"Philco"
Autobiography of Progress
WILLIAM BALDERSTON
"Were American Newcomen to do naught else, our work is well done if we succeed in sharing with America a strengthened inspiration to continue the struggle towards a nobler Civilization—through wider knowledge and understanding of the hopes, ambitions, and deeds of leaders in the past who have upheld Civilization's material progress. As we look backward, let us look forward."

—CHARLES PENROSE
Senior Vice-President for North America
The Newcomen Society of England

This statement, crystallizing a broad purpose of the society, was first read at the Newcomen Meeting at New York World's Fair on August 5, 1939, when American Newcomen were guests of The British Government.

"Actorum Memores simul affectamus Agenda"

"PHILCO"
Autobiography of Progress
An Address at Philadelphia

AMERICAN NEWCOMEN, through the years, has honored numerous important industrial organizations, both in the United States of America and in Canada; and has paid tribute to those who founded and developed these enterprises. Such a Newcomen manuscript is this, dealing with the genius of inventive skill, technological knowledge, hard work, and abiding Faith, which have carried "Philco" forward as a leader in electronic production!
"The Philco story covers a period of more than 60 years and begins at a time when the transition between an agrarian and an industrial economy was just about completed in America, and our faith in progress through technology was at its height."

—WILLIAM BALDERSTON
My fellow members of Newcomen:

We are to hear tonight the life story of a great enterprise, one whose growth typifies the opportunities our American way of life offers to men of vision and initiative. It has been my good fortune to be close to the affairs and to the leaders of this company throughout the period of its greatest expansion. I speak with some authority, then, when I say that our guest of honor is a particularly appropriate spokesman for this Autobiography of Progress. Not only because he is president of the company. Not even because he has taken a leading part in its activities for almost a generation. But because his personality and background symbolize the pioneer spirit and progressive imagination that characterize the Philco Corporation.

For Wm. Balderston was born and raised in pioneer country—Boise, Idaho—and spent his early years in the rugged, wide open spaces of Wyoming. He came part-way East to the University of Wisconsin for his education where he found and married his wife. The ensuing years brought him farther and farther East—but always the West has remained in the secret places of his heart. Just this last Summer, perhaps his fondest dream came true—
he built a summer home not on the Cape or in Connecticut or Maine, but on a wild and rocky mountain slope in Wyoming!

True to his background, Mr. Balderston's first job with Philco was a pioneering job. He joined the Company in 1930 to organize and head a division to sell automobile radios to the motor car industry. Car radios in 1930 were looked upon with a great deal of suspicion and had a long way to go engineering-wise. Under Balderston's leadership, the development and promotional work of his division had much to do with the rapid growth in the popularity of the automobile radio and laid the foundation for Philco's leadership in this field.

As the corporation grew, our guest of honor went on to new positions of responsibility. He was awarded a Presidential Citation for his contribution to the war effort. As vice-president in charge of operations he directed Philco's reconversion to peacetime production after the war. After a term as executive vice-president, Mr. Balderston was elected president of the Corporation in 1948.

Under his leadership, Philco has diversified its products and has grown steadily in stature. During his tenure of office, sales of the corporation have almost doubled—from $226,000,000 to about $430,000,000 last year. It is one of the fabulous success stories of American business—a glowing tribute to a man's opportunity under our system of free competitive enterprise. I have the honor to present the President of Philco Corporation: WILLIAM BALDERSTON.

My fellow members of Newcomen:

It is a very real privilege to be the spokesman for our company this evening and to be permitted to place its record among the distinguished archives of the Society. I can only hope that my recital of the history of Philco and its growth as a modern business corporation will serve the high aims and purposes of Newcomen as so nobly expressed by Dr. Penrose at the New York World's Fair in 1939.

The Philco story, Mr. Chairman, covers a period of more than 60 years and begins at a time when the transition between an agrarian and an industrial economy was just about completed in America, and our faith in progress through technology was at its height. As historians trace the development of our Country through various stages of scientific research and invention, we can recognize the impact of these influences upon the progress of our own company and the nature of its activities. As such, our history becomes a reflection of the opportunities which America and the American way of life have held to put technology to work for the welfare of all our people.
The Philco story begins in 1892, at a time when the great geographical frontiers of our Country were beginning to disappear. Ever since 1803, when Thomas Jefferson purchased practically the entire western half of the United States of America from Napoleon for 15 million dollars, the minds and energy of our pioneers had been occupied with the great western frontiers. By the early '90's those fabulous frontiers had been conquered and a hardy race of settlers had gone West to seek their fortunes.

But about this time, exciting new frontiers were opening up in America. Men of vision now were occupied with the unexplored frontiers of science and industry which literally staggered the imagination. The miraculous Age of Electricity had dawned. Within the previous decade or so, Bell had invented the telephone, Edison the incandescent lamp, Henry Ford was about to build the first crude model of his automobile, and, within three or four years, Marconi was to startle the world with the wireless telegraph.

It was in this atmosphere that five men got together to lay the foundation for what is today the Philco Corporation. As they sat down to their first meeting in Philadelphia, in 1892, they probably were little aware of the future that lay before the company they were forming. But we can't be too sure of that, for their announced objectives were certainly broad enough. According to their original corporation charter, they decided that their capital of $10,200 could be used for:

"manufacturing and furnishing all articles, materials, apparatus, machinery, supplies and appliances relating to the use of electricity, steam, water, heat, natural or manufactured gas, or for any useful purpose."

They called their company the Helios Electric Company and started out manufacturing carbon arc lamps, those bluish street lights which you associate with handle-bar moustaches, derby hats, and Model T Fords. They had their ups and downs during this founding period. One crucial day in 1904 they made a vital decision. Things were going badly and the company had been obliged to appoint a Receiver. The Receiver reported that the property would bring less than 20¢ on the dollar at a forced sale. After due consideration, the Board of Directors resolved that "the company's property would be more valuable as a going concern than if sold out at a Receiver's sale." Thanks to that decision, there's a Philco Corporation today. Without it, someone else might be addressing you from this platform tonight!

The second phase of the company's history began in 1906, when its name was changed to the Philadelphia Storage Battery Company and, with 18 employees in a modest factory consisting of two sheet-iron buildings, it began manufacturing storage batteries for electric automobiles, trucks, and mine locomotives.

Soon electric automobile lights and self-starters made the battery business boom; and the company was on its way. The business prospered year after year as the automobile and other industries grew, new factories were built, the number of employees increased, and, in 1919, the name "Philco" first appeared on the Philco Diamond Grid Battery. Through a national advertising campaign, our name and products soon began to achieve a nation-wide prominence.

1920 was an eventful year. During March of that year, a serious fire practically demolished the factory. But with a spirit we like to remember, those Philco men pitched a circus tent across the street and were hard at work making batteries just 24 hours after the fire!

But that same year witnessed another event of far greater significance for Philco. The Harding-Cox election returns were
broadcast by KDKA in Pittsburgh and the idea of radio entertain­ment for the home swept across the Country. The radios of that day needed A and B batteries and Philco shifted its emphasis to batteries for recharging sets. In 1925, they introduced the “socket power” which operated without batteries, entirely from the electric light socket. That’s when things really started to hum! Production of socket powers reached a peak of 50,000 a week, and Philco sold over a million units to the American public.

Then the AC vacuum tube was invented which enabled you to plug a radio set directly into the house current . . . and the demand for socket power units declined rapidly.

That was in 1928, and Philco made the logical move . . . along with a lot of others, it went into the radio business. And thus began the third phase in the company’s affairs.

Our first year was anything but spectacular. We sold 96,000 sets and ended up in 26th place in the industry. However, we came through the year with a radical idea. Radio was for the millions, not the thousands—custom built, it was still too expensive for the average American. So why not produce radios on a production line basis, just like automobiles?

Many wise heads scoffed at the idea. But Philco, with the courage of its convictions, borrowed 7 million dollars at the bank to finance the reconditioning of its plant, the installation of a conveyor system, the purchase of materials, and the founding of a complete merchandising program aimed at leadership in the radio business.

And the investment paid off! In 1929, right through that black Autumn, Philco sold 400,000 sets and jumped to 2nd place in the industry. In 1930, with the introduction of a table model known as the “Baby Grand” at the then unheard of price of $69.50, we took over first place—and completely repaid that 7 million dol­lar loan.

All through the ensuing years, in spite of the low ebb in the national economy, Philco delivered millions of radio sets to the homes of America. Because of its great entertainment value, people bought a radio in preference to an automobile or even furniture. Our rapid growth during those years led many to refer to us as a “depression baby.”

By the Year 1938, Philco had grown to full maturity in the radio industry. Then, as now, the philosophy of the men who guided the affairs of the company saw Philco as a dynamic enterprise which could fulfill its destiny only if it continued to expand. So one of the most important decisions in the history of the business was made—to diversify and begin to broaden the base of our activity. It took vision and confidence to do this, for 1938 was not a particularly good business year. Only today, other electronic companies are following the course that Philco pioneered years ago.

Our first step into areas other than electronics was to enter the single-room air conditioning field. For many years we had the market practically to ourselves and pioneered most of the early engineering, educational, and merchandising work. Today the so-called educational period has passed and the public has really become awake to the advantages of room air conditioners.

We now have a lot of company in the field, some 72 manu­facturers according to a recent count, and it is being freely pre­dicted that it won’t be too long before more room air conditioners will be sold than electric refrigerators.

1939 saw another major step in Philco’s expansion program when it went into the refrigerator business. And in the course of
the years, the influence of our research and engineering has brought about many innovations in refrigerator service and utility, and has altered the very appearance of the modern refrigerator.

In 1940, the name of the company was changed to Philco Corporation and it became a public corporation. From a closely held company owned by about 120 people, its shares are now listed on the New York Stock Exchange and it is owned be some 20,000 stockholders in all parts of the world.

In 1941, Philco had grown to a company of about 6,300 employees, with manufacturing facilities covering 1,900,000 square feet, and doing a sales volume of 77 million dollars a year.

Then came the Second World War... and the fifth phase of the Company's history.

Philco men like to tell the story of our first order for airborne radar identification equipment. It was back in 1941. The Japs had just attacked Pearl Harbor and left it in ruins. During the confusion of the attack we were unable to distinguish between our planes and those of the Japs. A highly intricate piece of radar equipment was needed for our planes so they could be interrogated from the ground and automatically respond with a secret signal which would give positive identification in all kinds of weather or in the dead of night.

A few days later, an emergency call came to Philco from the Commanding General at Wright Field. Could we furnish such equipment and how fast? Our engineers literally worked 24 hours a day—and in just 18 days after this call they left the Pennsylvania railroad yards in Philadelphia in a baggage car hastily equipped as a mobile laboratory still working on 24 samples and delivered them the next day in working order, much to the surprise of the Wright Field personnel. This equipment was first used at the Battle of Midway, where our planes were under constant identification from the ground and shipboard—a tactical advantage which helped to turn the tide of battle in our favor.

The war over, we returned to peacetime production and entered the sixth and present phase of the Philco story. The arrival of television in 1947 greatly increased our sales horizons and gave us the opportunity to capitalize on our basic research in the high frequency field. Through the work of our scientists, we were able to take part in establishing the standards for television broadcasting which were adopted by the U.S. Government. And through their continuing contributions to improved picture quality and performance in our television receivers, we have taken part in the rapid growth of the television industry, which as you know ranks among the spectacular industrial phenomena of the present decade.

In the meantime, we were improving our position in refrigeration. And, in 1949, we entered the electric range business by acquiring the Electromaster Corporation of Mount Clemens, Michigan. While we're just really getting started in the field, our initial progress has encouraged us to expand our production facilities and to heighten our emphasis on electric range engineering and design.

The most recent addition to our product lines was announced last December with the acquisition by Philco of the Dexter Manufacturing Company, producers of home laundry equipment. This rounds out what we call our "Philco All Year Round" program, although we do not plan to introduce a line of products under the Philco name until some time in the future.

With the end of the Second World War, we established our Government and Industrial activities as a separate division, in order properly to continue our work for the Armed Forces and to
develop the increasing opportunities in electronic equipment for industry. Today, we have become a large supplier of micro-wave communications equipment for private industry. But our chief activities in that division today are concerned with the defense program, and we have been entrusted with many important projects in guided missiles, identification equipment, and airborne radar.

Our slogan, "Famous for Quality the World Over," is an accurate indication of the scope of Philco's activities. Through our subsidiary, the Philco International Corporation, we are doing business on every continent, with our own manufacturing facilities in Canada, England, Brazil, Mexico, and Colombia. In several other countries, local assembly plants are licensed to produce Philco products, and our overall export volume has kept pace with our expansion in the domestic market.

I come now to the division of our activities which lies at the heart of our past progress and our future growth. I refer to the contributions of our Research and Engineering Division to the advance of electronic science. As pointed out at the beginning, our company is a pioneer on the new frontiers which science and invention had opened up. In the past quarter century, rapid progress has been made in the field of electronics as a result of the constantly increasing emphasis upon pure research and applied science in the laboratories of our industry. In this respect, we are the beneficiaries of that invigorating climate in America which has been both the inspiration and the incentive for scientific progress. The accomplishments of research during the past generation in many fields have been little less than fabulous—in agriculture, in medicine, in chemistry, in nuclear physics, and in our own industry: electronics. The objective of all this progress has been to promote the economic and social well-being of our people, to gratify that insatiable desire of free men in a competitive economy to improve their way of life.

In the electronic industry, the pace of research began to gather momentum in the late 'twenties when scientists applied themselves to the mysteries of television and began their work with cathode-ray tubes and cameras, all of which finally led to the establishment, in 1941, of black-and-white television standards.

The Second World War interrupted this work, but presented our industry with a challenge of far greater magnitude; namely, the development of radar and loran and the sister arts of electronic target finding and navigation. The pace of electronic research and engineering increased ten-fold during the war. And, since then, that pace has not only been maintained but has increased, opening up new vistas of opportunity in the domestic and industrial arts.

Typical of these post-war activities are two developments of outstanding significance for the future: namely, the transistor and color television. In the Philco laboratories, as in those of most other companies in our industry, a major share of the research and advanced engineering effort is being devoted to these challenging new fields.

Last December 3rd, one of the results of this research was officially revealed to a group of scientists at The Franklin Institute here in Philadelphia. At this meeting, our engineers announced the development in the Philco Research Laboratories of a new type of transistor, known as the "Surface-Barrier" Transistor, an invention which we believe will profoundly affect the nature of all manner of electronic devices.

The first transistor was announced in 1948. It consisted of a piece of the rare metal germanium with two pointed wires bearing on its surface; it was known as the "point-contact" transistor. The fact that this device would amplify weak electric signals, and as such might replace the vacuum tube, was a discovery to fire the imagination. But in the six years since that time, the point-contact transistor has failed to fulfill its early promise.
present its principal use is in telephone switching apparatus. In due time another transistor made its appearance, known as the “alloy-junction” transistor. It was an improvement in many respects, but here again limitations were quickly found. It would not amplify at the high frequencies used in military communications and television. Most important, both types resisted efforts to manufacture them on a high-speed, mass-production basis. As a result they cost nearly ten dollars each, compared with less than a dollar for the vacuum tubes widely used in radio and television sets.

Recognizing these deficiencies, the research team in our laboratories struck out in an entirely new direction. They found a method of machining the germanium by electrolytic etching which permitted the dimensions of the transistor to be controlled to tens of millionths of an inch; and to do so by techniques which lend themselves readily to low-cost factory production methods. Most important, by this super-precise control of dimensions, they were able to produce a transistor which would amplify at the high frequencies needed for advanced applications, and with amazing economy of operation.

For example, a radio receiver using several surface-barrier transistors, can operate 6 hours a day every day for six months on a single battery. So sensitive is the device that a small transmitter, using a surface-barrier transistor, can operate without a conventional battery at all. At The Franklin Institute one such transmitter was demonstrated, suitable for use as an ocean-rescue device. When the transmitter, attached to a lifeboat, hits the ocean, the action of the salt water on terminals attached to the transistor is sufficient to power the device.

We believe that this new transistor offers, for the first time, the wide range of application and the ease of manufacture which will permit transistors to fulfill the glowing predictions made for them.

During this same period, another research and engineering effort has taken place in our industry of equal importance and perhaps more immediate impact on the home life of our Nation in coming years. This is color television.

In 1949, the Federal Communications Commission called for hearings to determine whether a color television system was ready for the public. Among the proposals then made were two which illustrate the nature of the problem then facing the industry. One was a system which had promise in many respects, but one fatal drawback. It was incompatible with the existing system of black-and-white broadcasts, which meant that the millions of receivers then in the hands of the public could not receive its programs. Another proposed system was of a compatible type, intended to produce on existing receivers, a black-and-white rendition of the color program. But the performance of this latter system was such that the FCC found it technically inadequate and, for lack of an alternative, the Commission adopted the incompatible system.

Work for many years on color systems in the Philco Laboratories had convinced our engineers that a satisfactory compatible system could be worked out, provided that the resources of the entire industry were called upon to share in its development. As a result, we took a leading part in proposing to the FCC that an all-industry committee be formed to undertake this work. The result was the National Television System Committee, an organization of over 300 leading television scientists drawn from nearly all the television manufacturing companies and broadcasting networks, large and small.
This Committee, now familiarly known in the industry as the NTSC, began its work in 1950. For over two years it drew up various standards of transmission, subjected them to painstaking tests, found many of the proposals wanting, revamped them to get around the difficulties, and finally, early in 1953, arrived at the basis of a system which seemed to meet all requirements.

Then it subjected the system to the most elaborate field tests ever accorded an electronic system intended for the home, devoting nearly 10,000 man-hours to this task in less than six months. By July, 1953, the NTSC System was fully tested and proved. It worked, and it worked well. The standards of transmission were thereupon proposed to the FCC and this body, on December 17th, 1953, approved them as the basis of color television broadcasting in this Country.

Here we have one of the most inspiring examples of how an entire industry can cooperate in the solution of a peacetime problem and together find the common basis for a new nationwide service to the public. In the words of the official FCC announcement:

"the accomplishment of a compatible color television system ... is a tribute to the skill and ingenuity of the electronics industry."

Does all this mean that Color Television is here? Well, theoretically yes. But in terms of the average purchaser, those who have bought around 7 million sets each year since 1950, No!

Naturally, with the approval of color broadcasting standards by the Commission, manufacturers now can proceed with the long drawn out process of designing their sets and getting into production. But much work still remains to be done in the labora-
Color programs, too, will be on a highly limited schedule for some time to come, again because of cost and difficulty in production. And perhaps more important, because there won’t be enough circulation, that is color sets in use, to encourage advertisers to spend their money on color programs.

The investment required to equip a station to originate programs in color is estimated by authorities to run from $400,000 to $800,000. Obviously, it will be a long time before the average station can consider such an expenditure worth while. On the other hand, the cost of equipment to rebroadcast network programs will be relatively small. So for quite a while, color programs will be limited to about 2 hours a week in the network cities. A recent bulletin of the National Better Business Bureau says “most authorities believe that the total number of color broadcasts in relation to black-and-white will remain quite limited for a long time to come.”

Whatever predictions we accept, it is clear that the economics of color television will make it a luxury service, supplementary to black-and-white. And, further, that black-and-white, with its highly perfected 21, 24, and 27 inch screens at prices that the mass market has shown its willingness to pay, will be the backbone of television, both in programs and receivers, for a long time in the future.

Truly, the science of electronics is an expanding and challenging field. Its frontiers are being pushed back in the laboratories of our industry with all the ingenuity and intensity that inspired our early land pioneers. Our own scientists have made many significant contributions to the art, and as a result we hold important patents and have many others pending in transistors, color television, and numerous other fields of advanced electronics.

So, Gentlemen, as we look back over more than sixty years of growth and diversification, which was climaxed in 1953 with a total sales volume of 430 million dollars, I like to think of Philco's autobiography in terms of its significance as a beneficiary of our Nation's growth. And conversely, in terms of its obligation as a business enterprise to the Nation's welfare.

Our industry, and Philco as a part of it, is a prime example of the spectacular progress which has resulted from scientific achievement in an atmosphere of freedom. Repeated many times over, it has created new opportunities, new industries, new jobs, and has brought about the industrial pre-eminence of America. True enough, scientific discovery is not exclusive to America, far from it. But it cannot be denied that the seeds of science have found far more fertile ground in this Country than anywhere else in the world. And its fruits have brought our people greater productivity, greater abundance, and greater enjoyment of life than in any other country or under any other political philosophy.

So far as Philco is concerned, we are grateful for the opportunity we have had to make our contribution to this end. Since 1928, when we entered the radio business, we have delivered something over 35 million Philco units into the homes of America, bringing entertainment, information, convenience, and comfort to millions of people. With this huge family of Philco owners, I think it is fair to say that Philco is making a dominant impression on the life of America today.

Swift as the pace has been, the horizons of the future in electronic science stagger the imagination. The scientists of our industry are preparing a beneficent revolution for our households, our stores, and our factories. New products for our homes, new methods of merchandising and management, new processes of production, all born of electronics, are taking shape in the minds and laboratories of our engineers. And they will appear as the years
go by to bring higher efficiency, greater comfort, more leisure, and better health to our people. It is an inspiring prospect and one that makes us thankful for our opportunity to contribute to the economic strength and human welfare of our Nation.

I close, then, with a plea that we as businessmen be ever mindful of the benefits we have enjoyed from our free competitive economy and be eternally watchful of our obligation to preserve the principle of freedom of opportunity in our Nation. We must remember that our Country had its roots in the basic idea of human rights and individual initiative. This, in the final analysis, is what has inspired the support of our people in every crisis in our history.

Let us be vigilant, then, to protect and promote the human spirit. Then, with the genius of our people and the invigorating atmosphere of our native land, our future is safe from domestic ills or foreign foes!

The End

"Actorum Memores simul affectamus Agenda!"

This Newcomen Address, dealing with the beginnings, growth, and contributions of Philco Corporation, was delivered at the "1954 Philadelphia Dinner" of The Newcomen Society in North America, held at Philadelphia, Pennsylvania, U.S.A., on March 30, 1954. Mr. Balderston, the guest of honor, was introduced by William Fulton Kurtz, Chairman of the Board, The Pennsylvania Company for Banking and Trusts, Philadelphia; Vice-Chairman of the Philadelphia Committee, in American Newcomen. The dinner was presided over by Ralph Kelly, Retired President, The Baldwin Locomotive Works; Chairman of the Philadelphia Committee, in this international Society.
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—William Balderston
AMERICAN NEWCOMEN, interested always in industrial and economic history, takes satisfaction in this human and colorful Newcomen manuscript, dealing with the beginnings, growth, and contributions of a pioneer organization in an important and highly specialized field.

It is a narrative calculated to impart to the America of today and of succeeding generations a measure of inspiration to stimulate real achievement!

MORE THAN 30 years ago, the late L. F. Looe (1858-1940) of New York, then dean of American railroad presidents, established a group now known as "American Newcomen" and interested in Material History, as distinguished from political history. Its objectives center in the beginnings, growth, development, contributions, and influence of Industry, Transportation, Communication, the Utilities, Mining, Agriculture, Banking, Finance, Economics, Insurance, Education, Invention, and the Law—these and correlated historical fields. In short, the background of those factors which have contributed or are contributing to the progress of Mankind.

The Newcomen Society in North America is a voluntary association, with headquarters in Uwchlan Township, Chester County, within the fox-hunting countryside of Eastern Pennsylvania and 32 miles West of the City of Philadelphia. Here also is located The Thomas Newcomen Library, a reference collection open for research and dealing with the subjects to which the Society devotes attention.

Meetings are held throughout the United States of America and across Canada at which Newcomen Addresses are presented by leaders in their respective fields. These manuscripts represent a broadest coverage of phases of Material History involved, both American and Canadian.

The approach in most cases has been a life-story of corporate organizations, interpreted through the ambitions, the successes and failures, and the ultimate achievements of those pioneers whose efforts laid the foundations of the particular enterprise.

The Society's name perpetuates the life and work of Thomas Newcomen (1663-1729), the British pioneer, whose valuable contributions in improvements to the newly invented Steam Engine brought him lasting fame in the field of the Mechanic Arts. The Newcomen Engines, whose period of use was from 1712 to 1775, paved a way for the Industrial Revolution. Newcomen's inventive genius preceded by more than 50 years the brilliant work in Steam by the world-famous James Watt.

Members of American Newcomen, when in Europe, are invited by the Dartmouth Newcomen Association to visit the home of Thomas Newcomen at Dartmouth in South Devonshire, England, where the festival of "Newcomen Day" is celebrated each year on the anniversary, August 16th, of his death.