work here can aim toward no higher goal, can accomplish no greater good, than to serve that cause, heart and soul.

The day of victory will surely come, and the words "Peace on earth, goodwill to men" will again ride the radio beams of all the world. Then America's men of science will draw upon their wartime research to develop finer and more useful products and services for peace-time purposes. Out of the ashes of war, they will bring forth implements for a new and better civilization.

DAVID SARNOFF

THE ROLE OF RESEARCH IN MODERN INDUSTRY

ON behalf of the staff of RCA Laboratories I extend to you a cordial welcome to our new home.

We are happy and proud to show you to-day the initial group of buildings which have been planned for erection here. They are the beginnings of a development which will make this place the center for the creative and forward-looking activities of the RCA family.

By accessibility of location, spaciousness of setting, utility but dignity of architecture and efficiency of equipment, we have endeavored to provide facilities and an atmosphere here that will be especially conducive to effective original work. We intend to make this place increasingly attractive in order to induce you and others to come here frequently for research services and for contemplation of the problems and the future of the radio and electronic art and industry.

These new laboratories are a monument to past research—to achievements which have brought into instantaneous communication with each other the most remote points on land and sea and in the air. By signals, by voice and by pictures, the miracle of radio has disseminated information, education, entertainment and culture to all the peoples of the world. Such contributions have made possible the laboratories we are dedicating to-day.

But these laboratories are more than a memorial to past triumphs. They are concrete recognition that research plays an essential role in modern industry; that it is a vital force for promoting the progress of science and the useful arts. They are intended to be a further contribution to industrial advancement and to social betterment by an organization whose services to the public and whose origin and progress have been based upon scientific research and original development.

Scientific research is diligent quest into the great unknown. It is the key that unlocks the doors of nature and reveals its mysteries and secrets. It frees mankind from fetters and limitations seemingly imposed by natural forces and by environment. It extends the boundaries and horizons of human knowledge and experience.

Research is a modern equivalent of geographical exploration whereby in former times new lands and additional natural resources were discovered and made available. But to-day, when there are no more continents for geographers to discover, the research explorer is faced with no such predicament. He never exhausts his field. Each new discovery seems to make research only more endless. Vast new areas are continuously being opened for development and practical use, and there is no apparent limit to the potential resources yet to be uncovered by science.

In radio and electronics we know this. There research has progressively extended the useful portions of the radio spectrum, until its availability for future communication and other services now appears to be almost limitless. Television is only one of the many new wonders for which a place has been made by such extensions. Great new regions never before seen by man have also been made visible by the electron microscope, which is profoundly influencing further developments in many branches of science and industry. Countless other new things previously undreamed of are being made realities by radio and electronic research.

In other fields science has created new materials, such as plastics; new synthetics, such as rubber and silk; new medicines, such as the sulfanilamides; new textiles; new colors, new metals and alloys; and it has produced new achievements in aviation, in transportation and housing.

Scientific research is a great provider and producer of employment for all classes of people. It affords an outlet for exercise of the imagination and genius of scientists and inventors. Through it their special talents give their best and most useful expressions. And the industries brought into being and vitalized by it employ myriads of other workers and vast amounts of capital.

It is distinctively constructive and beneficial. It does not invade the fields or destroy the rights of others. Its conquests are won only in the realm of the previously unknown and non-existent. Truly it is an instrument of the first order of social and economic importance.

With prophetic vision and wisdom our forefathers framed measures for the encouragement of scientific research—patent laws for protecting the inventions which are its logical results. No more effective or economical method of promoting the progress of science and the useful arts has ever been devised. It has been the bulwark of our industrial and social progress. It has stimulated the translation of scien-

tific discoveries into industrial achievements. It has accelerated the movement of inventions into the humblest homes.

Without our patent system, research would languish, the streams of invention would become mere trickles, our industrial supremacy would be lost, employment would be reduced, and improvements in our standards of living would be retarded.

Let us, therefore, preserve this wholesome system unimpaired in order that we may continue to enjoy the maximum benefits of research and invention. Let us be careful in attempting to effect desirable improvements in this system and to prevent its misuse, we do not weaken or destroy it. And let us also, by every means at our command, promote and expedite the distribution of its benefits to all the people.

These laboratories are not intended to pre-empt the field of radio and electronic research. In science, as in everything else, competition is the greatest spur to healthful activity. The scientists who will man the work benches in these laboratories have been in keen but friendly competition with other scientists throughout the years. The sum of the effects of all of them has greatly accelerated scientific progress.

In the alliance of science with modern industry we need both individual inventors and organized research groups. Each has its field. The flame of some men's genius burns brightest alone. Many of our greatest inventions have been made by individual scientists, with primitive equipment and with little or no help, save the inspiration of their own unquenchable spirits.

But there are many inventions that could never be made and developed in that way. They call for systematic research and for organizations of men, of materials, of equipment, of resources. The workers in these modern and efficient laboratories will have at their command all these essential factors. They will also have a valuable association with the communications, broadcasting and manufacturing services of the Radio Corporation of America. These services will be sources of ideas for development as well as of problems for solution. They will also be proving grounds for testing inventions and new devices in actual service and production. And the inventions that crystalize here will also be available under licenses to the whole radio and electronic industry.

I want to pay respectful tribute to the directors of the Radio Corporation of America for their vision, courage and broadmindedness in authorizing the building of this institution as a means of broadening and strengthening the foundations of the Corporation and of the radio and electronic industry.

Earnestly and constantly the workers in these laboratories will endeavor to render services and to produce results which will justify the confidence in them, and in the efficacy of scientific research, which is demonstrated by this wise investment for the future.

To-day, RCA Laboratories and its magnificent enrolment of men, buildings and equipment stands enlisted in the cause of war. When we leave here to-day, the gates will be closed to others than war workers. These structures will then be as much a part of the nation's armament as are its arsenals and forts. The men who work here will be as much members of its armed forces as if they were in the trenches on the battlefields. The work they will do will be military secrets carefully guarded against leakage or intrusion.

But I can give you this prophecy: the scientific progress made here will play a most important part on all the battlefields—on land and sea, under the sea and in the skies. When the war ends, and the ban of secrecy is lifted, the recital of accomplishments will thrill all of us and fill us with justifiable pride.

But when the war ends—when the victory is won—these men and these laboratories will stand dedicated in advance to serve the cause of a victorious peace. For therein lies the distinctive characteristic of our scientific endeavor. Its destructive power is one of the greatest weapons of war, and its constructive power is one of the greatest assets of peace. The same radio and electronic discoveries which these laboratories will have forged into weapons to tear down the ramparts of our enemies will also serve to rebuild the structures of our peace.

Because men work to-day in laboratories like these, new cities will rise from the ruins of the silent battlefields, richer crops will be harvested from the black stubble of scorched earth, and finer homes—richer at least in material things—will replace the homes that have been devastated by war.

The triumphs of science warrant our saying—amid all the horrors of war—there is still hope for civilization.

To help make that hope come true is the purpose to which these new laboratories are dedicated.

OTTO S. SCHAIRER

OBITUARY

FERNAND HOLWECK

1889–1941

THE news comes from unoccupied France that Dr. Fernand Holweck, director of research of the "Centre National de la Recherche Scientifique" and associate professor of physics at the Institute of Radium of the Sorbonne (Laboratorie Curie), was murdered by the Gestapo on December 14th, 1941, in a Paris prison. Further details are missing.

Dr. Holweck, born in 1889, graduated in physics