which society has a right to know. The individuals come to the newspaper to get something in the paper or to try to keep something out. These contacts sometimes have an intimacy not unlike the relation between a physician or a dentist with his patient. These intimate contacts and the many fields in which the newspaperman is expected to take an interest, furnish the vantage point which the newspaperman is so fortunate as to have.

Out of the observations made from that vantage point, the sharpest impression I have had is this: there are vast riches of human personality, intelligence, and energy in our society which are only partially used. When I contrast what people are thinking, saying, and doing, with what they are capable of thinking, saying and doing it seems to me that mankind is a race of sleepwalkers, only half alive. Religion has sought conversion, or change. The change that I see to be needed is an awakening. Man needs to awaken to his tremendous potentiality, now only half realized. Man needs to

awaken to what he really is, the image and likeness of God, the expression of God's being, the heir to all the gifts and powers of a friendly Universe, bestowed on him by its all powerful Creator, who is his living Father.

The present age is characterized by the discovery of processes and forces, climaxed with the airplane, television and the split atom, which the people of the last century would have deemed impossible. These processes and forces given Man the means of dominion over the earth which was promised in the first chapter of Genesis, but not realized. Yet instead of these things giving Man dominion, and a sense of peace and security, he is as frightened at his own inventions as primitive man was of the beasts of the jungle. This is because in the same period of miraculous material progress—and they are miracles greater than those reported in the Bible—Man himself has made no comparable spiritual progress.

It is that spiritual progress which Man can make and must now make. Totalitarianism has used these wonderful inventions to enslave masses of men. Let us have something big enough to cope with totalitarianism. Let us have Totalism—the awakening of the individual to Total Living, to the assertion and realization of his God-given dominion and full activity.

## HOW SHALL WE HAVE TOTALISM—TOTAL LIVING?

From my vantage point of a newspaperman, I have noticed that only a few people are fully awakened to the need of doing what must be done. Most people are inhibited by a lack of faith, and by fear, and they give their really splendid intelligence and really great energies to petty pursuits. We have inherited from our forefathers a society of complete freedom. How few fully use this precious freedom. A man is afraid to stick his neck out, as he says. He is vaguely afraid that he will lose friends or customers or patients, or that some politician will raise his taxes or give him a traffic ticket. If these things really happened, would it be too great a price to pay to keep a freedom won by such bloody sacrifices—a freedom that can be kept only if we fully use it? But it is my observation that I have been able to make working as editor of a daily newspaper in each of three cities, that an American is rarely required to make any sacrifice at all if he assumes the responsibility of living totally as a citizen. Actually other people admire, respect, and like the man who dares to think,

to speak, and to do. He has more friends, more customers, more patients, because of it. Did not the wisest Man who ever lived promise that if we sought the Kingdom of Heaven and its righteousness, all these other things would be added to us. He knew what He was talking about.

On the other hand, the question arises whether a professional man might not gain too much from such activities—whether he might not gain too much favorable publicity for which he would be criticised by his confreres. Publicity is like happiness—one should not seek it or avoid it. *We do not find happiness by trying to be happy.* One should do what is right, then accept and enjoy whatever happiness results. Usually it is a good deal. One should not do anything just to get publicity, but if right activities result in good publicity, a professional man, I think, should not let his conscience hurt him, but accept it thankfully and enjoy the fruits thereof.

How then, shall a man live totally? He begins with religion, just as he ends with religion. I do not speak of the particulars of religion, in which one may differ from his brother of another faith, but of the central fact of all religions, the fact of God, the fact which nearly all men accept and depend upon. To establish a relation with this Center—the Center of the Universe and the Center of our own being—is the principal business of our lives. To establish our lives exactly on that Center is the beginning of Total Living; to be established exactly on that Center is the operation whereby we live totally in our worship, work, love and play. It is the end of Total Living whereby we achieve the sense of the perfection of the Universe, the perfection and infinity of oneself—not because of any particular being, or ability, or virtue or merit, but because Man—Everyman—in the absolute is perfect and infinite as the expression of a perfect Omniscient, Omnipresent, Omnipotent, Omni-active God, and the reflection of an infinite universe. It is thus that we feel perfect joy—joy that is unceasing except when we get off the Center. One of the things we have to learn is how to get back on the Center when we get off.

You put yourself on the Center as you put a record on the center of the phonograph so that the music of the Universe may be reproduced in you. Man is a light, but he must plug in the socket. Man is a power, but the mighty wheels do not turn until the switch is thrown. Man is a television receiver, but the program from God's

broadcasting studio in all its perfect movement, harmonious sound, and glorious color cannot be reproduced in you until your set is tuned in. Man is a tree, but he cannot grow until he is planted in God's nourishing earth and refreshing waters.

In using the series of four—worship, work, love, and play, I am borrowing from a member of the healing profession, Dr. Richard Cabot of Boston. I am not putting the words in the same order that he did. Worship comes first when it is used in the broad sense in which I have used it, not merely in the sense of attending Sunday services, important as that is, but in the sense of achieving a complete connection and a harmonious relation of the total individual being to the total universe.

Work just as surely comes second. "My Father is working still, and I am working." (R.S.V.) Our work takes more of our time than anything else. It is thru work that we do most of our living. If we do not worship God thru our work we do not worship Him. It is thru our work that we acquire the means with which to make the gifts which express our love to our families, our friends, the community and our brothers of the human race. It is that main course after which comes the dessert of play. Indeed, to the man who has found his work, work is more fun than fun.

The Marxists are wrong in their theory of economic determinism. They are wrong in thinking that our beliefs, ideals, and prejudices, and the actions which result from these are determined by our economic interests. If only men rationally followed self-interest! If only men were enlightened enough to do those things which would make them prosperous and happy, what a successful society we would have! Instead men too often are moved by irrational doubts, prejudices, and fears from doing the thing which is right and in their interest. For what is right and what promotes true self-interest are the same thing.

But this is axiomatic: any ideal which is not expressed economically, or which is not expressed in the way one earns his living, is empty indeed. Ideals are fully expressed in one's work or they mean nothing. They are expressed in doing the best work of which one is capable, and asking only a fair and reasonable return therefor; or practicing the Golden Rule, which is not a platitude. One must express the good that is in him thru his work or it will not be expressed at all. Rules of ethics, however, should not be thought of as

unwelcome limitations. They are the principles that assure a success that is lasting and satisfying. He who shares his profits and earnings with customers, clients, and patients, and with his co-workers, assistants and employes will not find himself the loser thereby. The universe is too well ordered to permit that to happen.

As worship is the attitude we take toward the universe, love is the attitude we take toward our fellowman. I will not say much about love. It has all been said by Henry Drummond in the noblest sermon one can find outside of the Bible, "The Greatest Thing in the World." Altho this little book can be found in every bookstore, I find that many of my friends have not read it. If you do not have this book, I will say as urgently as the hucksters on television and radio enjoin us, "get it today." I often prescribe the reading of this book once a week. I know a man whose life was transformed, made happy, and multiplied in its power and usefulness by the reading of this book.

Love begins with the family. The family has ceased to be an economic necessity but is seen to be of even greater importance as a social and spiritual necessity. Love does not stop with the family. The sense of family extends to the community, to the nation, to the world—the whole human race. This love, this concern for others, this realization that our own fate is in the hands of our fellowmen, will cause us to embark on activities outside our own home, outside our own work, outside our own profession.

We must engage in activities worth our while. We belong to luncheon clubs. But the activities of these clubs are seldom big enough to meet the needs of our time, or to employ fully our personal abilities. They are an escape and a refuge from really important civic activities that would challenge our powers and satisfy our souls. The average luncheon club is studious to avoid religion and politics and controversy. Most important activities come under the heading of religion and politics, through what is religious need not be sectarian and what is political need not be either dirty, or selfish or partisan. Controversy is not a good thing in itself. One should seek to resolve controversy by hearing all sides, in order to achieve understanding and tolerance, and eventually agreement and peace. But the individual or group which shies away from controversial matters is resigning from life and being content with futility. A controversial question does not disappear because our good, respectable, well intentioned citizens have chosen to ignore it. It is left

to be settled, often unsatisfactorily, by bolder, less inhibited, but also less qualified, and maybe less worthy, persons who take hold of it with firm hands.

One civic organization which every community should have is one to take care of the basic needs of democracy on a non-partisan basis; to see that the election and registration laws are sound and well administered; and that good citizens serve on election boards not as a matter of politics but as a contribution to citizenship, to study public questions. If your community does not have such an organization, I urge that you form one. We have such a one in Memphis, the Civic Research Committee. This organization helped to procure the passage of a permanent registration law and to initiate its efficient administration. A committee studied the question of voting machines and officials were persuaded to purchase them. Another committee studied the location of a downtown garage. These committee reports are submitted to referendum vote of the members by mail. Thus an intelligent public opinion is expressed.

When we speak disparagingly of politics, we mean petty or insincere controversy for party advantage, or the seeking of power for selfish or sinister purposes. But the original meaning of politics was quite different. The word "politics" comes from the Greek word "polites," meaning citizen. Thus politics meant citizenship, and we can make it mean that again.

One possible way to make politics mean citizenship is through the council-manager form of city and county government. True, an alert and active citizenship can obtain good government through any form. But just as a man can do a better job if he has good tools rather than poor ones, so citizens should choose the best form of government available to them. The council-manager form of government is a good tool for citizens because it enables them to wield the powers of government as citizens without becoming politicians. It works this way:

The citizens choose from among the citizenry five, or seven, or nine, or whatever number may be desired of their citizens who serve as the council. These citizens do not have to leave their business or profession to serve as councilmen. The job takes a good deal of their time, but not so much that they have to give up the work from which their income is derived. A busy business or professional man cannot be expected to give up his business and spend eight hours a day at

the city hall. He does not have to do this if he is elected a councilman, because the council does not attempt to do the actual work of administration. The council makes the laws of the city, determines the policies and hires a city manager who does the actual job of administration. The city manager in turn hires assistants and employes on a merit basis. Thus the entire organization is out of politics and in public service.

In council-manager government there is applied to local government the sound principles which have made the American business corporation the great success that it is. The people, the voters, are the stockholders. The council is the board of directors. The city manager corresponds to the manager of the corporation. Just as a business corporation pays its executives well, so does the municipal corporation. You get a high order of ability and performance that way. The profession of city management has become one which is well rewarded. That is good. It is better to pay for honest services of a high order than to pay for inefficiency and graft, as so many American cities have done in the past. Many city managers have saved their high salaries in waste eliminated and good results achieved.

When we find an instrument or process which brings out the best in human nature, we should use it. Council-manager government is such an instrument. It enables citizens to assume their responsibility for government. It enables public employes to get and hold their jobs on merit, and to do a good job for the citizens with the interferences and compromises of politics.

The complete man committed to Total Living will find another avenue in planning. Our cities need to be rebuilt, our new suburbs and towns and cities and our countryside need to be planned. We have congestion and slums. In the cities, where an ever larger proportion of people reside, Man is sundered from Nature. We have brought the conveniences of the city to the country, let us bring the charm and inspiration of the green country to the city. Let us have plentiful parks and broad tree-lined avenues.

Recently I stood in Radburn, New Jersey, the town built for the motor age. I saw houses turned away from the street and facing an interior park and playground. I saw how children could go from their homes to school without once crossing a motor road. They went under them by underpasses or over them by bridges. Yes, it is a rather expensive way to build a town or subdivision. But it can be

made to pay if the ground rent from the shopping center is used to lower the cost of the homes, as has been done by Philip Klutznik in building the wholly planned town of Park Forest, Illinois, a suburb of Chicago. But if it takes a subsidy, what better way to use the millions that Americans devote to philanthropy and taxation than by building cities fit to live in? A great city should consist of a metropolitan business, professional and recreational center, about which are grouped many villages with green spaces like Radburn and Park Forest. We should be content with nothing less.

So much for civic and non-partisan political activities. We need parties in national affairs. So the complete citizen, with a few exceptions, should choose one of the political parties, and become active in it, not as a politician, but as a citizen. Not to get a job, or a favor, or an advantage, but unselfishly to make democracy work. He will get something out of it, however. He will get prestige and importance, which will assure him that he will get a fair deal from government and officials. No sensible man wants a favor; it is embarrassing and belittling to accept a favor. But a sensible man wants what is rightfully coming to him. He wants to be protected from persecution and abuse. The citizen who is politically active is treated with respect by the opposition part even when it is the party in power. It is the craven, who is unwilling to "stick his neck out," who gets pushed around.

I am pleading for a bold, active attitude toward life, rather than a passive, "wait and see" attitude. If you "wait and see," you won't like what you see. Our troubles come from this passive attitude. The employer who neglects to establish just and friendly labor relations is confronted with a bitter strike; small disputes which might have been settled easily become monster difficulties. Yes, there are also unjust, causeless strikes, and such strikes also require an active citizenship to deal with them. American cities have often allowed their city governments to drift from bad to worse, then become aroused by intolerable evils to "throw the rascals out." That isn't easy to do. Why let the rascals get in in the first place? They could not get in if citizens took and kept the initiative by an active citizenship program. In international affairs we let things drift until we are confronted with a powerful aggressor and a world war. Why be passive? Why not build invincible power for peace by federating the free democratic nations?

So much for worship, work, and the love that includes a love for all humanity. How about play?

It is fine when play is sponsored by an organization with such a slogan as the YMCA. The YMCA expresses total living by urging that we live at oneness in the trinity of "Mind, Spirit, Body". The Y would have even our play such as would not damage, but benefit mind, spirit, and body.

It is said that there are encouraging signs that people are turning from spectator sports to individual activity—hunting, fishing, baseball, tennis, "do-it-yourself," crafts, arts such as gardening, music, sculpture, and painting. This leads us right back to individual civic and political action. For if we are going to have hunting and fishing, we need an effective federation of conservation forces, to get conservation out of petty politics. We need state constitutional amendments to unify all conservation work in a conservation department which is governed entirely by a non-political merit system. Here is an interesting field of work for someone.

How do we get the inspiration for Total Living, and the strength for active worship, work, love, and play?

By a daily quiet time, a period of at least fifteen minutes of prayer and meditation, in which one listens for the guidance of God. He allows, Love, and Life to dominate his mind which is opened to the inflow of His Infinite Power. Plug in, tune in, throw the switch. Get in touch with Headquarters. Be in contact with the Source of supply. Those who form this habit soon find that it is so profitable that a period of fifteen minutes is not enough; once a day is not enough. They stay on the Center in all that they do, and, "pray without ceasing." The most important fact of life is that "in Him, we live, and move and have our being." We live fearlessly and actively, for "if God be with us, who can be against us?" We live totally, and we live every moment.

## 3. THE HEALTH TEAM

FREDERICK C. ELLIOTT, D.D.S., *Houston*[1]

*In the Beginning*

It has been said that the moment a man is born he begins to die. This may well be said concerning the birth of the world. Disease has

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been a major force in directing world evolution. Long before man, disease was making history by its effect on the existing forms of life. Dental caries, the arthritides and other like diseases, the effects of which can be studied by paleopathologists, left evidence of degeneration by disease some three to three and a half million years ago. The evolution of medicine has been essentially the development of civilization. By the very nature of disease man has been forced, since his beginning, to make the alleviation of suffering, and the development of cures for his ailments an important part, if not the most important part of his struggle to survive.

From the beginning, the disease entity, which was uppermost in the mind of man, was shrouded in mystery, sorcery and superstition. Even today it is surprising to note that a large portion of our world population still have this belief, or why else should cults, quackery and fraud in the cure of the sick still exist?

Our march through time to the ultimate in living has been impeded by the persistency with which we have clung to the superstitions, fears, dogmas and traditions of the past. It was not until quite late in the dawn of man that medicine was emancipated. It was Hippocrates[2] who set straight the medical thinking of his time when he said, "Medicine should be disassociated from magic and priestcraft and treated scientifically as caused by, and subject to, natural laws." It is interesting to note that early in the history of medicine, special attention was given to specific parts of the body by the physicians of the time. Herodotus[3] mentioned that "the country is full of physicians. One treats only diseases of the eye, another the head, the teeth, the abdomen and the internal organs."

This brief reference to the early beginning of medicine is to point out that disease and its effects through time, have been of major concern to man, and that man has sought some magic way to overcome the invading demons causing his particular disease.

*Yesterday*

As medicine became more and more a part of authentic record, its evolution as a science and art can be followed more accurately. Throughout the history of medicine, from the beginning to the

[2] LUFKIN, ARTHUR WARD, D.D.S.: "History of Dentistry", Chapter II, p. 47, Lea & Febiger, Philadelphia, 1938

[3] Ibid, p. 30

present, the approach to health has been by way of disease. The fear of the great killers and cripplers such as yellow fever, typhus fever, typhoid fever, tuberculosis, cholera and others caused the men of early medicine to seek out the cause, and if possible, find a cure, then to look for a way to prevent. As we know and appreciate, the great killers of yesterday are conquered. More infants survive. Life expectancy has been increased. Gerontology, as a medical science, is becoming an important part of the medical curriculum.

The cripplers and destroyers of today are in ascendance because man lives long enough to succumb to them rather than to have died earlier from some conquered disease. Here then, the evolution of prevention in medicine took form. It is not too long ago that we began to realize the possibilities of prevention. We became conscious of the mass phenomena of disease. The field of public health was born.

*Today*

With the rapid accumulation of medical knowledge, special skills and services have been developed by the various groups who treat the sick. Group service is being extended.

This group approach to the treatment of disease is recognized as the only way by which the patient may receive a total treatment service. Throughout the world, efforts have been made to bring together the various groups responsible for the care of the sick so that better treatment methods may be provided by co-operative effort. Largely though, the movements have, like Topsy, "just growed up," rather than to have been planned to meet a definite health objective.

In cities throughout the world, centers for health education have developed. Because of tradition, it is possible that the early approach to health care will still be in evidence in each of these centers. Service will be for the sick; each member of the team will wait for the sick to come to him. The emphasis will be upon "treat the sick as a necessity," rather than upon "serve the healthy as an obligation." In many instances this traditional approach will result in incomplete services.

MEDICAL CENTERS

What then can be the contribution of a modern health center to the welfare of the people?

As Wendell Johnson[4] has said, "Words have a way of becoming the 'thing' in our minds." The word "medicine" down through time has been associated intimately with disease and sickness. If it is not possible to disassociate the word medicine from this meaning, then it seems better to speak of Health Centers rather than Medical Centers.

Medical Centers are of all types. The manner of their establishment has determined largely their plan of operation. Some have emerged from private practice such as the center in Rochester, Minnesota, some have emerged from excellent hospital programs, such as the Columbia-Presbyterian Medical Center in New York, some have emerged from medical schools. These centers usually are under a central administration. The Chicago Medical Center, one of the largest in the United States, is an example of one without central authority. The Chicago Medical Center Commission is developing a geographic center for purposes of cultural growth as well as to bring group health service to the most populated area of Chicago. Through the efforts of the staffs of each institution in the Chicago Medical Center co-ordinated activities are being developed. In general, medical centers have grown into being for the convenience of the health service groups.

## THE TEXAS MEDICAL CENTER

### *Physical Plant*

The early concept that we had for a center in Houston carried the name, "The Memorial Center for Health Education." It can be presumed that common usage would have shortened this name to "The Health Center." The Texas Medical Center was established in a different manner. Based upon presentations made to the members of the Board of Trustees of the M. D. Anderson Foundation, a Texas corporation, they established a Medical Center. One hundred and twenty-eight acres of land were purchased adjacent to the Hermann Hospital, which was established earlier by the Hermann Estate, so that the area available for a medical center comprised approximately 164 acres. This acreage was plotted for teaching institutions and hospitals. No specific institutions were in mind, the

[4] JOHNSON, WENDELL, "People in Quandaries", p. 7, Harper & Brothers

plans were based upon the need for a total medical center program. Through the combined resources of the M. D. Anderson Foundation, the Cullen Foundation and several other foundations, and from contributions from hundreds of citizens of Texas, a sizeable building program was underway within a short time.

*The Present*

The Texas Medical Center is only eight years old. Completed in the Medical Center now, or in the process of completion, are buildings for the Hermann Hospital with 765 beds, St. Luke's Hospital with 340 beds, Methodist Hospital with 315 beds, Texas Children's Hospital with 115 beds, the Arabia Temple Crippled Children's Clinic with 50 beds. These are all private hospitals. The City-County Hospital with 720 beds and the M.D. Anderson Hospital for Cancer Research with 310 beds are City-County and State-supported hospitals. These institutions comprise the hospital group for the present. Plans call for other hospitals of various types to be built later.

The educational institutions in the Medical Center are, Baylor University College of Medicine, the University of Texas group consisting of the Dental Branch, the Postgraduate School of Medicine, the M. D. Anderson Hospital for Cancer Research and Tumor Institute. Later to this group will be added a school of public health, a student-union building, and an institute for health education of the public. The University of Houston group consists of the College of Nursing and the College of Pharmacy. The building for the Dental Branch of the University of Texas provides quarters for the College of Dental Hygiene, the Postgraduate School of Dentistry, and the Institute for Dental Research, in addition to the Dental School.

The Methodist Hospital provides quarters for the Blue Bird Clinic for the treatment of neurological diseases of children, and the Speech and Hearing Center. Central library facilities are provided in the Academy of Medicine Library Building. When completed, this building will provide quarters for the Houston District Dental Society, the Harris County Medical Society, the Administrative offices of the Texas Medical Center and others, as well as a private professional club open for membership to members of the health service professions. When the buildings for these institutions are

completed, they will have cost approximately fifty-seven million dollars. About two-thirds of this amount has been obtained from private sources.

This cost does not include the value of the grounds, or the value of the improvements, such as streets, sewage systems, street lighting, and other physical values of a like nature. Approximately sixty acres of land is still available for additional institutions.

*Plan of Operation*

The institutions in the Texas Medical Center are operated by their respective governing boards. The administrators of these institutions are responsible to their boards. The Board of Trustees of the Texas Medical Center maintains administrative offices under the supervision of a full-time Executive Director. This board and its administrator serve to integrate and co-ordinate the activities in the Center, as well as relate the program to the organized professions and to the public. The programs of co-ordination and integration are being developed for administration, as well as for institutional functions.

The Council of Administrators consists of the heads of the institutions in the Medical Center. Since the Medical Center is located within private geographic boundaries, the care of the streets, utilities, the policing of grounds, parking and the like, are governed by the Council. The Executive Committee of the Council is responsible for the execution of the actions decided upon by the Council of Administrators. Some actions of the Council may need to be recommended to the Board of Trustees of the Medical Center for action; or in some instances, actions may need to be recommended to both groups. The Executive Director of the Medical Center serves as Chairman of the Council of Administrators, also as Chairman of the Executive Committee.

The members of the Boards of Trustees of the various institutions in the Medical Center are prominent citizens of Houston and other cities in Texas who have a high degree of interest in matters pertaining to health. Some of the members of the Board of Trustees of the Texas Medical Center are also members of the Boards of the large foundations; others are members of the Boards of trustees of the institutions in the Medical Center. Also the members of the Executive Committee of the Council of Administrators serve as members

of the Advisory Committee to the Board of Trustees of the Texas Medical Center; they attend all meetings of the Board of Trustees. So that the organized professions can be kept informed of the activities in the Texas Medical Center, liaison committees of the professions—medicine, dentistry, nursing, social service and other groups—meet regularly with the Council of Administrators. Here, professional and institutional problems are discussed. This plan permits the full discussion of differences of opinion, which may arise between private practitioners and the members of the staffs of the institutions.

## THE OBJECTIVE—THE HEALTH TEAM

### *Prevention of Disease*

The great contributions of such men as Pasteur, Lister, Ehrlich and others have paved the way for the prevention of some of the infectious diseases. The search started by them for measures to prevent sickness and death by disease still continues. Tuberculosis will probably be conquered within the next few years; the virus of poliomyelitis has been identified and may soon be of as little concern to us as the virus of smallpox. Thousands of scientists are engaged in the battle against cancer. If we are to believe the television scientists, dental caries, too, is on the way out.

The approach taken for the prevention of disease has emphasized two aspects: first, the use of agents for immunization of individuals by physicians; and second, the need for measures to control sources of infection in society. Public health measures have been developed throughout the world for this purpose. This is prevention aimed at disease control, which is only a part of the whole program. Now that the concept of public health includes the prevention of the deficiency diseases, as well as the infectious diseases, a much broader program of prevention can be developed through the initiative and under the supervision of individual doctors.

It is time that the trend through the immediate past years and at present be turned in a different direction. Public health measures should be instituted, supported and controlled at the local level. It is interesting that effective public health measures are slow to develop locally. The most effective public health effort has been at the national level. One should be aware that social activity, such as public health, on a large scale basis at the national level can become

"dogmatic, routine and authoritarian." At the state and local levels public health programs can be more efficiently and better supervised, provided progressive action is taken by the members of the local professions. Chauncey Leake,[5] in a recent article, states, "In whatever community a full-blown public health picture has developed, along with individual endeavor, toward the prevention of disease, there has been an increased health awareness on the part of the people with resulting increase in calls on the services of the health team. For many decades, dentistry has thrived on the individual practice of prevention of mouth disease. Dentists have developed a superb method of practicing preventive medicine with satisfaction both to patients and themselves."

*Promotion of Health*

Now that prevention of disease has become as fully entrenched in our thinking as treatment of disease, the final and real objective of the health professions can be realized—the promotion of health. To progress toward this important aspect of the health services, emphasis should be upon health, rather than upon disease. The whole attitude and desire of the modern doctor should be one of health. With a clear-cut vision of health in mind, the doctor and his fellow members of the health team should approach the treatment of disease in a different manner. They should no longer be interested in just curing a disease. Now, they should wish not only to cure the disease, but also they should wish to return the patient to a state of health and provide ways and means to keep him healthy. Radical surgery may cure a patient of cancer of the face, but produce a horribly mutilated person, who, because of inherent traits may, because of post-operative mental trauma, develop a schizophrenia, if a whole health service is not planned.

Health—mental, physical, environmental and social, can be assured to the individual only through group effort. It is a new approach in an old field. Much needs to be learned, not so much in the scientific or technical fields, but rather in "how to work together." To promote the best interests of all members of the health group will without argument, promote the best interests of the people whom they serve.

[5] LEAKE, CHAUNCEY D., "The Expanding Tradition of Health Service", Texas Reports on Biology and Medicine, vol. 10, number 3 p. 697

Doctors must learn new business methods—how to charge for health advice as well as for sickness service. Routine advice and check-up periods, looking at the whole person and his way of life, should be the doctor's future office contact, for which fees will be collected in advance on an annual basis. All members of the team must be made a part of this program if it is to function properly. How to do this is one of the most important research projects facing the health group today. If their results are successful, they will be of great importance to humanity, just as great as the discovery of the cause of cancer. Who can surmise the effect upon world affairs if all that we know now about health could be universally applied.

*The Team*

To promote this action and obtain for our people the best health possible is an immense task. Such a movement calls for the work of experts in many diverse fields. Health is a total entity. It is the sum of, and a way of, life. It includes not only physiological wellness, but also mental poise, economic stability and security, a clean, comfortable environment, and a serenity that overshadows all, an understanding of God. This challenge is the challenge provided for us by our Creator—the abundant life.

For practical purposes, however, the field of endeavor of the health team may be narrowed to the promotion of good physical and mental health. Yet a constant warning signal must be sounded and directed toward those who are charged with carrying out the other aspects which are a necessary part of a total health program. The health team, then, points their program in both directions; first, toward fulfilling completely their charge to cure and prevent disease, and second, toward the promotion of health. Therefore, the health team serves two groups of people, the sick and the well, from whom each member of the team will receive ample compensation for a full and complete health service.

For some fifty years we have watched the growth of a program similar to the thought just expressed in the field of child health. Wherever good child health programs have been developed, an appreciative public has approved. Surely no one can deny that these programs are largely responsible for reducing the infant mortality rate throughout the nation. This example is sufficient to justify the serious study of the gradual development of an over-all health

service under private control. Now, health centers, or medical centers if you wish, must begin the development of educational programs that will train the members of the health team to render such services. We observe a rather loose relationship among medical doctors, dental doctors, pharmacists, nurses, medical laboratory technologists, radiology technologists, physical and occupational therapists, veterinarians, medical case workers, sociologists, clinical psychologists, public health workers, hospital administrators and the ministry. This is a remarkable list of health auxiliaries. They constitute the nucleus of the team which should also include dieticians and medical and biological researchists.

It is natural and right that the medical doctor take the leadership in the development of the team. Therefore, it is basic that the medical school in the health center be responsible for the teaching of group thinking, understanding and service to their students; and also in bringing together the institutions engaged in the training of the other members of the health team. It must be emphasized that this movement will be warmly embraced by all participating institutions, provided that the teachers in the medical schools recognize fully that they are only members of the team, and that they show equal respect and admiration for the services rendered by all of the other members of the team. This is the objective of the Texas Medical Center. Here, by direction and by integrated programs, each institution is being interwoven with the other.

Research, education and patient care, the everyday work program of the institutions in the Center, are kept in a state of free movement so that reorientation and reorganization can be a continuous process. Research programs are under way and being planned to make use of scientists from any of the institutions in the Center. Likewise, interwoven teaching programs are being developed. Though all teaching institutions are independent, some of their faculty members teach in several institutions. They enjoy this arrangement. The student profits, the teachers can be better paid.

And so it is with patient care; throughout the Center, the common interest is the welfare of the patient. Faculty members from all of the schools in the Center teach in all of the hospitals. Teachers from medicine, dentistry, postgraduate medicine and dentistry, nursing, and medical social service, work side by side as a team of teachers teaching a team of students to develop teamwork in the care of the

patient. For example, it is uncommon in the City-County Hospital for plastic surgery to schedule a head and neck operation without checking with mouth surgery so that both teams may be present. Plastic surgeons respect the part that mouth surgeons play in bringing the best service possible to their patients.

This sounds like Utopia in Health, but it isn't. We have many gaps, overlaps, and faults to eliminate, and much of a traditional nature to overcome. Any program as new and as all-inclusive as this is viewed in the first instance with suspicion and mistrust. As time goes on, this changes to a situation of aloofness. Finally, as the program becomes understood, it is embraced with an "I told you so" attitude.

Time, tolerance, perseverance and good will are the elements necessary to bring about mutual understanding. Time will not permit, nor is it essential to explain each element of our program. However it is hoped that you grasp the significance of the idea so that you may view with interest and good will the programs similar to ours which are developing throughout the United States, and particularly in your vicinity. The University of Tennessee has been out in front in the development of this type of program for some time. Throughout the South the medical center here has exerted a decided influence upon the development of good health programs.

*The Future*

To think ahead, the present must be viewed broadly and wisely. If by neglect we fail to apply or make use of known knowledge and devices for improvement, we cannot expect future plans to be laid soundly.

To plan for the future health welfare of the nation, community professional groups should be brought together to discuss on a mutual basis the development of the health team concept. Permanent mental scars of frustration might be prevented if the early educators would direct the attention of those interested in a career in professional health service to the health team concept. If the choice of a vocation could be delayed, it might well be that a large number of those who apply to medical schools for admission now, might find a satisfactory outlet in some other health service field where applicants are needed and opportunity is great. Firm determination to develop admiration and respect for each profession must be in the minds of

those who guide the educational programs of these young people, and also in the minds of the medical and dental doctors who advise them. Young women, interested in health services, should be guided into nursing where ample opportunity is available for serivce in a profession, as equal in importance to the patient as the services of a doctor.

Once the team spirit is engendered in the minds of the health workers in teaching, research and patient care, mutual understanding, stimulus, inspiration, and adaptation will develop. Possibly, because of this, the artificial, social, economic, and prestige barriers, which have existed between some health workers in the past, can be eliminated.

### CONCLUSION

This has not been an impossible dream. If all doctors will act "as well as they know" and be generous in their enthusiasm and admiration for the services rendered by the other members of the team, there could develop the type of health program that all health workers wish. Fully displayed confidence in each other will be sufficient to serve as the stimulus to justify the confidence placed. An honestly placed trust serves as the greatest force known to build morale.

Full credit is given to Chauncey D. Leake for the inspiration which his article, "The Expanding Traditions of Health Services" (Texas Reports on Biology and Medicine, Volume 10, Number 3, Pages 691–702, Fall, 1952) gave in the preparation of this paper.

## 4. EDUCATION

E. C. STIMBERT, *Memphis*[1]

May I compliment you on a unique theme for your convocation, "The Art of Living." Any thought, word, or deed that makes for greater mutual understandings in this our day is a contribution not to be taken lightly. When various groups are able to discuss and appreciate the contributions of others to our culture and our way of living then we are on the way to making living an art. Living then takes on an enriched quality because some of the selfishness, so characteristic of much of history, has been reduced. Your convocation makes possible an exchange of ideas about the contributions to

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the art of living by the professions, christianity, government, public health, science, and agriculture. I am happy that the profession I represent has been invited to share with these others. Surely each representative on the program should be allowed a bit of license to believe that his area has made the most important contribution. Shall we not call this honest competition rather than selfishness on our part? If education has not made a significant contribution to the art of living then a mistake has been made in including it. I believe it has and I would like to share my thinking with you. I grant at the outset your right to disagree with me about any conclusions logically drawn or inferred.

First let us delimit our field just a bit and say that in the final analysis we are thinking of a particular kind of education and a particular kind of living. The kind of education is that to be found in these United States. The living is not so much the art of living as it is "our way of life." Actually the motivating thought in this paper is education's contribution to our way of life. Here in America we are committed to the idea which with us has become an ideal that all the children of all the people shall have a right to an education. This ideal was and is such a logical development for Americans because here we also had the dream and the reality that a "man had some worth." In no spot on the globe and at no point in history has man come as close to being the Man God intended him to be as here in America. This man has worth, he has dignity, he has potential. Because we believe that we believe that man should be permitted to develop those potentialities; hence the embarking on the biggest mass education project known to mankind. Have we selected one of the best media for developing a high, lasting culture here in America? Only history can give the final answer to that question—but what do some others think about it:

"All who have meditated on the art of governing mankind have been convinced that the fate of empires depends on the education of youth." (Aristotle)

"The sure foundations of the State are laid in knowledge, not in ignorance, and every sneer at education, at culture and at book-learning which is the recorded wisdom of the experience of mankind is the demagogue's sneer at intelligent liberty, inviting national degeneracy and ruin." (G. W. Curtiss)

One more last quote. Last September—1953—the Eighth National

Conference on Citizenship was held in Washington, D. C. Some 800 groups interested in the subject were registered. I quote from the summary: "How do we make sure that our people know how to use freedom—and continue to use it? How do we make sure that they are masters of all the intricate skills required to live in a free society. It comes like a chorus from all the groups—EDUCATION. As an educator I am always amazed at our people's faith in the power of education." The power of education: Will you take a look with me at your America? And may we be so bold as to suggest that you might give our ideal of mass education a part of the credit for this picture?

America is the greatest industrial nation on earth. Its area about 3 million square miles—is smaller than that of Soviet Russia and even of Brazl. Its population—over 150 million—is less than that of India or Cihina. Yet its industrial power equals that of all the rest of the world combined. Take for example just one industrial essential—electrical power. The United States produces 326 billions of kilowatt hours against Russia's 65 and Great Britain's 10. Or take one item of output of manufactured products—steel. We produced 84 millions of metric tons, against Russia's 19 and Great Britain's 12.7. We have a high output of basic materials and sources of power. Equally important our nation has a large number of people to do its work. An unusually large proportion of these workers are highly skilled and have developed remarkable inventiveness and "know-how." Natural ability has been multiplied by ingenious machines. The owners and managers of businesses and industries have developed techniques and qualities of leadership which help to synchronize these multitudiness activities. *America is often called an industrial giant.*

But that is not all the picture. Your America—The United States is the leading agricultural nation of the world. America has fewer people than Russia—150 million to their 200 million. And a smaller percentage of them work on farms—our 12% against their 65%. Still in terms of percentage, America has nearly twice as much of its land given over to crops, and American farmers produce more than two and a half times as much grain. American farmers have five times as many tractors as the Russians. Rural America is made up of nearly 6 million farms of which more than two thirds are operated by the people who own them. But that is still not all the picture.

While there is room for improvement in the living standards of many Americans, the average American is much better off than the average citizen in most any other country. He works far fewer hours than others. Again citing Russia as an Example:

An american works 7 minutes for 1 pound of bread—A Russian 31

An American works 10 minutes for 1 quart of milk—A Russian 1¼ hours

An American works 7½ hours for a pair of shoes—A Russian 104½ hours.

Many other illustrations would prove the point.

Since an American works fewer hours for these so called necessities he can afford many things that are beyond the reach of people in other lands. In one year recently American citizens drove 30 million passenger cars about 300 billion miles of which nearly half was pleasure driving. The average American works 250 days. Of this amount 144 are spent in providing food, clothing, and shelter. 34 days takes care of transportation, personal expenses and medical attention—including dental (?). He puts into savings the earnings of 21 of his working days. 11 days are spent in providing recreation—sports, trips, books, theatres, movies, and music. Seven days' pay goes to his church and charity. Twenty six days are required to keep the many services of government supplied with sufficient income.

Some of you will say this is an extremely materialistic point of view of America's greatness. The picture leaves out too much. I have two answers for you. First the spiritual aspect of our living is to be covered in another portion of this program so I am exercising my right to continue the historical separation of Church and State. Education in America is a function of the State. Secondly: America comparatively speaking, is a very young nation. We are practically infants in the historical international scene. We grant we have a lot to learn and much development needs to take place before we lead also in the use we make of time released for the fine, the high, the true, and the beautiful. But I am simply not willing to discount the fact that we have hewn a mighty nation out of a raw wilderness in a relatively short length of time. Thanks in part to our belief in educating our citizenry. Of course to keep our true perspective we have to understand that education too has undergone many changes since the first schoolhouse was built on the shores of a new continent. Since

we have taken a look at America today—her might, her power and her potential let us take a look at a modern school. Because if we have some agreement on our basic premise then this modern school will make its contribution to the Art of Living in the America of tomorrow. Why do we send our children to school? What do we expect them to learn in school? What do they learn and how well? We Americans are spending about $5,000,000,000 a year on education. What are we getting for our money? There was a high respect for education in Colonial times. Can education command that same respect today? Can we still have the faith that through education one generation can help the next to live the good life, preserve the good values, improve as individuals, and promote the civic and economic welfare of all?

Let us put this modern class room in its proper setting. The setting is not Colonial. The setting is Modern America and changes have taken place in our science, art, methods of communication, jobs, recreation. All kinds of changes have occurred in the home—cooking, sewing, lighting, family transportation, gramophones to TV Coaxial cables with pictures in compatible color. The child who took American History in 1910 found that his textbook ended at a point just beyond the Spanish American War. Since that time we have had the Hague, World War I, the League of Nations, prosperity of the twenties, the great depression, World War II, United Nations, War in Korea. Since 1910 America has grown into the air age and the beginning of the atomic age.

Now if I were to attempt to describe to you in technical detail a typical classroom of today and what goes on in it I might have the same difficulty you would experience if you tried in ten short minutes to tell me all about the techniques that go into the successful extraction of an impacted molar. But I would not have to be a dentist to understand and appreciate the explanations you might make to me about the reasons for and the ways to achieve and maintain an aseptic condition during the removal. I could also understand reasons for the removal and in general have an appreciation of your training and skill in accomplishing a task that would mean greater comfort and perhaps greater health to my being.

I believe I can describe for you who are non-teachers some of the activities that do go on in the modern class room and that are expected of the present day teacher. Keep in mind constantly that we

are doing this against the background of what Education has meant to America and what it must mean in the days ahead. Education contributes these things to our way of life.

Good schools are not neglecting the three R's and the fields of subject matter. To improve literacy and to pass on certain "fundamental facts" was the first purpose of our schools here in America. Good schools still adhere to that purpose. But in a much expanded fashion. Good schools are doing an ever better and more effective job of teaching the basic skills and the basic fields of knowledge. The "so-called" tool subjects truly become the tools by which the pupil manipulates his learning world.

Readin? Ritin? Rithmetic? Now there are far more than just the three R's. The skills of thinking and communication are many. There are different kinds of reading—pleasure reading, work reading, reading to get the main idea, and reading for details. Arithmetic skills include reading, reasoning, and computation; and writing today may include typewriting. Our America demands a highly literate citizenry. The classroom of today furnishes the tools but in addition concerns itself with the physical development and health of the pupil.

Physiology and Hygiene have been replaced by a broad category of health and safety areas in the curriculum. It includes individual health, public health, physical education, personal grooming, safety, sportsmanship, and an understanding of growth. Nutritious lunches are served daily in the majority of schools as a part of this program. I guess you could find something about the care of the teeth in this program but I can't guarantee we will have every pupil see his dentist at least twice a year. The modern classroom and the teacher working therein is expected to place some emphasis on such goals as having the pupil understand himself in order that he might achieve some modicum of mental health and emotional stability. Of course the school is not the sole agent but the school could undo much of what is done by the home and other institutions in this area if it did not give some thought to it.

A literate citizenry? Yes. A healthy citizenry? Yes. A stable citizenry? Yes. But we are not yet finished with our list. The modern classroom is expected to give attention to those problems involved in living in a society with other people. The ethical and moral behavior of the members of that society have become through the years a

part of the responsibility of the school, again shared by homes, churches and kindred organizations. Schools are expected to produce a product which practically has all the characteristics of a near perfect individual—a person with integrity, industriousness, honesty, loyalty, cooperativeness, sense of responsibility, respect for personal and private property, and with good judgment and common sense. No small order as you can readily see. But in our kind of country—Our America we must have people who know how to get along with each other. The motivating force in America is from within—stemming from a recognition of real values. In other countries and under other "isms" the force can be applied from without and the individual compelled to get along—or else.

While all these things are going on in the classroom while situations are being created so these things can be taught, the teacher also has the responsibility of teaching much information—geographic facts, government, economics, history, science and many appreciations—art, music, literature and many skills—communicative and vocational.

Yes, the classroom of today is a busy place. Of course you realize that not all these activities are going on all the time in each classroom but those who know best about such things have classified these materials and these activities according to the ages and maturity of the groups to be taught. Each teacher moves the program one school year along the road toward completion. It's a challenging business. Potential results are practically unlimited. Education is truly the bulwark of American democracy.

Up to this point we have painted a rather attractive picture. Life in America—and the impact of the ideal of education for all people on that life. We live well and happily together as a people. To this point I have not digressed too far from the subject assigned. But I have purposefully saved some time to let this group know that in this one area of education there are some dire threats hovering over this America we love so dearly. These are threats if we are agreed that education is essential to maintaining and promoting the American Ideal. The underlying reason for our difficulty lies in an epidemic that has swept over the country. It is spread by a bird called the stork. Unlike your profession which flourishes on satisfied customers —and the more the better—the business of education is in danger of having to make some adjustments that in ten or fifteen years might

mean the end of public education as you and I know it. Let us turn to a few statistics and facts:

In 1953 there are 34,775,000 children between the ages of 5–17. In 1960—seven years from now—there will be 42,244,000 children between the ages of 5–17. That is an increase of 7,469,000—7½ million boys and girls. The impact of this increase in population will be felt in every activity of our national life—clothing, recreation food, transportation. What a market. What a challenge. But they will also go to school. A million new pupils a year requires approximately 34,000 new classrooms and new teachers.

But already across the nation we find overcrowded classrooms and half day sessions and teacher shortages. (Let me hasten to add that this discussion is about the national situation and does not apply locally. The Memphis City School system has added about 125 classrooms every year for the last few years and as is true in other metropolitan areas is in a more favorable position relative to teacher supply.)

In America we are already 350,000 grade and high school classrooms short. Add another 230,000 over the next 7 years to take care of the increase and you begin to get some idea of the critical classroom shortage—also teacher shortage because a teacher must be placed in each classroom.

Looks like the nation will have to do some building—just as you would have to expand your facilities if you had a tremendous increase in patients and then finally you too would reach a point beyond which you could not personally serve another patient. You must also take into account the fact that the problem lies not alone in increases. But teachers die, they retire, they resign. The replacement problem just to maintain the present ratio is a difficult one since teaching is not just the most remunerative occupation a young man or a young lady can go into.

Take high school science teaching as an example. Because you see to complicate the picture still more there are certification problems and requirements. Frankly I like to know I have a qualified dentist drilling on my back collar button. And frankly I like to know the teacher in the classroom where I send my child is a qualified teacher. And that word qualified to me has more meaning than just paper qualifications.

In this atom age, when emphasis is placed on things scientific the

number of science teachers graduating from U. S. Colleges and Universities was 4,665. Do you know how many we need to fill vacancies —slightly more than 7,000. Check pay scales and you will understand the competition faced by the school administrator when attempting to hire teachers. 75,000 teachers—elementary and high left our profession last year. Reasons? Various. Some because of low pay, some because of overcrowded classrooms, some because of pressure, some because of community conditions, and some because they shouldn't have been teachers in the first place.

We spend about $5,000,000,000 in America on all forms of Education. We spend 15 billion on smoking and drinking. We spend our money for that which we want most. So let no one say that in this nation of ours we are financially incapable of solving our educational problem.

Housing, recruitment, and money problems will have to be tackled and solved during these next seven critical years. In your various communities you can assume positions of leadership in solving them at a local level.

If I have been presumptuous in presenting this matter to you I can only ask your forgiveness. I appreciate the fact that other professions have problems somewhat similar in nature. But in our belief that education is a part of the very life giving blood stream of America we feel constrained to inform a group such as yours which surely is as much concerned about the danger of education being unable to adequately contribute to our way of life as you are interested and pleased about the contributions it has made.

"Mankind's advance toward the great freedoms and the great inspirations of the human spirit can be as rapid, and only as rapid, as the rise in the level of thinking and acting brought about by improved education. . . . The quality of education cannot rise above the character and competence of those who teach." (From address by Francis Chase at the Miami Beach Conference.)

Toynbee in his monumental history work traces 23 civilizations that rose and fell. In all 23 instances they decayed from within and then fell to the barbarian from without. Educations contribution can and must be the prevention of that internal breakdown. It alone can keep our people free because its product is unfettered mind. Against an educated democracy no force of evil or tyranny can prevail.

We invite you to be continually interested in education—your

profession has a stake in it. Be justifiably proud of its accomplishments and soberly concerned about its problems. Let school people in your communities know that you have faith in them, that y u believe in this greatest of all American institutions and in return for that support the teachers of America will endeavor to guarantee that oncoming generations may be privileged to enjoy living in an America that is still free and where living is truly an art.

## 5. SCIENCE

BROTHER J. EDWARD, Ph.D., *Memphis*[1]

That science has contributed to the increase of the average life span is beyond a doubt. However, the scientist referred to when speaking of life span is the physician or dentist not the physical scientist. The physical scientist seems to be obsessed with the atom these days, and one wonders whether he would bother about anything as practical as life. Dr. Vinsant, in explaining the nature of this talk, suggested that I bring in something about the atom. The difficulty is not in including the atom rather in attempting to keep the mighty atom out of any scientific discussion. That the atom is associated with destruction, newspaper headlines and space patrol television programs, we might agree, but what has it to do with our discussion of life? Answering this in the method of Socrates, I will pose three questions:

1) How do physical-chemical changes affect living things?
2) Can body changes be explained by the electrons of the atom?
3) Is the quantum theory related to the study of life?

Before we can attempt to touch the first three questions let us consider the following three problems:

1) Is the prolongation of life possible?
2) Can life be preserved in a test tube?
3) Can scientists create life?

Having covered the above six points we will see if the study of the nucleus of the atom can add to our knowledge of life.

### THE PROLONGATION OF LIFE

Dr. Stepan Mikailovitch Sabotkin, a refugee from the Russian MVD (secret state police) has recently reported in one of our popu-

[1] Department of Science, Christian Brothers College.

lar science magazines a rather ghastly experiment to preserve Joseph Stalin's life.[2] There existed what he referred to as the "Sanatarium of the 30 Stalins." In this sanatarium were men 60 years of age and over, with the same background and physique of Stalin, rugged, broad shouldered mountain folk. As you have guessed, these 30 stalins, at the Kiev Clinic, were the human guinea pigs on whom scientists tried drugs and serums, and elixirs of life to determine a way to keep the original Stalin alive. Eleven of these hapless Georgians died within the first three months, and three more before the year finished. They were quietly replaced by more "volunteers." Another man, Dr. Sagisnitt, had a special life machine for Stalin, somewhat resembling a piano in shape and movable. This machine was to take over the action of the heart, lungs and the circulatory system in the critical six minutes which follow clinical death. The doctor and his machine were always close to Stalin, even accompanying him on some train journeys. However the machine was kept out of sight so as not to remind Joe of the grim eventuality in store for him. The author had dreams of Stalin living to be one hundred, but a few months after the article was published Joseph Stalin quietly died like all other humans before him.

In spite of this failure to immortalize one man, the findings of scientists have increased the average life span approximately to 70 years. This increase of average life span is not due so much to the prolongation of the life span of the higher classes but the application of scientific methods to the average person's health. The work of physicians and dentists center on the fighting of disease and decay, and they have been successful. As a patient from the famed Mayo Clinic said, "They have drugs so new that they have not discovered diseases for them yet." There is another class of scientist that we do not usually consider in our battle for life. These are biophysicists and biochemists attempting to discover the nature of the life processes, in what is cynically called "worthless research," for example:

1. Understanding the life process is a fundamental piece of knowledge. A scientist discovering such fundamental ideas receives the same thrill as Balboa on first seeing the mighty Pacific. This is *pure* research called by some irreverently as "worthless" research.

2. If the nature of life is discovered many practical applications

[2] S. M. Sabotkin, "Laboratory of thirty Stalins", *Science Digest*, **33:** 11, April 1953.

might follow as to the preservation of life. History has shown that this so called "worthless" research is a forerunner of most wonderful applications. The huge hydro-electric power plants of the TVA supplying electricity for home and factory came out of the obscure "worthless" research of Oersted.

### LIFE IN A TESTTUBE

The classic work of Carrel gave a great impetus to the physical-chemical study of life. In 1912 he lifted eight-hundredths of a square inch of the heart of an unborn chick and transferred the speck to a tube of embryonic chicken juice, its supply of food.[3] The speck lived, grew. Carrel then cut the speck in half, washed it and returned it to fresh food, and again the speck doubled in size. Some of Carrel's experimental specks are still living, by the careful pruning and feeding by careful technicians. Thus this tissue from the chick seems to be immortal, already it has lived several times the age of an ordinary hen. Scientists have thus concluded that the indispensable condition to the prolongation of life appears to be the rejuvenation of the medium in which the cells live. Thus a problem of tremendous importance is emphasized, and that is a method for the systematic sanitation, cleansing and renewal of the inner medium of the cell.

### CREATION OF LIFE

Men are working in the laboratory trying to "create" life. That is they are trying to bring together non-living matter in proper proportions to make a compound which will have the normal functions of life, that is grow, reproduce, etc. Of course, this is not true creation, for creation implies that one starts with nothing. Are these scientists working on an unsolvable problem like the student trying to trisect the angle using the tools of Euclid, or the inventor attempting to build a perpetual motion machine to defy the law of increasing entropy? Does a biochemist hope to make a man, or even a worm from his supply of chemicals? The answer is 'no,' but he still hopes to create life. Not in such a complex organism as a worm but in a simple unicellular organism. If in a laboratory one can form a single cell that lives, newspapers will headline that and life has been created. This indeed will be greater news than any hydrogen bomb.

[3] WARREN WEAVER, *Scientists Speak*, New York; Boni & Gaer, 1947.

The creation of life will no doubt lead to a far greater understanding of its preservation.

Being a narrow minded physical chemist I would not attempt to dabble in the philosophy involved in this "creation" of life. Judging from the conversations of several philosophers the making of a living thing from inanimate matter is not opposed to any philosophy. The only thing that most philosophers say is impossible, is the creation of a human being from chemicals, for man is not only animal but rational animal. This rationality implies a power that matter itself cannot give.

The mechanist in biology proposes that all the actions of a living being can be explained by physics and chemistry. In opposition, the vitalist postulates a vital principle following its own laws to explain the action of an organism. This battle is an old one.[4] The main place where the mechanistic explanation of life bogs down is in any attempt to explain man's intellect and will.

Since these two are spiritual operations we must bring in the spiritual soul, but this applies to man only. I, myself would prefer the mechanistic principle to explain physical actions, and consider thought and free will as out of the scope of physical science. The trisection of an angle cannot be done by Euclidean methods, but can be accomplished by more powerful tools. So too the immaterial activities of the soul cannot be explained by a discipline which has set out to investigate matter and energy only.

### HOW DO PHYSICAL-CHEMICAL CHANGES AFFECT LIVING THINGS?

How complex an organism can be synthesized in the laboratory is not our problem. The fact that some scientists believe there is a possibility that life can be created in the laboratory shows the trend of recent years, that is, the viewing of our body functions from the physical-chemical standpoint. Before Wohler's synthesis of the compound urea in the laboratory, chemists distinguished organic from inorganic compounds, by saying that organic compounds must be derived from living things. Chemists can now make many organic compounds in the laboratory without benefit of a living organism. Some scientists thus look on the body as a complex chemical factory run by electricity. It is true that the body can produce in minutes,

[4] H. V. NEAL, *Vitalism and Mechanism*, Lancaster, Pa., Science Press Printing Company, 1934.

compounds that the chemists cannot make after years of research, but nevertheless some life processes are chemical reactions. Factors which would affect a chemical reaction will affect the body in many cases. Chemicals and change of temperature will definitely change a reaction in a test tube, and listed below are some effects on the body.

If the amount of calcium in the blood is decreased by one-half convulsions, coma and death follow. Double this calcium and blood thickens, indifference, unconsciousness, and death follow. Reduce the sugar content slightly in blood, the mind falters, then death. Increase the sugar by a few milligrams per cubic centimeter and the mind is upset by fear and illusion, and speech becomes difficult. Acidify the blood and coma follows. Make the blood slightly more alkaline than the normal blood, and convulsions, then death follows. Take water from the blood and we collapse from weakness; add water, headaches, nausea and dizziness appear. Thus chemical content has much to do with our feelings and emotions as well as our general health.[5] These findings show that life is possible only within definite marginal limits of temperature and chemical concentration. Experiments with the microscopic animal, the rotifera, imply that aging[6] and death depend on the gradual increase of a definite chemical in the cell.[6a]

Temperature as we know is a key to the health of the human body. A curious study of Professor Jacques Loeb with the traditional fruit fly is worth noting in regards to prolongation of life. By raising the temperature of the flies 20 degrees above room temperature the life span was decreased to one-third of the normal short life span, and by lowering the temperature 20 degrees below room temperature the life span was increased by more than three times. Some popular scientists get carried away by this; one has calculated that we could live to the ripe old age of 1900 years. All we would have to do would be to live in a refrigerator at 45.5° for the rest of our days.

[5] W. KAEMPFFERT, "Man and his world", *Science today and tomorrow*, London: Dennis Dobson Ltd., 1947.

[6] ALBERT LANSING, "Experiments in Aging", Scientific American, **188:** 38, April 1953.

[6a] An interesting result of these experiments was that the progeny of young mothers if studied for many generations will live longer and grow larger. The New York Metropolitan Life Insurance Company has also noted the tendency of children born of young parents to have an average life span longer than children of the same parents but born when the parents have aged.

## CAN BODY CHANGES BE EXPLAINED BY THE ELECTRONS OF THE ATOM?

All of the above effects might seem to be disconnected but they have one thing in common. All these are chemical changes which the chemist explains by saying the electrons in the atom have been disturbed. I am forced at this point to recall briefly to you the structure of the atom. Matter is divided into small particles called atoms, each one is made up of a central heavy portion called the nucleus, composed of positive particles called protons and neutral particles called neutrons, and an outside cloud of electrons moving about, somewhat similar to the movement of the earth around the sun. These electrons are organized, and scientists find they obey four rules, or quantum numbers. The most useful picture now for popular conception is the old quantum theory, which has been improved upon by wave equations. The most modern theory is too mathematical for this discussion, and would not help our explanation any[7, 8]

Around the nucleus are various shells of electrons. In the first shell the electrons travel only in circles, in the second shell the electrons can travel in a circle or an ellipse, which is a flattened out circle. In the third shell the electron has the choice of a circle, or two different type of ellipses, each one a little flatter than the previous one. Now these orbits are of a definite energy and when an electron moves from one orbit to the next a definite amount of energy is liberated. This is similar to a rock falling from a mountain or from a hill, more energy is given off if the rock falls from the higher spot.

The extranuclear electrons are key figures in the living process. The digestion of food requires a change in this external galaxy of electrons, and the motion of these electrons between various energy levels furnishes the energy or heat which keeps our body temperature at 98.6°F. Electricity passed through the body would wreck havoc on these electrons and death would result. That we are made up of positive and negative charges easily accounts for the fact that scientists can follow our life mechanisms by measuring the amount of current we are generating as in electrocardiograms and brainwave

[7] LINUS PAULING, E. B. WILSON, *Introduction to Quantum Mechanics*, New York and London: McGraw-Hill Book Company, Inc. 1935.

[8] N. F. MOTT AND I. N. SNEDDON, *Wave Mechanics and Its Applications*, Oxford at the Clarendon press, 1948.

patterns. Electric shock treatments also effect these satellite electrons.

### IS THE QUANTUM THEORY RELATED TO LIFE?

It is a curious fact that the quantum theory was introduced and the work of the Augustinian monk Mendel, was rediscovered in the same year, 1900. It is only within the past few years that these two seemingly unrelated fields were correlated. The geneticist concludes from Mendel's work that, within the living cell are a certain number of chromosomes, the number depending on the species of the plant or animal. The chromosomes, so called because they can easily be dyed for microscope study, have individuality, each one differing from all the others in the same set. Within the chromosomes are the genes arranged in linear order. Each human has thousands of these genes, or character determining units, which determine the type of hair, color of eyes, etc.[9] What is transmitted from one generation to the next is not a characteristic eye pigment or blood type or other hereditary trait. Rather it is a set of factors in chromosomes which are able to influence the activities of the cells so that certain eye pigments and chemicals responsible for blood types are produced. The determining factors in the chromosomes govern the cell as a whole, but the cell in turn influences conditions within the cell nucleus and so modifies the condition of the chromosome.[10]

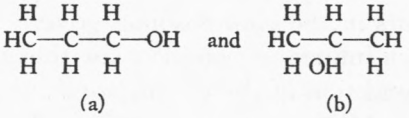
Professor H. J. Muller bombarded fruit flies with X-rays and found that the radiated flies were not noticeably affected but the descendants of these flies were monsters. He found flies with eyes that bulged, flies with sunken eyes, purple, white, green, yellow, brown eyes; flies with curly hair, ruffled hair and no hair; flies with extra legs and antennae and others with no legs or antennae; active and sluggish flies; sterile and fertile flies. The geneticist explains this by saying that the genes have changed, but the student of quantum mechanics sees here a remarkable resemblance to the behavior of the atom.

An X-ray is merely a stream of energy liberated when an electron, which has been excited to a higher energy level suddenly falls back

[9] A. H. STURTEVANT, "Evolution and function of genes", Sigma Xi lecture, *Science in Progress*, New Haven, Yale University Press, 1949.

[10] A. E. MIRSKY, "Chemistry of Heredity", Scientific American, **188:** 50, Feb., 1953.

into its shell, liberating energetic waves. This is similar to a stone falling from a mountain and liberating energy in the form of less energetic waves called heat. The genes of the fruit flies were exposed to concentrated energy and we would expect the atoms or the molecules, of which the gene is made to be changed. The great revelation of the quantum theory was that in a small system in nature as the atom, only certain discrete amounts of energy can be absorbed, called quanta. The transition from one state to another is called a quantum jump. The genes seem to have definite characteristics or quantum states, in fact it would be impossible to explain by statistical physics how a mutation like the disfigurement of the lower lip of the Hapsburg dynasty was faithfully handed down from generation to generation for three centuries. Since there are relatively few genes and the temperature is relatively high in the body, it would be difficult to explain how the genes remained unperturbed in spite of the disorderly tendencies of heat motion. Chemists can explain this by considering molecules called isomers. If the following two molecules are considered, we see that both have the same atoms but the only difference is the arrangement of the atoms. These are called isomers.




(a) (b)

Though possessing the same atoms they have different properties, and their energies are different. They have different energy levels. By absorbing sufficient energy from an X-ray it is conceivable to consider form A changing over to form B. Thus some scientists are led to assume that a gene is a huge molecule capable of quantized changes by rearrangement to an isomeric molecule.[11] The required energy is usually not available, however the X-ray beam supplies the required energy for the change. When a fruit fly is irradiated, the energy absorbed changes the arrangement of the atoms in a particular gene, and the progeny receive this particular gene which is different from the parents original characteristics but stable and mutants are born. This is by no means a complete explanation of the mechanics of genetics, though an extremely elementary picture. It does

[11] ERWIN SHRODINGER, *What is Life*, Cambridge at the University Press, New York: The Macmillan Company, 1946.

indicate that possibly the complicated mechanics might be applied to genetics.

The mention of radiation brings up the question of the effects of nuclear radiation on the life processes.

### DOES NUCLEAR SCIENCE HELP OUR KNOWLEDGE OF LIFE?

So far we have seen that some body changes can be explained by ordinary chemical reactions. We also know that a chemical reaction is merely the changing of an electron from one position in an atom to another energy level in the same atom or another atom. This movement of electrons can have a great effect on living material, as an example of this I might cite a very personal experiment. Several months ago my hand was exposed to the energy liberated when the electrons from powdered aluminum were transferred to liquid oxygen in an explosion that lasted for a fraction of a second. The result was a charred hand which is still not completely healed. This was a movement of the external electrons. Nuclear changes are much more potent. Here is not a shifting of a few loosely bound electrons, but of the very building blocks of the nucleus of the atom. These protons and neutrons in the nucleus are held by tremendous forces and consequently when rearranged even slightly the energy is a million times as great as an atom undergoing normal chemical change. Most familiar example is the nucleus of radium throwing out an alpha particle. An alpha particle consists of two protons and two neutrons. Still more powerful than a radioactive change is the process utilized in the atomic bomb called fission. The nucleus is profoundly altered in fission. It splits into fragments in such a way that the energy released is 100 times a radioactive change or 100 million times the energy of a chemical change. Part of the energy released is in the form of powerful radiation, similar to X-rays. The radiation of a single nucleus is enough to change hundreds of thousand of molecules in the body by disturbing the loosely bound electrons of the atoms. Nuclear changes always play havoc with the delicately balanced chemistry of living things.

How has this helped us with the prolongation of human life, or with the discovery of the nature of life? A knife can be used to kill or cure. Radiation produced by fission, though dangerous, may nevertheless prove to be the most important gift of the new scientific development. Dentists have shown the use of X-rays in examining teeth.

Dental research has recently shown that X-rays have cured tumors of the tongue, gingiva, hard and soft palate. Research dentists have used X radiation to study the nature of the compounds formed in the amalgams used for filling teeth.[12] Dentists have been warned that X-rays can be dangerous by the scores of dentists that have contracted cancer of the hands by not shielding their fingers from radiations.[12a] So too we realize the dangers of nuclear radiations but much good can be accomplished by using the radioactive substances in one of two ways. The first way is to use the energy given off to combat diseases and the second is to use the energy to trace the path of elements as they are absorbed into the body.

In the combating of diseases we use substances called radioactive isotopes. These may be said to have the same type of satellite electrons, but the nucleus has an unstable weight. It is possible to produce a radioactive isotope of almost every chemical element. Thus the American Cancer Society has reported the first 5 year cure with radioactive therapy. Robert Burr, a 27 year old Navy veteran from Chicago was completely cured of a thyroid cancer. Burr drank his first atomic cocktail, a salty tasting fluid containing radioactive iodine in December 1947. He took his last dose of the liquid in May 1949, and today is completely cured.[13] The thyroid gland selectively absorbs from the blood stream compounds containing iodine. By introducing the radioactive iodine, that is iodine with a nucleus that sends out penetrating radiations of energy, the thyroid will absorb this radioactive iodine and the radiations coming out will destroy the cancer. Perhaps some day research men will find a substance that cancer cells will select from the blood stream, all that then remains is the synthesis of this compound by a chemist using a radioactive element, and the problem of cancer may be licked.

The second use of these radioactive isotopes is to use them as tracers. The radiations may easily be traced by Geiger counters, and tagged molecules can thus be traced as they move through an ani-

[12] FRANKEL AND FANKUCHEN, "Investigation of chemistry of dental amalgam by Roentgen diffraction", *Journal of American Dental Association*, **44:** 542, May 1952.

[12a] A conclusion from genetics would be that if the first cousins married, whose grandfather was a dentist, who exposed himself to X-ray needlessly, the chances for mutants being born is greatly increased.

[13] ROBERT GOLDENSTEIN, "World's First Atomic Hospital", *Today's Health*, **31:** 22, Nov. 1953.

mal's body. Dentists have investigated the permeability of dentine and enamel by using radioactive phosphorous.[14]

The random bombarding of chromosomes by X-rays has helped us in understanding the nature of heredity. From nuclear chemistry has come an even more potent tool of research. The University of Chicago has recently reported from their radiobiological laboratory that they can get a beam of protons one 12,000th of an inch in diameter to probe the living cells. They can now turn this beam on the chromosomes and the beam is so fine that one or a few of the individual genes, responsible for specific characteristics of the body, can be radiated at a time, and the effects on the progeny studied.[15]

In this discussion, it has been necessary to brush lightly over fields which take a lifetime of study. I have not attempted to bring into this talk any application of Science to the Art of Living in regards to the manner in which man should act. The reason aside from the lack of time is that morality is far better handled by other fields of endeavor. Science is a very powerful tool but it is not a panacea. There are some things to which the method of scientific research do not pertain. Any attempt to stretch science to cover all fields will hurt the respect, that scientists have painstakingly won, for the scientific method.

I have emphasized the role of pure research. Most of the practical applications mentioned in this paper rose from pure or "worthless" research. Pure research suffers during war years, and this country is in dire need of many researchers in all fields. The Federal Security Council in 1951 noted with alarm that very few of the researchers now studying the cause for old age, are under the age of 50. Most great discoveries were found by men under the age of 35, therefore old age research has a definite weakness until more young men can be interested in this type of research.

[14] N. D. Martin and E. S. Slater, "Direct tissue radioautography technique applied to teeth," *Science*, **113:** 721, June 22, 1951.

[15] Editor, "Proton Needle Probes Living Cells", *Science Digest*, **34:** 66, Dec., 1953.

## 6. PUBLIC HEALTH

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One cannot discuss the contribution of Public Health to the Art of Living without devoting a little thought to statesmanship. While it is true that most individuals interested in public health are primarily technicians, the field has produced many outstanding statesmen, men with creative genius, possessed of historical perspective, capable of recognizing the beginning of social and economic change, and not afraid to make plans for the future.

In little more than the Biblical span of life, beginning with the time when public health consisted mainly of the correction of nuisances and grappling with frequent epidemics of communicable diseases and on through to the present, public health and allied professions can claim with confidence, years added to the span of life. We have passed the stage of adding "years to life" and are now interested in adding "life to years," so that we may enjoy living as long as we live. Today medical research is on the march. We can expect remarkable advances in our knowledge of chronic diseases. viral diseases and mental diseases as well as in our basic understanding of the human organism and its functioning.

Many times I have been asked to define public health. Since I am a government official working with a governmental organization I first quote from Tennessee Law: "To have general supervision of the interests relating to the health and lives of the people of the state," and then explains that we can never hope to formulate a definition that gives us a focus of operation without being completely limiting. The content and scope of health services, like society itself undergo constant change. Any problem of health becomes a public health problem only when an individual through his own effort is unable to overcome the problem with which he is faced. Then the coordinated efforts of the community are brought to bear on the problem and it automatically becomes one for public solution.

Certain efforts have been made at the national level to force by legislative act a legal definition restricting public health to the so-called six basic programs. These six basic services of a well-rounded public health program are: communicable disease prevention and

[1] Commissioner, Tennessee Department of Public Health. The author claims no originality in this address, being an edited discussion of Public Health Reports.

control, sanitation, maternal and child health services, vital statistics, laboratory services, and health education. These are well established, functioning programs. A seventh service that should be added to this list is chronic disease prevention and control—the service that is now adding years to life. But, in this program of adding years to life we will need a planned organized program of community services for our aged population.

Since society is never static and since society itself determines the content of a public health program, we shall never have for any extended period of time, a limiting definition. To tie public health to the concepts of even a decade ago would hamstring our contribution to the Art of Living.

How far we have traveled in the field of preventive medicine and public health can best be realized by calling to mind the fact that Tennessee, the third state to be admitted to the Union, was admitted in 1796, the year Jenner gave to the world the technique for small pox vaccination. Following this great discovery history records many outstanding observations made by men such as Budd Snow and others in the field of epidemiology. Without the aid of our present knowledge concerning bacteriology, toxicology and virology, these observations were nothing short of pure genius on the part of the men who at that time were able to explain the spread of such diseases as cholera, typhoid fever, measles, etc. The great revolutionary findings of the nineteenth century in the field of bacteriology and related disciplines brought public health into being as a scientific profession and those same findings revolutionized medicine.

I have said that science is on the verge of remarkable advances. It takes no special ability to look into the future and predict what these new findings will give to preventive medicine. It will be a greater force in the medical arts and sciences than ever known. One can be certain that these new discoveries will turn public health practices of today upside down.

No single discipline can, without successful contradiction, claim the responsibility for progress that has been made in our way of living. The discoveries by Pasteur and Koch as to the cause of infectious disease, set the stage for modern medicine by introducing the idea of "cause." Research in all branches of science and the development of that most fascinating of all sciences, immunology, gave impetus to much work in the field of preventive medicine.

Probably no single skill has had more effect on public health than the development of skills that have made it possible to by-pass disease. In doing this, there has been developed an exact science, sanitary engineering. The sanitarian, however, has had the cooperation of research institutes, medical schools, private physicians and organized health services. Also much credit should be given to voluntary organizations whose efforts have been directed largely to education of the public concerning cause and effect of disease. Outstanding in this field is the National Tuberculosis Association, and the more recent one, The National Foundation for Infantile Paralysis.

Preventive Medicine and Public Health are fortunate in that we have the means for taking an exact measure of our accomplishments and/or failures. It is the one specialty in medicine that lends itself to arithmetic measurements. Since successes can be measured by means of application of an exact science—probable future trends can be predicted with a reasonable degree of certainty and, therefore, programs can be planned with confidence that they will produce the desired results.

When one examines mortality and morbidity figures, observes the great increase in industrial production and compares the standard of living today to that of yesterday, then one begins to realize just how much public health is contributing to the Art of Living.

We travel and dine together and mingle in crowds with full confidence in the safety of our health. Many of us do not realize that dining, or traveling, or mingling in crowds, are people who even only a few hours before may have been in some foreign land and exposed to some one or more of the exotic diseases. Entire cities are dependent on central water supply taken frequently from polluted sources. Our industrial expansion brings us in contact with strange chemicals including radioactive isotopes which might suggest to us just how much the continuance of our civilization depends upon an alert and vigilant public health service.

Primary public health problems experienced 30 to 50 years ago, germ diseases, are now under reasonable control. Diphtheria, once a disease dreaded by all mothers throughout their childrens' first years of life is now under control. Pertussis, just twenty years ago, responsible for more deaths in children than all communicable diseases

combined, can now be prevented. Typhoid fever except for sporadic cases is under control. It has been several years since we have seen a case of small pox. We are today approaching the time when we can with assurance predict the end of tuberculosis as a principal cause of death. Other diseases could be mentioned. One word of caution, all of these diseases exist in endemic form and only by eternal vigilance are they kept under control. If protective forces are allowed to lapse for a few years any one or all of these diseases would again reach epidemic proportions.

Coincident with the development of public water supplies have been the engineering achievements in collecting the liquid wastes from our industries and cities. We have made, however, a serious mistake in dissociating the production of a safe water supply on the one hand from the collection and treatment of that supply with its contained by-products after its use on the other. Public sentiment has been opposed to the spending of large sums of money for treatment of sewage. Sentiment develops in favor of treatment only when our neighbor up stream makes of his collecting system a nuisance by dumping into the stream a sufficient amount of sewage for it to produce a visible effect at the location of the next down stream city water supply.

Our water works and streams have sustained the growth of great cities and industries and these in turn are polluting the streams which must provide the water and carry off the waste. Demands are being made on our streams which unless something is done and done quickly, must soon reach their physical limit. In fact the limit has been reached in several areas of our state. Industrialization and urbanization have created environmental problems which current research and development cannot hope to solve within the next ten years.

A most significant contribution to better living has been made by public health through its efforts to condemn the "blighted areas" in our cities. This has resulted in the establishment of housing authorities and the subsequent demolition of old and erection of new housing projects which have done much to increase the standard of living in these areas.

Malaria, once the greatest scourge to the health of a substantial segment of the population of this region has been brought under

control by the process of "by-passing" the disease, so that we now have less than 10 proved cases per year in our entire region originating within the region. Yellow fever is an unknown disease.

As deaths from bacterial and insect borne diseases have declined, rates for the chronic and degenerative diseases have been increasing. As a result of this health services are being developed by public demand in the fields of diabetes control, heart disease control, cancer control and mental health. Another field in which education alone might prevent many deaths is accident control. Accidents are as inevitable as hotel green peas and at the same time, they are to a great degree preventable. We should devote more time to accident prevention.

In Tennessee we have begun an attack in force against dental caries. Our dental service has reached that state of maturity that comes with independent divisional status. The service has been recognized by the present administration to the extent that Governor Clement approved and the State Legislature made an earmarked appropriation to the department for this service. Since over 50% of all defects found in school children are dental defects we can expect this service to contribute much to the art of "Better Living".

To those of you in our neighboring states who may be wondering how we were able to secure legislative approval of this service, let me say that the dentists themselves made the problem a simple one by letting their wishes be known to their representatives.

David Marine was the first to recommend mass application of chemotherapy to a population for the prevention of a non-infectious disease. By carrying out his suggestions effective control of goiter was made possible. In 1943 how many of us would have thought that a dentist, Dr. H. Trendley Dean, would describe a technique for treating the water supply to control a non-infectious dental disease. (Fredrick McKay and G. V. Black laid the foundation for this work in 1915). (Drs. McKay and Dean received last year at Cleveland the Lasker award for their work). If there are any among us who at that time would have admitted the possibility, certainly no more than one or two could have foreseen the perfection of the method, its development and use in 833 American communities within a decade. (One can be excused for lack of foresight; there is, however, no excuse for lack of hindsight).

## 7. CHRISTIANITY

THOMAS KAY YOUNG, D.D., *Memphis*[1]

The assumption of this query is that a normal man has the capacity and should account his development of life to the fine art level, a primary concern. It also intimates that he may not and all too commonly does not realize his higher possibilities.

Indeed the indictment of his failure is a necessity. No community can be found free of the immature, the clumsy, the incompetent, not to speak of the hostile, the deranged and the devilish. As in the field of traditional art one finds the full covering of refinement from the crude to the classic, so in life and functioning, may be observed the full divergence from the novice to the master and from the numbskull to the genius.

With the same basic material one man creates a structure suited for a pig-sty or a dog-kennel, while another produces a majestic St. Paul's or sublime Taj Mahal. With identical brush and pigment and canvas one desecrates the beauty that symbolizes art while another glorifies the idea in the creation of a portrait or an epic that gives to men and events their ageless significance. One type pours forth words in vituperative coarseness while another's words are like apples of gold in pictures of silver for the wealth of wisdom they disclose, the spring of life they supply and the guide to service they provide. Even more radical is the contrast in quality and service to be found in men and women as they embody at one end the crudities that cheapen or the carnalities that corrupt life and at the other the graces that glorify and the abilities that make a person indispensible to his generation.

That the failure to realize one's potential capacities is a tragedy should need no labored argument. What we call education is simply self-realization and self-expression. And a person achieves the fine art level as he approaches personal maturity and projects himself into the social order through the channel of his personal influence, his vocational identity, his skill and his output of energy.

At the foundation of living is the individual himself. We do not

[1] Pastor, Idlewild Presbyterian Church and former moderator, General Assembly, Presbyterian Church of United States. Deceased Tuesday, March 30, 8:45 a.m., due to heart attack.

think of man and his work as separate elements, for his life is one composite entity. But for the sake of fuller appreciation we must put upon each the stamp of its essential dignity and claim for each its best refinement if the high test of history for living artistically is to be met.

We therefore focus attention for the moment upon ourselves in the schedule of providence. Both history and revelation make clear that the supreme interest of man at the earth level has been himself. All philosophies have been deemed valid or fantastic as they have offered enrichment and idealism or debauchery to men. All institutions have received approval or indictment as they have blessed or abused people. Not even the home and the Church have been held in honor save as they have served the people they have produced. All principles and policies advanced for incorporation in domestic, political and religious systems have held the smile or the frown of mankind as they have dignified or degraded, liberated or enslaved, multiplied or divided human rights and interests.

This central position of man is warranted by his organic superiority. He does not have the atom's capacity for energy and for chemical combinations, but he has the infinitely greater power of unlocking nature's secrets, and turning its resources to the ends of his wealth and culture and security and service. He does not possess the native instinct by which birds carry on their romances and migratory pilgrimages, or insects return with the straightness of an archer's arrow to their nest or hive after they have been carried in a covered case to some distant location. But he does acquire understanding of the habits of all life beneath him—flowers and fishes and insects and mammals—and so to utilize his wisdom as to increase their good and his own. He only equals the other forms of life in his physical cell structure that regulates the vital changes to be noted in the universal order; but alongside the biological transmissions that comprise his physical heritage are peculiarities of aptitude and temperament and disposition that explain and aid in the fulfilment of his individuality as a human being.

Just here lies the mystery and marvel of man as a created integer. Shakespeare was at his best as seer when he exclaimed "What a piece of work is man! How noble in reason, infinite in faculty; in form and moving how express and admirable; in action how like an angel, in

apprehension how like a god!" This unique majesty lies in what is unique about him. It is not in his animal form, as graceful as it is, or in his sensuous appetite and cravings which differ only in degree from other animal types. Isaac Watts put it correctly when he said: "Man must be measured by his soul; the mind's the standard of the man." And John Davies affirmed the same truth in pointing out that such respect is due to man because "God adorned him with so bright a mind as to make him a king and even an angel's peer—to provide him with heavenly power and spreading virtue and sparkling fire, and these marks of the divine image writ so deep upon the soul that with it they will survive forever." In a word, man becomes the living artist as his spirit rises above the fogs of ignorance and error into the sunlight of appreciated truth, from the defilement of sin to the purity of virtue—as he forsakes the road leading to death and pursues the shining way that issues in eternal peace and glory.

Man's central position is warranted also because of his divine assignment in world order. By a sovereign providence man is the viceregent of heaven to reproduce within human limits the divine image; to promote the merciful plan of God for the recovery of our fallen race; to produce and buttress a civilization distinguished by "the true, the beautiful and the good" so that God shall be glorified by its relations, its standards and its pursuits.

Thus we give to man the accolade of artist and of worthy son according as he embodies in health and skill the best that his native constitution, daily disciplined, can achieve; and as he devotes himself through his vocation to world enrichment by the ideas he generates, the labors he performs, the causes for whose establishment he crusades as knight-errant of the Eternal.

Now we inquire concerning the role that Christianity plays in man's fulfilment of his mission. The summary declaration can be strongly defended that its power is determining both in a personal and a corporate manner.

But let it be said that we are speaking of a realistic adoption of genuine Christianity. It is not possible to secure solid values from spurious religious exercises any more than it is possible to expel disease with make-believe elixirs or liquidate debts with counterfeit money. The charge has been widely made that religion is an opiate to a man or nation, meaning that it drugs the mind and stupefies the

spirit to entertain delusions of the future and in that foolish fantasy to bear injustice and exploitation through the only real life there is; viz., his present mortal career.

Be assured that is not the Christianity treated in this paper. That pretense is basically a cult of sheer selfishness which ignores the ills and even tyrannizes over the lives of unfortunates it can rule. That is not Christianity. The soul of the Christian religion is its concern for human character, well-being and happiness as these are realized in man's freedom to prosecute his life vocation, enjoy the respect of his fellows as a man, undergo regeneration by divine grace, and participate in the redemption of society. And these noble ends have and are being fostered by Christian faith and ideas as they proclaim man's essential worth, make his destiny the primary end of all institutions and preserve the Church as history's sacred agent for his spiritual culture and hope. These ideals explain the fear and hate of Christianity felt by materialism as it seeks to exploit mankind and offer itself falsely as the protector and saviour of the race. So bitter is this hostility that diabolical practices are daily procedures behind the Iron Curtain to handicap now and later destroy the work of Christianity. If and as that malevolent effort succeeds moral darkness will replace light, evil will mount the saddle instead of good and Satan will literally tear from the hands of God the direction of human history. And the issue is far from academic since the conflict is right now at one of those periodic crisis stages where the current trend will probably mark the spiritual course of events for decades. Believing the time is ripe for a Christian offensive one must pray and plead for an awakened spiritual concern to propagate the strategy and faith of Christianity. Only yesterday George Marshall declared that humanity needs "a special regeneration which will reestablish a feeling of good faith among men generally." One supports that prayer by his conviction that any civilization infused with Christian truth and life will be vastly superior to any other past or present, controlled by any rival ideal. Both the morality and the crystallized forms of thought in wealth and work and culture are definitely advanced where Christianity has gone. This is not an empty boast of dominant virtue across the board of living. Neither does it whitewash the vices that smell to high heaven here and there in Christendom where nobility should reign. Just the same, Christiantity has exerted

on all life to which it has had access, a power for good, unique in human history.

Nor is the fact difficult to point up at the institutional level. There is a potent contrast of moral standards and attitudes right now where the civilization is Bible infused and where it is not. So advanced was Greek civilization in terms of theories of government, artistic and literary creations, philosophic concepts, even commercial and colonizing patterns the western world largely adopted the framework but a radical distinction gradually was noted as gospel truth generated an ethic, a spirit of kinship and helpfulness that pagan Greece and Rome never knew. And across the ages Bible truth and religious exercises have been so effectual as to be counted primary in national laws and customs. A historic case in point is the distinctive Christian flavor of our colonial period because of the life-covering acceptance of Christian truth. And it is generally believed among us now that our prestige before the nations is less our physical resource than it is our fair mind, our sincere liberality and our deep desire to be at peace with all the world in a spirit of mutuality and good will.

Let me state the case in this simple summary way. Christianity is the outworking in western civilization especially, of the divine program for human life in relation to God, to one's fellows and to the world. The Church is the central agent of Fellowship for those who are known as Christian, and its chief business is to cultivate in its members the heroic standards of the Christian philosophy, and herald its proffer of truth and grace to ever wider areas until the mass of mankind has heard and given heed. That course is confidently followed because it constitutes the Church's marching orders, and because there is resident in Christianity and the supreme power to enable folk like ourselves to live after the pattern set for men in the Gospel.

To a marked degree these spiritual concepts have inspired a sense of personal dignity, a demand for reasonable liberty and right that gives to our social and civil relationships their Christian content of truth and trust and peaceful procedure. They have made us benevolent toward all and sundry until we are probably being exploited internationally on that account. They have made us crusaders of elemental justice until our own national life has been put in jeopardy

by our championship of the prostrate, the fearful and the abused. We have taught the trampled and shattered nations how to help themselves and in that self-respecting way have lifted myriads to a newness of life and outlook that no dole or charity could ever create. Before our eyes these magnificent enterprises are being carried forward on a world scale because our Christianity is alive and operative in our national councils.

It is this same basic power that sustains the incentive of the Christian world to search for truth in history and nature in what is described as science. All our life and work root back into the conviction that the world is God-created and that man's high mission is reverently to examine its Pandora's Box of secrets to discover and utilize its marvels of substance and force in the service of mankind. One need only glance at the wealth of values now available in Christian lands to develop a sense of bewilderment at the wonders wrought.

An examination of the realms of formal art where men of talent have worked to embody beauty in sensuous forms, musical harmonies and architectural structure discloses an astonishing levy upon religious characters, biblical episodes, sacred dramas. High among the art treasures of the western world are the anthems and arias, the pictures and cathedrals built to immortalize some religious scene or sacrament, man or movement. Here to a very wide degree Christianity has not only supplied the noble urge of idealism, but has spelled out the lofty lessons on canvas and in stone and metal and musical measures that will be loved as long as men cherish the happy, the heroic and the holy.

The supreme contribution of Christianity to the art of living is its transforming effect upon the overall life of man himself. It supplies the pattern and fires the heart to produce a life composition with a clean and cultivated body for the divine Spirit to inhabit, and a wise mind dedicated to the common weal in the name of God. It teaches the classic virtues of Temperance, Fortitude, Justice and Prudence which the best moral consciousness of Greece held in such veneration that one of their scholars compared them to the four rivers of Paradise which, as they converge in life, gave man the very wisdom of God. These all are but features of the full Christian group of graces, such as Love, Joy, Peace, Faith, Hope, Longsuffering, Gentleness, Goodness, Fidelity and Self-control, and they are even nobler qualities in the mind of Jesus and of Paul than in Plato's

teaching or in the thought of Philo later on. The Jewish prophet always gave a fuller interpretation of life than did the Greek philosopher. And the Christian apostle taught a richer experience and destiny for man than either of his predecessors.

The unique claim of Christianity is that, unlike other patterns which largely remain abstract and academic, it has that compulsion that deserves to be called spirit and life. It contains not only the absolute ideas of "moral rearmament," but the revealing and quickening vitality to cause millions to use them for their happiness, their character and their service.

Thus we conclude upon the assuring note that Christianity is practical and full of blessing to all who will really live by it. Joy unspeakable and full of glory awaits the heart opened to its elixir. Cordiality will mark the relations of those who follow its fraternal counsel. The simple secret of true success and rich service is literally to adopt the cardinal principles of the system and accept the literal sovereignty of its living author. Without fail a noble transformation will follow and a share in lifting our common life to the fine art level which is the world's fundamental need.

## REPORTS OF THE VICE-CHAIRMEN[1]

*Arkansas:* SHADE P. RUSHING, D.D.S., El Dorado

The Children's National Dental Health Day Observance in the year of 1953 was the most successful ever held by the members of the Arkansas State Dental Association. More dentists participated, more methods of communication were utilized, and a greater proportion of the population had a very clear understanding of the meaning of "CHILDREN'S DENTAL HEALTH DAY." A large part of this progress is due to Dr. M. J. Freedman, Vice-Chairman of the State Council of Children and Youth, and Dr. Don M. Hamm, of the State Board of Health.

Each year the State Department of Health and Education sponsors a two week conference called "The Pettit Jean Workshop," at Pettit Jean State Park, Arkansas. One weekend of this conference is reserved for Representatives of the Dental & Medical Profession who analyze proceedings to date and make recommendations from the professional view point with regard to ultimate achievement of

[1] Reports submitted at the Memphis Convocation, Dec. 12, 1953.

the goal of higher standards in health education in the public schools of Arkansas. The Committee of the 1953 Conference completed a guide put out in book form, for coordinating School Health Programs in Arkansas: a publication which has long been needed in order that all our schools might follow the best and most practical course in formulating local school Health Programs. Perry Sandell, Director of Health Education of the A.D.A. attended the 1953 conference as a consultant and made valuable contributions.

In line with appointment of school health coordinators, the Arkansas State Dental Association in cooperation with State Board of Health and Education has appointed Dental Representatives by Districts, to each town with whom the school's' health co-ordinator should work on problems concerning Dental Health.

Another forward step for dentistry in Arkansas was the appointment of a Director of Dental Hygiene by the State Board of Health, which was recommended by the State Dental Association. Dr. H. S. Dwyer was appointed to this job. He is from New Hampshire and is doing an excellent job. In addition to his regular duties, Dr. Dwyer writes a newspaper column on dental health which goes out to 186 papers in neighboring states. He is never too busy to speak on Dental Health or Fluoridation.

One year ago there was only one community with fluoridated water supply. Today, a year later we have ten serving about 200,000 people. We also have three communities with natural fluoride in their water.

The Arkansas Dental Association has made progress in membership in the association. We now have about 400 members.

There have been no new Fellows added to the College this year and no deaths.

*Mississippi:* GIRD A. MCCARTY D.D.S., Jackson

I should like to begin this report by paying tribute to the Chairman of this Section, Dr. J. D. Jordan, who carries out both the letter and the spirit of the policies upon which this College was founded and is conducted. The American College of Dentists was organized to further the high ideals which the dental profession has promoted over the years. Doctor Jordan has rendered a very fine service in leadership.

Our distinguished Secretary, Doctor Vinsant, is an inspiration to all who come in contact with him. He is always ready to be of

assistance to any or all of us in our efforts to promote the dental profession in the interest of all the people.

It is a pleasure to pay tribute to a fellow practitioner and a great Mississippian, Dr. William R. Wright, who has meant so much to dentistry in Mississippi and throughout the country. Whether holding a high office in the dental profession, representing the dental profession and the people of the State as a member of the Mississippi State Board of Health, or doing private practice, he has reflected credit and honor to the profession. No man stands higher at home in the esteem of our profession than does Doctor Wright.

The Mississippi Section of the College had a meeting in Jackson during our State meeting. We discussed at that time the possibility of offering the opportunity of becoming a Fellow in the College to several of the men in our State who deserve this honor. I have never been one who believed in increasing needlessly the members in any organization, however, I believe that no matter how large the College may become we cannot deny membership to those men who deserve this wonderful honor. I would like to take this opportunity now to welcome into the College our new members from Mississippi:

Dr. Claude S. Williams, Jr., Hattiesburg
Dr. N. Harlan Wallace, Canton
Dr. William C. McHardy, Jr., Cleveland

Doctor Williams is President of our State Association, and Doctor Wallace is an outstanding dentist and clinician. Doctor McHardy is an efficient member of the State Board of Dental Examiners.

We are fortunate to have Dr. John H. Stone as the successor of Miss Gladys Eyrich to direct the dental health program of the Mississippi State Board of Health. Doctor Stone is now at the University of Michigan School of Public Health where he will obtain his Master's degree in Public Health next June after which time he will return to Mississippi to be in charge of the State Board of Health's dental health program. Doctor Stone seems to be well suited and equipped for this important responsibility.

The Fellows from Mississippi feel honored in being a part of such an outstanding section of the American College of Dentists.

*Tennessee:* J. GUILFORD SHARP, D.D.S., Knoxville

It has been my pleasure, to observe the activities of the various committees; the responsibilities assumed by the individual members

of these committees; the unselfish attitude and the desire to accomplish, regardless of the effort involved. Too, I want to mention the interest, enthusiasm and inspiring effort of Dr. Robert S. Vinsant, Tri-State Secretary, who has done so much toward stimulating the activities of this section.

Some of the activities of the Tennessee Fellows during the past year include a breakfast meeting which was held in Knoxville, May 13th, for the Fellows and guests attending the Annual Session of the Tennessee State Dental Association, at which fifteen Tennessee and two non-resident Fellows were present. Following the breakfast, an address was made by Dr. A. F. Schopper, Kansas City, Missouri, a Fellow in the College. The title of his talk was, "Trends in Dental Practice as Affected by Dental Organization," in which he stressed matters pertaining to the American College of Dentists with special emphasis on the evaluation and the privilege of Fellowship in the College. This meeting was very enjoyable and offered a challenge to those in attendance to recognize the responsibillities as well as the privileges of Fellowship. A telegram from Dr. R. S. Vinsant, Regent, was read expressing greetings from the College and regrets for being absent from the meeting. Breakfast was served at eight o'clock a.m., and the meeting was adjourned at eight fifty-five o'clock a.m.

During the year, eight new names were added to the Tennessee Fellowship roster, as follows:

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|---|---|
| Robert Henry Blane, | Chattanooga |
| Charles F. Landis, | " |
| Thomas Edward Braly, | " |
| Murville P. Kendrick, | Memphis |
| Arthur Roy Sample, | " |
| Granville Sherman, | " |
| Doyle Jackson Smith, | " |
| Harold Parker Thomas, | " |

It is with pleasure that we welcome these Fellows into the Tri-State Section. May they, too, share the responsibility along with the privilege of Fellowship.

In closing, please let us thank the Section Chairman, Dr. J. D. Jordan, and the Section Secretary, Dr. R. S. Vinsant, and the Fellows in Memphis for providing the opportunity of holding the meeting which we are attending today.

# American College of Dentists

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