

DEDICATION
HAROLD R.
STARK HALL

SEPTEMBER 27, 1957

*The creative
mind must
be free*



LACY, ATHERTON & DAVIS
ARCHITECTS & ENGINEERS

WILKES COLLEGE

WILKES-BARRE, PA.



*The history of
science is science
itself; the history of the
individual, the individual.*

GOETHE

PROGRAM

PRELUDE—Overture for Brass Choir.....*Fred Frank*

THE STAR SPANGLED BANNER.....Assembly

INVOCATION —

THE REVEREND CHARLES S. ROUSH, D.D.
Member, Board of Trustees, Wilkes College

WELCOME.....GILBERT S. MCCLINTOCK
Chairman, Board of Trustees, Wilkes College

BRASS ENSEMBLE—Trumpet Voluntary.....*Henry Purcell*

DEDICATORY ADDRESS —

ADMIRAL BEN MOREELL, USN, *retired*

BRASS ENSEMBLE—Marche Vaillant.....*Paul Koepke*

ALMA MATERAssembly

BENEDICTION.....THE REVEREND JULE AYERS, D.D.
Pastor, First Presbyterian Church, Wilkes-Barre, Pa.

SEPTEMBER 27, 1957

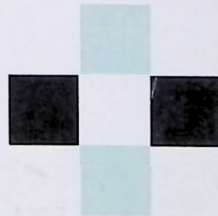
DAY □ OF □ DEDICATION

Harold R. Stark Hall



WILKES COLLEGE

WILKES-BARRE, PENNSYLVANIA





*To trust the soul's invincible surmise
was all his science and his only art.*

GEORGE SANTAYANA
(1863-1952)

ARCHIMEDES

Welcome

GILBERT S. McCLINTOCK

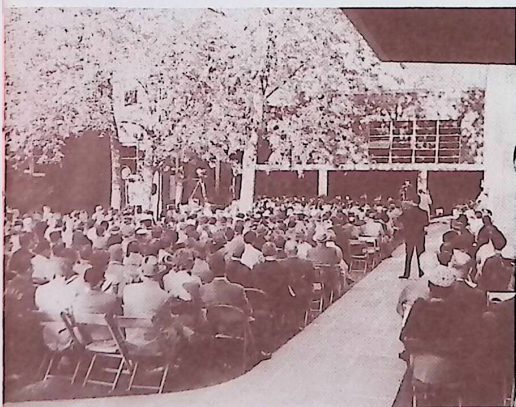
Chairman, Board of Trustees

Friends of Wilkes College, on behalf of the Trustees of our College I am very glad to greet you and welcome you to our campus on this day of dedication.

We are deeply and profoundly grateful to those who made possible the building of the Harold R. Stark Hall.

The architects and the members of the faculty who helped plan it and the contractors who built it all receive our gratitude and appreciation for their untiring and splendid efforts in helping to create this great Science Building, which we are to dedicate today to the service, under the help and guidance of our faculty, of young men and women from our valley and elsewhere in gaining an education to better fit them to carry on the practice and teaching of scientific endeavor in the coming years.

We are proud of your presence here and pray that the conduct of our college may justify your continued and loyal support.



HIPPOCRATES

DR. EUGENE S. FARLEY

Introductory Remarks

It is a moving experience for those of us whose hearts and minds have been captured by the possibilities of our small college, to meet with many friends for the purpose of dedicating this practical, and beautiful building to the service of our students and our community.

This college has been created by dedicated men and women who have placed the welfare of students and of community ahead of their own personal welfare. It has been an inspiration to work with them through years of doubt and uncertainty. It is gratifying to join with them on this day, in dedicating the Harold R. Stark Hall to the development of young scientists who, in generations yet unborn, will work for the advancement of scientific thought, and the direction of scientific efforts for the service of mankind.

In a day when the promise of science is balanced by its threat, the conscience of the teacher compels him to cultivate in the embryo scientist a sense of both the dread, and the promise that are given to man by the expansion of his knowledge, and by his growing control of the hitherto unsuspected forces of the atom and the universe.

The gift of this fine building means more to those of us who have placed our faith and hopes in the future of Wilkes, than would the gift of half a dozen buildings to old established institutions, or the erection of a dozen buildings from tax monies. At Wilkes, this single building gives assurance that the efforts of the first quarter century will bear fruit in the second quarter century. Each gain of the past twenty-five years has established the college more firmly, and has given our faculty the tools that are required by the master teacher. The gift of this

building climaxes the gains of the past, and multiplies the significance of each past gift, by creating a firmer foundation for further development.

The faith and generosity of the donors have stimulated, and enlarged the vision of the faculty and many friends of Wilkes. The spirit of the gift is as inspiring as the gift itself.

As we dedicate this building to the service of future generations, we give our heartfelt thanks to that small group of modest men, who, by their faith and generosity have changed one more dream for Wilkes into a reality.

On such an occasion, we are moved by gratitude, and it is our impulse to give recognition to those men who have made possible this structure. But, they have modestly asked us to retain their anonymity, and we are naturally bound by their wishes. Our inability to give them recognition at this moment in no way reduces our sense of gratitude, and we hope that they may sense the depth of our appreciation.

We are also grateful to them for the name they suggested for this building. All of us who have enjoyed the good fortune of knowing Admiral Harold Stark, rejoice in this opportunity to perpetuate his name in the community in which he was born. He has served his nation with distinction as a member of the Navy, with responsibilities slowly growing from those of a midshipman, to those heavier responsibilities that must be borne by the Chief of Naval Operations, in a period of international crisis. By his integrity, loyalty and vision he has inspired a warm devotion in those who have been associated with him. We, at Wilkes, are fortunate that throughout his career he has always maintained

E U C L I D

a warm spot in his heart for the community in which he was born and reared. We are even more fortunate that in his retirement he seeks to serve our community, through his services to Wilkes.

This Harold R. Stark Hall, that we dedicate today, will perpetuate his name in his old home, but those of us who serve the college are concerned with the extension of his personal influence and of the high ideals that have guided and sustained him. His staunch integrity, his devotion to duty, his faith that the right thought and the right act will produce the right results, his simplicity, and great friendliness are the qualities that those of us who have known him associate with him. As teachers, it is these qualities that we hope to develop in our students, and it is this concept of a warm and strong personality that we would wish to cultivate in the minds of future generations of students who will use this building.

Admiral Stark's great concern has always been for the men with whom he worked. He has recognized that the great material resources of our country are useless unless they are developed and used by men of intelligence and conscience. He possesses faith that the proper combination of brains, courage, integrity, and loyalty will lead to the development and use of our great material resources. If, as teachers, we can encourage the development of these qualities in our students, then will Stark Hall be the dynamic influence that we wish it to be.

This occasion brings together two warm friends and close associates of the war years. While Harold Stark served as Chief of Naval Operations and as Commander of Naval Operations in Europe, Ad-

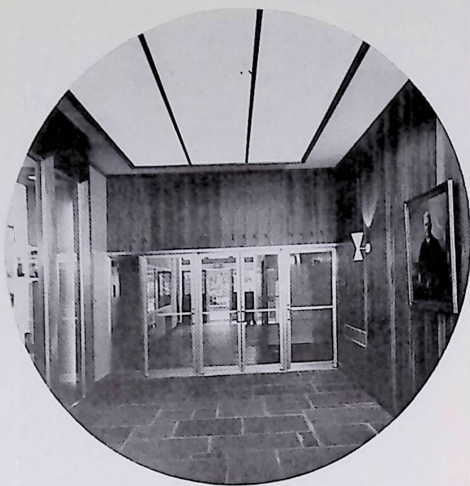


miral Ben Moreell raised the Civil Engineering Corps to such a high level of efficiency that his Sea Bees became known to all of us because of their great work in preparing for amphibious landings and in establishing working bases throughout the theaters of war. This work very frequently prepared the way for the military successes of our armed forces.

Since the war, he has headed two great companies, and as president and chairman of the Board, he has made the Jones and Loughlin Steel Company one of the great steel producers of the nation. In announcing his imminent retirement from this company, he indicated his intention in these words, "I plan to devote whatever talents I may possess toward the improvement of human relations in America."

I am honored and happy to introduce Admiral Ben Moreell, who has come to us today because of his warm friendship for Admiral Stark.

PYTHAGORAS



DEDICATORY ADDRESS

ADMIRAL BEN MOREELL

I am honored indeed to make the dedicatory address for the Hall of Science at Wilkes College. And when this structure bears the name of a great American Naval Officer, with whom I have been privileged to serve and for whom I have the most profound respect and affection, then surely I am warranted in saying with the Psalmist, "My cup runneth over."

For among my most treasured possessions are the memories of my close association with Admiral Harold R. Stark, during those trying years immediately preceding our entrance into World War II, when we were neither wholly at peace nor wholly at war, when we were bending every effort to prepare for any eventuality.

Most of you are aware of the Admiral's notable Naval career. It spans the period of the two great World Wars; and thus the difficulty of compressing even a brief account into the time available to me today. I shall, therefore, confine myself to the highlights.

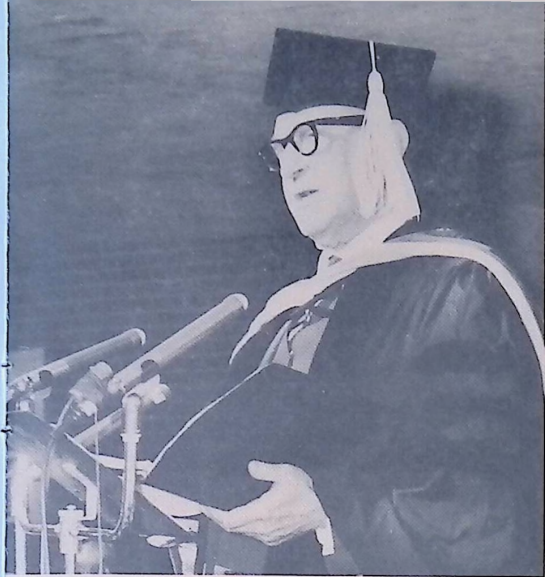
Harold Raynsford Stark was born in Wilkes-Barre in 1880, the son of Benjamin Franklin and Frances

Warner Stark, native Pennsylvanians. He graduated from the Wilkes-Barre High School and Harry Hillman Academy and entered the United States Naval Academy in 1899 where he graduated in 1903. In 1907 he married Katherine Adele Rhodes of Wilkes-Barre, his childhood sweetheart, with whom he used to sail on Lake Carey. This circumstance no doubt accounts for his early love of the water and of sailing, two attachments which remain with him to this day.

Until World War I, his duties followed the normal pattern of service at sea and at shore stations. Soon after we entered that War he was assigned to command a division of five Destroyers, which he was ordered to bring from Manila to Gibraltar at the height of the southwest monsoon. For this notable feat, accomplished with a high degree of professional competence, he received the Distinguished Service Medal, the first of many honors which marked his career.

Admiral Sims, then Commander of United States Naval Forces in Europe, had issued orders that on arrival in waters within his command, Commander

PTOLEMY



Stark was to be detached and ordered to London for duty as Aide and Flag Secretary on his staff. In this capacity Commander Stark served during the remainder of World War I, returning to the United States with Admiral Sims at the end of that War.

His assignments subsequent to World War I, ashore and afloat, were those of an outstanding officer who had won the high regard of his superiors and who was rapidly establishing a Service reputation for great ability and devotion to duty.

In 1934 he was appointed Chief of the Bureau of Ordnance with the rank of Rear-Admiral. On the completion of this duty in 1937, he returned to sea as Commander of a Cruiser Division, and subsequently Commander of Cruisers of the Battle Force. From the latter duty he was appointed by President Roosevelt to be Chief of Naval Operations with the rank of full Admiral, thus becoming the Ranking Officer of the Navy.

Admiral Stark's notable service in this office, from 1939 to 1942, earned for him his second Distinguished Service Medal and fixed his place in Naval history as an administrator of exceptional competence.

In 1942 he was designated as Commander of United States Naval Forces in Europe. His Command covered the Azores Islands, as well as the Mediterranean and Northwest Africa. He remained in this assignment until 1945. During this period he played a vital role in the events which led to the final victory in Europe. For this service he was awarded a third Distinguished Service Medal by the Navy, and Gen. Eisenhower conferred upon him a Distinguished Service Medal on behalf of the Army.

Admiral Stark was retired in 1946 after 47 years of active Naval Service.

In addition to the four Distinguished Service Medals already mentioned and numerous campaign medals, he received decorations from many of the governments allied with us in the Great War, some twenty in all. While Chief of Naval Operations he received the honorary degree of Doctor of Civil Law from Bucknell University and later he received a similar degree from Oxford University in England.

These, in briefest outline, are the highlights of a distinguished Naval career. They may seem somewhat prosaic to one who does not know the manner of man who stands behind them. I was intimately associated with Admiral Stark during his entire service as Chief of Naval Operations from 1939 to 1942, when I served as Chief of the Bureau of Yards and

COPERNICUS

Docks and Chief of Civil Engineers of the Navy. His leadership stood out as a beacon for me and for many others who looked to him for guidance. Never have I known another man who matched his ability to instill in his associates and subordinates those attributes which the Country expects of its military leaders. And he did this not by capricious decisions or peremptory orders, but by the power of his personal example. His devotion to duty, his tireless energy, his sympathetic understanding of the foibles of human nature, his patience and quiet persistence in times of great stress, his wise judgments and his love of country have set standards of personal conduct in the Naval Service which will never be exceeded and rarely equaled.

His record is one of endeavor and achievement far above and beyond the normal requirements of duty. In his person he epitomizes the ultimate measure of devotion which has been well described as an obedience to the unenforceable—a willing response to the call of conscience. I salute this great patriot.

SCIENCE, INDUSTRY AND EDUCATION

Our purpose today is to dedicate a Hall of Science to the service of an institution of higher learning. Science and liberal arts education alike have important contributions to make to the well-rounded life. Together with religion, they comprise the major cultural forces in our society. But if science, education and religion are to be effective, they need to be sustained by another element. I refer to business and industry, the economic side of life. All cul-

tural activities are dependent in large degree for their well being and growth on the productivity of American Industry. Our economic activity supplies the means for all our ends. It is fitting, therefore, that we inquire briefly into these things; the nature of science, the functioning of American Industry, and the educational processes which will be nurtured in these halls. I am convinced that an intimate liaison between these three—science, industry and education — is essential if we are to achieve that measure of social progress without which we cannot survive as a free people.

In recent years there has been a revolutionary change in scientific thought. New knowledge in this area demands that we re-assess our previous views on the economic, political and social aspects of our contemporary life and their inter-relationships. I will sketch briefly some of these developments.

We are living, it is often said, in an age of science. Improved living standards, increased life expectancy, modern methods of communication and travel, all testify to the enormous benefits we are reaping from science. But science has also introduced some hazards. The scientific method, which has penetrated the human consciousness very deeply, affects our outlook and habits and thoughts so powerfully that we are in danger of accepting its validity in areas where it cannot be decisive.

Science does not deal with the whole of life but only with selected aspects thereof. This fact is emphasized by Dr. Warren Weaver, a recent past president of the American Association for the Advance-

NEWTON

*Beyond the bright searchlights of science,
Out of sight of the windows of sense,
Old riddles still bid us defiance,
Old questions of Why and of Whence.*

WILLIAM CECIL DAMPIER-WHETHAM
(1867-1952)

ment of Science. In an address to the Association Dr. Weaver said, "Science has impressively proved itself to be a powerful way of dealing with certain aspects of our experience. These are, in general, the *logical* and *quantitative* aspects. . . We simply do not know yet how far these methods, which have worked so well with *physical nature*, will be successful *in the world of living things*." (Emphasis supplied.)

Without question, there is a place for the scientific method in the study of human behavior, individual and social. But the role of science in this area is strictly limited. Dr. Weaver warns us that it is "not at all necessary that the particular analytical techniques of the physical sciences be forced upon biological or social problems with the arrogant assumption that they can and should make unnecessary other types of insight and experience."

However, this humility was not a feature of nineteenth century science. Thus, it was only natural that Karl Marx, living when science was thought to be the only avenue to truth, should have called his socialism "scientific"; he pinned the label "utopian" on all earlier socialisms. And from Marx's time to the present we have been plagued by those who, armed with pseudo-science and playing upon popular scientific superstitions, have sought to mold society according to the pattern of their own particular master plan.

Individual liberty has yielded ground everywhere before the onslaughts of the social planners, who adopt various labels, such as Communism, Socialism or Welfare Statism. These people differ among themselves, but they all agree that no individual life shall go unplanned — if they can help it. And they have presented their case persistently, with what seemed like logic and what appeared to be facts. Above all, they appealed to the prestige of *science*. The methods of science applied to *physical nature* produced obvious benefits; therefore, they said, all we need do is to apply science to society to have a brave new world!

But the revolution in science has cut the ground from under these arrogant assumptions. True science has now reached the point where it gives more support to man's intuitive desire for freedom than to the pseudo-scientific efforts of the social planners. Science has become acutely aware of the limitations of its method.

Now we begin to understand why the misguided effort to apply the methods of science wholesale to society must result in central planning, socialism or communism. If you wish to think in terms of "scientific socialism" you must first reduce men to calculable units, each one very much like any other. Disregard the human equation and the drawing of social blueprints becomes easy. Actually, the in-

GALILEO

"...The most beautiful thing we can experience is the mysterious ... it is the source of all true art and science."

EINSTEIN

dividual person is a richly various, many dimensioned, multi-faceted, undivided whole. But in the eyes of the social planner he is only a dehumanized unit, of no interest except as he can be used to confirm a general theory.

We who regard each individual person as a unique being, unlike any other person, find that our conviction in this matter is no longer denied by the best scientific thought. The methods of bringing selected aspects of physical nature under control can no longer be used as justification for bringing *people* under control. Socialism, where it pretended to be scientific, was always based on a misunderstanding of science. The new understanding of science lends no support to socialism. The social planners can no longer trade on the prestige of science. The climate of opinion has changed, and we can again hearken to the voice of individual conscience which tells us that any effort to reduce persons to abstraction, so that they may be more easily controlled from the top, is wrong and doomed to failure.

THE AMERICAN POLITICAL AND SOCIAL PATTERN

The intent of the Founding Fathers was to establish here a new type of government under which each individual would be free to go as far as his

talents permit. Our new understanding of science provides reassurance that this intent is consistent with the nature of the universe.

The revolutionary part of their idea was a new political application of certain concepts which are an essential element of the Judeo-Christian religious tradition.

Basic to this tradition is the concept that God rules the universe; with the corollary that all men are creatures of God. It follows that if men are creatures of God, each man is sovereign in his relations with his fellowmen, and therefore has worth and dignity, *as an individual*. This concept of individual sovereignty gave birth to the idea of limited government — a government which is itself forbidden to trespass on the rights of the individual and which exists only to prohibit private trespass.

Those who launched this American experiment believed that each of us has an inalienable right to life. The sustenance of life implies the right to control the fruits of one's labor, that is, one's honestly acquired property. Without these corollary rights, the right to life itself has no meaning.

To make these rights secure, the individuals concerned designated a common agency, whose function was to do for all of them collectively but equally, that and only that which each one had a right to do for himself individually.

NAPIER



This agency, "government", was commissioned to defend the lives, the liberties and the livelihoods of the Nation's citizens; to invoke a common justice; and to keep the records incidental thereto. Other than this the people were to be free to pursue their own interests, *provided that such pursuit would not lead them to trespass upon the natural rights of others.*

MAN'S SOCIAL PROGRESS

Defenders of these fundamental principles enunciated by our political forebears are proponents of progress. They favor social advance; but they believe it can come about only as individuals co-operate freely in all fields of human endeavor, with government limited to the job of curbing all destructive actions. They are neither "liberals" nor "conservatives"; they are "libertarians". They believe that man's progress cannot be measured horizontally, in any direction; it is neither to the right nor to the left, it is *up!* In that direction lies man's advancement, his way out of many current dilemmas.

The lesson of history teaches that those who put their trust in man-made political force are condemned to a low level of mediocrity. And this is true whether the political force is wielded by the so-called "left" or by the so-called "right". Libertarians hold that man can advance creatively only as he is free to rise of his own merit, unhampered by the imposition of political privilege for himself or for others.

A CLIMATE CONDUCIVE TO SOCIAL PROGRESS

If we conceive of "social progress" as the elevation of the intellectual, spiritual, and economic well-being of *individuals*, it follows that no organization or group can, of itself, assure social progress. Morality does not receive its sanctions from the group or from society; ethical mandates derive from the relationship between an individual and his God. And social progress is attained by a group only to the extent that the individuals who comprise it have progressed morally and socially, *as individuals.*

HARVEY

The best the group can do is to contribute to the development of a "climate conducive to social progress". Such a climate prevails when economic, social and governmental affairs are so organized and administered as to permit the individual to develop his God-given talents with maximum personal freedom of choice and a corresponding responsibility for the results of that choice.

In such a climate, one would expect the individual to achieve his maximum development in those positive factors which contribute to a good society — integrity, understanding, reasonableness and individuality. And these, in turn, would provide a firm base to act as a launching platform for the attainment of the higher ends of life—such as scholarship, art, music, charity and worship. But, before the individual can attain the maximum development of which he is capable at any given time he must be free to direct his own creative energy.

There is also the possibility of establishing a climate which *inhibits* social progress. Most people would agree that conditions which permit the restriction of individual liberty by coercive force, which promote prejudice and bigotry, or which set a premium on irrational behavior will impede or prevent social progress.

OUR INDUSTRIAL SOCIETY

Our society is highly industrialized. This is true not only of the business sector of our economy; it is also true of our basic agricultural production. This system provides livelihoods for 170 million people on this continent who, in turn, help support much

of the rest of the world. Furthermore, with the raising of the general level of prosperity of this Nation, mass production, distribution, and consumption of goods and services has been paralleled by mass ownership of industry. How can we account for this? Our people are no more talented than those of the countries whence they came. Our country is no more favored than many others in natural advantages. Furthermore, our resources lay for centuries relatively unused, supporting fewer than a million inhabitants. We are blessed materially beyond all other people.

Wherein do we differ from them? Even a casual consideration of this question leads to the conclusion that there was established here a society based on certain concepts which have as their ultimate effect the minimizing of that coercive force which inhibits social progress.

This, then, is the larger pattern of our society into which American business must be fitted harmoniously.

The question at issue is whether American business and industry, and all that is comprised under the label "Capitalism", contributes to the conservation of "a climate conducive to social progress". If so, what steps should be taken to assure a progressively increasing effectiveness of that contribution?

At the outset let me disavow any claim that business can do more than contribute its share to the strengthening of our culture. There are other important segments of our society which have equal or even greater responsibility. And once the proper

DESCARTES

HUYGENS

social climate is established, it is up to the individual to "upgrade" himself. For, only he can do it!

It is generally conceded that an individual is most productive when he has a maximum of freedom from restraint, whether his energies find an outlet in religion, in writing or in thought — or whether he is engaged in the production and exchange of goods and services. And, as a matter of fundamental principle, there is no more warrant for attempting to clamp political controls on a man's energies in his shop than there is to put his energies under political control in his church, his classroom, his editorial office or his study. If freedom is good in any one of these places, which I believe, it is good in every one of these places, — which I also believe.

It is unfortunate that not enough businessmen have real convictions about the social conditions which are essential if business, as a relatively autonomous activity, is to survive. They think their

job as *businessmen* is done if they are able to pay wages and salaries to employees, and dividends to shareholders and maintain a going concern. But if we accept the thesis that each of us has a duty to preserve the cultural, social, governmental and economic structures which made our national pre-eminence possible, it follows that if business is misconceived as an undiluted effort for more money to the exclusion of other values, business is not good for society as a whole. In fact, it is not even good for itself!

Without a reasonable assurance of profits, the businessman could not long continue as a businessman. But there is more to his responsibility than profits. Perhaps it can best be summarized by saying that he has an obligation to keep alive and healthy the goose which lays the golden eggs.

SOCIETY AND THE MARKET PLACE

It is an interesting concept that the development of society is collateral with that of the market place. The human community develops as men are able to exchange their surplus energies in the form of goods, services and *ideas*. If every man were self-sufficient, society would be inconceivable. The fact of human interdependence, as men are now constituted, implies the existence of media whereby this interdependence is manifest.

A society is impossible unless there be some exchange, and it is rich and complex in the degree to which these exchanges multiply. And they will multiply unless they are sabotaged. So we need political





government to protect exchange against sabotage. But time and again this protective function is perverted and government itself becomes the saboteur.

American businessmen should know that the concentrations of power and responsibility lodged with them must be exercised in the context of American life; that if private business does not assume community responsibilities, a social vacuum is created and government steps in; that government bureaucrats are very adept at avoiding or submerging restraints which the electorate attempts to place on them; that American business must act as though it has a soul — and this is even more important in the case of the huge corporation than in that of the individual businessman. We who are in business should know that what we think, what we say, and, *more importantly, what we do* during our working hours cannot be divorced from the responsibilities we must assume as members of society, and that

those responsibilities can be discharged only as we participate to the extent of our abilities in the whole life of our community.

That these obligations are gradually being recognized is evidenced by the growing interest of business in education, public health, community development, religion, cultural activities, and charitable works.

BUSINESS AND EDUCATION

Perhaps the most significant evidence of this awareness is in the field of education. Many corporations and individuals now recognize the mutuality of interest between business and education and, what is more important, they are willing to provide the help needed by our educational institutions.

I would like to state here the views of one businessman with respect to the reciprocal obligations which bind business and education together.

BOYLE

The artist may be well advised to keep his work to himself till it is completed, because no one can readily help him or advise him with it . . . but the scientist is wiser not to withhold a single finding or a single conjecture from publicity.

JOHANN WOLFGANG VON GOETHE
(1749 - 1832)

We are all familiar with the invaluable direct help which education gives to industry in providing personnel and in research. And I have mentioned the growing sense of responsibility on the part of businessmen for the support of education.

There are, also, certain responsibilities of business management to its stockholders, those who have invested their savings in the business. Included among these are —

1. Recruiting and training a labor force
2. Procuring sources of raw materials
3. Acquiring efficient tools and equipment
4. Developing economical manufacturing processes
5. Locating profitable markets, and
6. *Making a decent profit*

But more important than all these is the responsibility for preservation of the value of the stockholders' property.

When "government ownership of industry" ideas are on the rampage, as they are now, and when the only antidote to these are "private ownership ideas", it is the duty of management to aid educational efforts which *promote private ownership ideas*". By the same token, it is the duty of management to withhold aid from those educational efforts which support government ownership ideas.

How does "academic freedom" fit into this concept? Does industry have the right to tell educators what they should teach? *Not at all*. It seems to me that the issue of academic freedom in privately financed educational institutions is not too difficult to resolve. I have no right to interfere with an institution which promotes economic and social ideas which are repugnant to me. On the other hand, there should be no obligation, direct or implied, on my part to *support* such an institution. Thus, both the institution and I have freedom of choice, with com-

LINNAEUS

mensurate responsibility for the results of that choice. This is the very essence of libertarianism.

Here, then is an area of limitless extent where education can contribute importantly to the preservation of those conditions which make social progress under our traditional American institutions possible, i.e., by fostering those ideas which flow from the fundamental principles of the Founding Fathers.

BUSINESS AND SOCIAL PROGRESS

And so it is in all other areas of social activity. For the American social organization is a fabric, the principal threads of which are religion, industry, law, political economy, education, social well-being and the cultural arts. It is not enough that American business should tell the public of its achievements in its own highly specialized sphere of production and distribution. It must contribute importantly to the process of education and to the formation of public opinion in all of the areas I have mentioned.

The challenge to American business is clear and vital to the future of our country. It is this: *Can we establish a conscious and vigorous leadership motivated by the highest moral principles which should govern human relations?* I am convinced that, unless we do, the vacuum created by our unwillingness will be filled by those who would take us down the road to complete statism and inevitable moral and social collapse.

I have had much to say about the businessman and his obligation to assume wider responsibilities for the moral and cultural foundations which under-

gird our way of life. I have indicated that when man's economic needs are satisfied he is in a better position to satisfy his needs for scholarship, art, music, and worship. These are needs of his spiritual nature, and I believe that no society can long endure which denies or frustrates men in this area.

The custody of man's spiritual nature, defining spiritual nature broadly, is largely in the hands of our educators and our clergy. These two orders of men were once designated alike, as "clerks". A "clerk" was either a man in holy orders, or a lay scholar. Any system of social life which does not include the spiritual dimension and assign an important place to its "clerks" is doomed.

I have a recollection that a Bishop of the early church said much the same thing. He declared that society needs three kind of men; those who work, those who fight, and those who pray. Society needs some one to grow the wheat and bake the bread. It also needs someone to stand guard to protect the producer against marauders. But in addition to these, it needs those who constantly remind men that there is more to life than growing wheat and protecting the crop in order to grow more wheat next season. Man has a spiritual nature with needs just as real as physical hunger. He has material problems, but these cannot be resolved by materialistic answers. There is a meaning for human life which transcends human life. But that meaning will elude us unless society is founded, as solidly as a three-legged stool, on the three balanced supports of *those who work, those who fight and those who pray.*

LAVOISIER

ADMIRAL HAROLD R. STARK



We are not dealing simply with a military or scientific problem but with a problem in statecraft and the ways of the human spirit.

Anonymous

"This isn't on the program, so it's as much a surprise to me, or perhaps more of one, than to you. When Ben asked me if I were going to say anything this afternoon, I said, "No, I'm just going to enjoy myself."

But I am grateful for the remarks of your President and of Ben Moreell. I had no idea that anything had been sent from Winston Churchill or my old shipmate in Europe, "Ike," as we loved to call him.

I'll tell you a story about how this building happened to be named for me and how I walked into a trap, so I advise you to look out for your President if, and when, he seems to be exceptionally nice and willing to do something.

When he called me up to tell me about the building, he said that he had been in touch with Gilbert and the Trustees and they wanted to name it after me.

I told him, "Gene, I think it is ridiculous to name it after me. There are people who have done so much more for this College, and as far as this Science Hall goes, even though those who gave it remain anonymous, they by all means should say for whom it is to be named."

He said, "Would you agree to that?"

I said, "I not only would agree to it; I think there is no other way by which it should be done."

He said, "All right, they've nominated you."

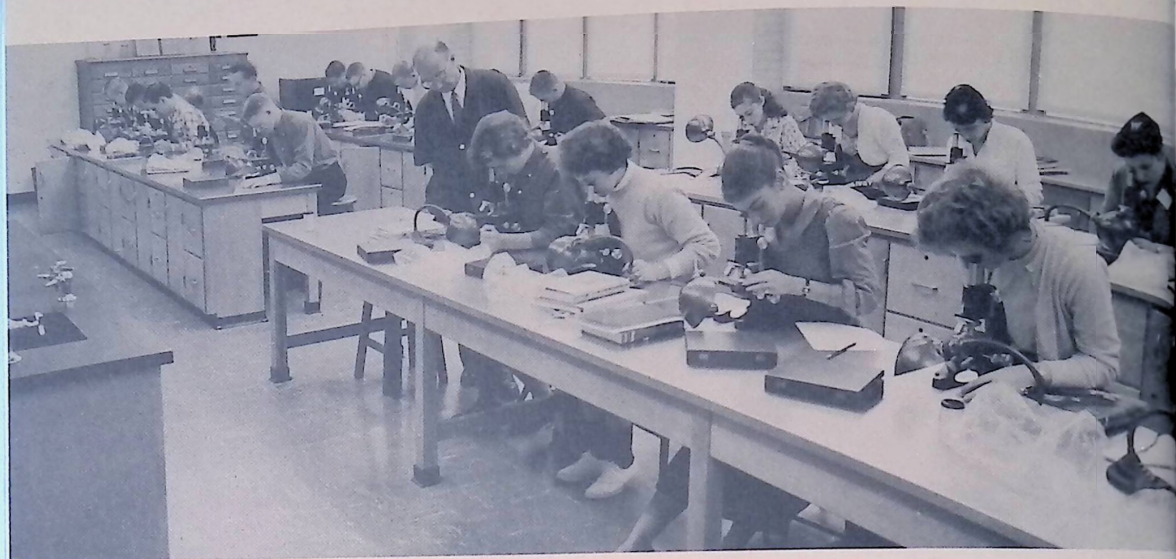
So, that's how it happened.

Obviously, I am proud of it, and deeply touched. I do so appreciate Ben Moreell's coming here this afternoon.

If I should start to reminisce, I'm afraid that would take a great while. But, I used to write Colonel Knox, Secretary of the Navy while I was in Europe, that while we should pay every tribute and give all honor to the men who "run with the ball," we should not forget that it is often the "line" that makes it possible for the backs to go ahead.

It is a simple truth those of us in the Navy know so well, that the day after Pearl Harbor we were docking ships in the new docks that were not supposed to be ready for some time to come. This was due to Ben Moreell. Also the Battle of Midway — perhaps the turning point of the War — was greatly helped by his planning for the support of the fleet.

DAVY



There were times in the midst of this crisis when it was necessary to act before approval could be given, and I'll never forget one day when we were both on the Hill before a Senate Committee being upbraided for what we were doing without authority. The committee okayed it, but said, "Please, don't do it again," but we just had to. This also recalls the time I said to the President when I was going ahead on some work for which I had not a particle of authority, "Mr. President, I may land in jail for this," and his chary reply: "That's all right. If you go, I'll go with you."

But as for Admiral Moreell's work, you all know of the Sea Bees. Those of you who were abroad realize that it was one of the greatest bodies of artisans ever gotten together to support a military effort and to make possible the accomplishments of leaders in the field. The Sea Bees were Ben Moreell's own brainchild, and they were nurtured by him.

I could go on and recite at length his accomplishments. If there is one great American of the past war among us who probably is less known — certainly than a great many of those who were in the lime light — it is Admiral Ben Moreell. But those of us who saw the whole picture knew of his wonderful contribution to the winning of the war. I am happy to salute you for your great work, Ben.

Now, to come back to our College. It seems to me that this has been almost a "lift by your bootstraps" operation. But it's had the help of this community, and some remarkable help from those not of the community at present, but formerly of it. And we are grateful to everybody.

This building is not only welcome to us for the moment. I love to think of it, and of this College, and of what is being sown here now, as of enormous help to future generations.

In the scientific world of today, education and science, which are so closely joined together, are among the main props of our advancement, not only in power and in force, but in spirituality and in work for our fellowman. That my name is associated with this Hall of Science, I am deeply grateful.

When I get back among the family, they'll probably take me down to size for what was said here today, so that my head won't be too big for my cap. But I do appreciate all that's been said, though I realize it was overgenerous — no man could expect to live up to all that my friends have said — but I am grateful and I must confess a little tickled.

Thank you very much!

AVOGADRO

Speech delivered by
WILLIAM L. LAURENCE
*at the dinner following the
Dedication of Stark Hall*



Dr. Farley, Mr. McClintock, Honored Guest,
Ladies and Gentlemen:

I must say that I'm very proud, highly honored, and very humble to be asked to cap the climax on a memorable day. It was historic not only for Wilkes-Barre, for the State of Pennsylvania, but also for the Nation and for the Free World in general because what makes us free, what assures us of our future, is really the carrying on of the torch of knowledge. Any addition to our equipment for the passing of knowledge from one generation to the next is a powerful force, a powerful tool, a powerful promise, and an assurance of a continuation of the freedom of thought, of the freedom of our institutions, and of the continuation of the free way of life.

It was, therefore, to me a personal thrill to be privileged to be present on this occasion and to see a great American honored while he is still vigorously alive and able to enjoy the appreciation of his fellow men and his fellow citizens for the great services he performed for his country and for humanity.

Tonight, there are many in the world at large, particularly among scientific men, who take a rather dim view of the present state of the world. And well they may, because science has made tremendous strides and the strides are such that they can be used for destruction as well as beneficial uses of man; and the destructive forces now seem to be in the lead.

You might say as you look at history there has always been a great race between the forces of good and the forces of evil. There were times when the forces of evil were in the ascendancy, and the forces of evil were triumphant, and it seemed that they would remain so. However, the history of man proves to us that somehow it has been the destiny of man for the good always to triumph. At the last moment, sometimes in a photo finish, the forces evil were routed and the forces of the good took over.

I think we are now seeing a similar period and personally I have reason to believe, that the progress of science is going to make men free rather than enslave them. I will give you a few glimpses of

PASTEUR

what science is doing today and then try to draw a lesson for our use.

In the past fifteen years we have discovered a means for tapping the vast energy inside the nuclei, the hearts of the atoms of the material universe, or rather the hearts of two particular elements; namely, uranium, and an element called plutonium, that was never in existence until man made it.

Until that time this great cosmic force was forever believed to be beyond the reach of man. And then man's curiosity, the sorcerer's apprentice, monkeyed around here and probed there and all of a sudden this great geyser of cosmic energy came gushing out — not literally, but figuratively. And then a new era had come to man, an era that promised to open up a future of potentialities so great that the human mind, the human imagination is incapable of conceiving it.

Now, man is quite the newcomer on this earth, and as far as we know he is unique in the entire universe, for life on earth has existed for something like five hundred million years, but man is only about half a million years old. Most of the time he has had a pretty hard, tough struggle to obtain his foothold on this earth, because physically and biologically he's probably the weakest of all living creatures and the least adapted to survive. The only thing that enabled him to survive was a little bit of a layer of tissue which weighs less than half a pound and is named the cerebral cortex. This is not his entire brain; this is only a very thin layer of gray matter that covers the primitive brain, the white matter.

Now, that cortex is the most amazing machine in nature — the human cortex, the human brain. It consists of something like ten billion — ten billion, that's ten thousand million — individual living cells, and each cell is something like a photo-electric cell except it is much more efficient, so that if you were to try to duplicate this apparatus with modern electronic devices, like the transistor, the size of a pea, it would probably have to cover an area about the size of a city, not of Wilkes-Barre but of Philadelphia, and probably even a larger area.

Those ten billion cells are, as I say, the seat of our imagination, the seat of the intelligence, the seat of our spiritual understanding, the seat of our consciousness, and that little cerebral cortex has made it possible for man to survive by adapting himself to his environment. But it took him several hundred thousand years to make his greatest adaptation to this earth, for it was only about one hundred years ago that our modern industrial age came into existence.

The basis of man's ability to survive is his ability to use energy — first of all the energy of animals, and then later the energy of fuels, like coal and oil, as well as wind and sun power. But up to now all the sources of energy have been limited. They have not been available to all peoples of the earth. As a result standards of living differ greatly in all parts of the world, and these differences have inflamed human emotions so that envy, jealousy, and hatred first started wars between individuals, then wars between tribes, then wars between nations, eventually culminating in global wars between groups of nations.

I think that history will prove that most wars were due to the fact that in this world there were "have nations" and "have not nations" with the "have not" nations envying the possessions and the prosperity and the abundance of the "haves". And the reason there were "haves" and "have nots" was mostly because the distribution of energy was unequal.

This age that we have entered, the atomic age, promises to remove entirely and forever the maldistribution of sources of energy. In one pound of uranium there is the equivalent in energy of three million pounds of coal and something like five hundred thousand gallons of petroleum. And it is estimated that there is enough uranium distributed over the earth to last several thousand years.

But in addition to that, scientists are now working on an even greater source of energy; namely, water. In this pitcher of water there is enough energy to light the city of Philadelphia for probably ten years. This water is composed, as you all know, of hydrogen and oxygen, but there are two

STEINMETZ

types of hydrogen. (Actually, there are other types, but we talk only of two types.) One is heavy hydrogen. And this heavy hydrogen is the material, the basic material, in the hydrogen bomb.

It is the hydrogen bomb which, exploding with the equivalent of millions of tons of T.N.T., stands as a threat over the world because it has the power to destroy not only nations, but to destroy all life on earth. That is not my statement. That was a statement made by the late professor Albert Einstein in 1950, the man whose formula first revealed the existence of this tremendous energy inside of atoms.

I believe that the very fact that such tremendously destructive forces exist, has made war entirely impossible. In a way that is a paradox, but it has been proved true so far. The very power of destructiveness that now is at the disposal of man, has made the possibility of its use unthinkable.

I believe that our possession, as well as Russia's possession, of thermonuclear (hydrogen fusion) weapons and of guided missiles, has brought about a state of deterrence, a state of stalemate, that will make war, that has made war, and is making war, a tremendously inconceivable thing.

I believe in another thing. I believe that all through history tyranny and evil have triumphed for a time, but eventually the spirit of man, the spirit which is anti-materialistic, the spirit which strives always for betterment, for freedom, that is always reaching out for something beyond itself, that is always trying to rise from the earth toward a heaven of its own conception—that spirit always asserts itself.

I believe (and there are signs already to that effect) that the days of communism, the days of all systems that threaten the freedom of man, are numbered. I believe that what we have seen in Poland, what we have seen in Hungary, what we have seen in Russia itself, are definite portents that the day of the attempt to enslave the spirit of man is coming to an end. And I say that in, maybe, ten years, maybe fifteen years, I think in the lives of most of us here tonight, we shall see, not necessarily a revolution, not necessarily a great upheaval, but a

gradual softening, a gradual retreat from a concept of the ant heap to a concept of man, free to think, free to dream, free to aspire, free to lift his head to the stars.

When that time comes, of course, the threat of any kind of strife, the threat of any kind of total war, will have been eliminated, because we shall have then a world not divided between a slave world and a free world, but a world in which science will have forced man everywhere to accept the concept of freedom. And that to me is the greatest contribution that science is making and that science will make.

When the present Russian regime started, about 90% of the people were illiterate peasants. Today, the very fact that they are trying to industrialize themselves, forces them to educate their people, and the more education you have, the more freedom you have. Therefore, the time will come when the Russian masses, educated finally and knowing the difference between life in freedom and life in the state of slavery will necessarily force the complete revision, the complete change of attitude from a state in which man is a member of an ant heap, to a state in which man is a member of a free society.

So we have now the very fact that science has brought about a state in which war has become impossible. That may be a negative state, but this negative state is leading to a positive state in which the forces that have made war impossible will also bring about a new life on this earth by eliminating forever the difference between the "haves" and the "have nots" — by making available to mankind everywhere a practically unlimited source of energy.

In laboratories throughout our land, in Princeton University, and in New Mexico, and in the University of California, and in several other institutions, men are working to tame the hydrogen bomb — to tame the power of the hydrogen bomb which gives off in a fraction of a millionth of a second an energy equal to as many as fifteen to twenty million tons of T. N. T. They are working to tame that vast energy, to make it run the wheels of an industrial civilization such as the world has never dreamed of, such as the world has never dared even imagine.

EINSTEIN

Now, the prediction is: — It is a very difficult job, but scientists tell me that they are confident that it will take no more than two decades, in other words, twenty years from now, to harness the energy of the hydrogen bomb for the production of practically endless quantities of power to run the wheels of a new civilization, of a much improved civilization, which will not be limited, let us say, to countries like ours and a few western industrialized countries, but will provide enough power to go around for all the nations of the world, so that one of the main causes of war and strife, namely, the unequal distribution of power, will be forever eliminated. There will be enough power to serve all mankind.

It is estimated, according to present day knowledge, that there is enough deuterium in the oceans of the world to provide a thousand times the power used at present for a billion years — a billion, not a million, but a billion years — so that the problem of energy is going to be forever solved.

Now then, in addition to power, science has, through the advent of certain new radioactive substances, known as radioactive isotopes, opened an entirely new era in biology. These substances will not only aid in the treatment of disease but will also help in the study of the very complicated processes of life, which, until now, were so complex that it was impossible by even the most subtle means available to science to study and detect them.

With these radioactive tracers great progress is being made already into solving many of life's great mysteries. It is confidently expected that, as a result, the problem of cancer will be solved in the next five years and probably sooner. The problems of heart disease and of high blood pressure, the greatest killers of man, are also being gradually elucidated and their causes understood; and the more we understand causes, the more we can eliminate them, and the more we can prepare ourselves to prevent these diseases from ever developing.

So, I think we can look forward in the next five or ten years to an era in which all the infectious diseases will have been eliminated largely by means of antibiotics, by means of sulfa drugs, by means

of sanitation, by means of better nutrition. We have conquered, and we are about to conquer even further, all the virus diseases, as we have done with the polio vaccine, and with vaccines that are being developed against such things as flu and several other very serious virus diseases.

In fact, it is possible that within the next three to five years, with the present techniques used in the development of vaccines against polio and against flu and other virus diseases, we may also develop a vaccine against the greatest and most infectious disease of all; namely, the common cold. That is not a serious disease, but the point is that with the invention of the microscope and the discovery by Pasteur of the relationship of bacteria to infectious disease, we made a major breakthrough that finally led to the conquest of infectious diseases by vaccination, immunization, and sanitation. This discovery also made possible the tremendous advances in modern surgery, because when you didn't know the nature of, or the reason for, infection, there were no antiseptic methods to make serious major surgery possible. But by means of the discovery of the control of bacteria, by developing antiseptic methods, we have opened the way to the tremendous advances in modern surgery, which now make it possible and practical to operate on the heart, to operate on the brain; and we are making more and more progress every day.

That was a major breakthrough, the discovery of the bacterial origin of infectious disease. Now we are about to make another major breakthrough, which looks very much as if it will do for the chronic diseases, namely, heart disease, high blood pressure, cancer, what the discovery of the bacterial origin of infectious disease did for the infectious diseases. The infectious diseases generally hit the beginning, the first half of life, while the so-called chronic and degenerative diseases strike the second half of life. Within the next ten years we may expect to bring the chronic, degenerative diseases under control and thereby not only add years to life but also life to years.

Man, therefore, will have improved his physical being by the availability of tremendous, practically limitless, quantities of power. He will have im-

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proved his biological existence by the elimination and control of disease. And then, we come next to the psychological and the spiritual, for once you have conquered man's poor physical environment and given him a good physical environment and a good biological environment, then he will for the first time really have the opportunity to develop his innate spiritual and intellectual powers that have been dormant in him throughout the centuries, when he had to devote so much of his time and his energy to make his physical and biological environment acceptable to him.

And so, therefore, science is now preparing the way for a new era of man which will provide him with material abundance for a pleasant existence and at the same time give him the time and the leisure in which to develop his spiritual capacities to the utmost. For, really, the energy in the atom, or the energy in the hydrogen bomb, is really only secondary to the much greater forms of energy, and these are the dynamic, creative energies inside of man. These energies have also been lying dormant for the thousands of years that man has existed on this earth, just as atomic energy has been locked up inside the atoms without anybody being able to release it.

The creative energies in man have also been there, but mostly because of his unfavorable environment, mostly because he had to blunder about through history, not knowing exactly where he was going, those creative forces never had a chance to be fully developed. Only a few — the Shakespears, the Newtons, the Beethovens, the Einsteins, and a few others — had so much of that energy that it came out of them.

Most men had similar creative forces within them, but they did not have the opportunity that they are going to have in the very near future. And I believe that once you give man, any human being, the opportunity to develop the creative forces inside of him, then there will be a world in which the forces of the good will finally become triumphant over the forces of evil.

I will tell you this little story that Mr. Marts has heard me tell before. That is the story of the night

when I was privileged to be present on the desert of New Mexico when the first atomic bomb was exploded.

There were few of us there, and it was a dark, dreary, starless, black night, and it was cold. And men stood there wondering what would happen. There were some of us who believed that the thing would be a success, whereas others thought, or were afraid, that it might be a fizzle.

On that "gadget", as we called it, standing on the top of a tower a hundred feet high, rested the hopes of man — rested the hopes and the lives, probably, of hundreds of thousands of young Americans. Because, if that thing succeeded, it meant that the war would come to a quick end and save the lives of all those young boys who would otherwise have to sacrifice their lives. If the thing fizzled, then it meant, really, the condemnation to death of maybe half a million young Americans. So on that moment rested, really, without their knowing it, the destiny of all those young boys who are now alive, thank God.

And so, as we stood there, we heard a voice in the darkness call off, tick off, the seconds (what is called a count-down). That was the first time I ever heard a count-down. That is, you count downwards. You say ten—nine—eight—seven—six—five—four—three—two—one—and then—the world stops, and your heart stops, and out of the darkness there comes a light such as no human being, no human eyes had ever seen before. A light that concentrates within itself the light of a hundred suns, at least. And out of that tremendous light there comes a great mountain of fire. A radioactive mountain, a mountain later covered by a mushroom. And you watch that mushroom grow and grow and grow and rise and rise, and spread and spread, both in width and in height, until it reaches through the clouds. The sun has not yet risen, but the desert is full of daylight — and you stand there wondering, "What has man wrought? What has man made?"

It was the first time... Probably the earth has existed for an estimated three billion years, and for those three billion years, the atoms had locked up within themselves that tremendous energy. And

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there for the first time, in that desert of New Mexico, man had found the key and had turned the key and had released that energy.

But our thoughts were on more practical things at that time. We knew that some 500,000 — a half a million young Americans, unknown — would be alive because of that poisonous mushroom cloud.

I remember going back from that soul-shattering experience and for a long time there was silence in the car. I was sitting there with one of the scientists who had helped build the bomb, and then I heard this voice, and the voice sounded as though it were coming from outer space — far away.

And the voice said, "This was the nearest to doomsday one can possibly imagine." And then the voice added, "I'm sure that at the end of the world in the last millisecond of the earth's existence, the last man will see something similar to what we have just seen."

And then there was silence again, and then I heard another voice, and the voice sounded as though it were coming from far off in space — outside the car in which we were riding through the desert — but the voice was strangely familiar, and it was actually my own voice. I heard myself saying, "maybe you're right, but it is also possible, it is also conceivable, that if man could have been present at the moment of Creation when God said, 'Let there be Light,' and there was Light — on the third day of Creation — he might have seen something similar to what we have just seen."

The rest of the way we travelled in silence. But in the years afterwards I happened to think of that little dialogue in the desert by two men who had seen the same soul-shattering phenomenon. One saw doomsday; the other saw creation. One saw an end; the other a beginning. One saw a twilight; the other saw a dawn. Which of the two was right? And I must confess, for some years, when the cold war got colder and colder and threatened to become hotter and hotter, I began to believe, or to feel, that that voice that saw doomsday was the nearer to the truth.

But since then I have changed, and I feel now that the vision of creation out of that mushroom, out of that hundredfold sun, was the more correct one.

There is another little story that was written about ninety years ago in a journal of two famous French writers, the Goncourt brothers. And in that journal, it's a diary, they tell about an event, a dinner in Paris in one of the famous salons of those days where there were present all the lights of the day — the artists, the writers, the scientists, the sculptors, etc. — and they were holding this conversation, doing something that we also are doing these days, speculating on the future. And they were speculating on what science would be like in a hundred years. And the date was April 7, 1869.

One of them, Bertholot, the great chemist, said that, in a hundred years of science, man would be able to turn on and extinguish the sun as though it were a gas flame. And another one, Claude Bernard, the greatest physiologists of his day, said that by that time, "Man will be able to create life in the test tube, in competition with God." The Goncourt brothers in their journal made this comment:

They said, "We have the suspicion that if that time ever comes to science, God with his white beard will come down to earth and swinging a bunch of keys will say to humanity, the way they say at five o'clock at the salon, 'It's closing time, gentlemen.'"

Well, we have some twelve years to go, and I believe that we are not going to be able to turn the sun on and off, though, in a sense, that night in the desert, we did turn on a sun that was much more powerful, much more luminous, for a fraction of a second, true, than the natural sun. I remember one scientist, after the real sun rose, said, "Aw, the sun can't hold a candle to it."

And that was true, you see. But we'll not actually be able to turn the sun on and off. We may be able to create some form of life in the test tube, but not living human beings. And I do believe that at the scheduled time in 1969, if we do hear the swinging of keys in the air, it will not mark closing time for man on earth, but it will signal the opening of new gates at a new dawn in a new promised land.

B U S H

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Winston Churchill

September, 1957.

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LORD KELVIN

