PROCEEDINGS OF THE SEMI-ANNUAL BANQUET OF THE SOCIETY OF MOTION PICTURE ENGINEERS

ROCHESTER, N. Y.
OCTOBER 14, 1936

About 200 members and guests of the Society assembled at the Fall, 1936, Semi-Annual Banquet held at the Oak Hill Country Club, just outside Rochester. Guests at the speakers' table included Mr. M. H. Aylesworth, Chairman of the Board of Radio Keith Orpheum, and formerly Chairman of the Board of the National Broadcasting Company; Dr. Alan Valentine, President of the University of Rochester; Dr. C. E. Kenneth Mees, Vice-President in charge of research and development of the Eastman Kodak Company; Mr. Albert F. Sulzer, Vice-President and Assistant General Manager of the Eastman Kodak Company; Mr. Carl S. Hallauer, Vice-President of Bausch & Lomb Optical Company; Mr. Lee McCann, Secretary of Stromberg-Carlson Telephone Manufacturing Company; Mr. H. D. De Jong, Chief Engineer of Philipsglowlampworks, Eindhoven, Holland; and Mr. C. Connio Santini, special delegate to the Convention from the Ciné Club of Buenos Aires, Argentina.

Also seated at the table were Mr. Homer G. Tasker, President of the Society; Dr. Alfred N. Goldsmith, Past-President; Mr. S. K. Wolf, President-Elect; Mr. J. I. Crabtree, Editorial Vice-President; Mr. K. F. Morgan, of the Board of Managers of the Pacific Coast Section; and Mr. J. A. Ball, of Technicolor Corporation, Hollywood.

After a period of dinner-dance music the guests at the speakers' table were introduced one after another, with appropriate words, by President Tasker, following which announcement was made of the results of the election of Officers of the Society for 1937, the ballots having been counted on the opening day of the Convention, Monday, October 12th. As announced by President Tasker, these results were as follows:

President: S. K. Wolf
Executive Vice-President: H. G. Tasker
Editorial Vice-President: J. I. Crabtree
Convention Vice-President: W. C. Kunzmann
Secretary: J. Frank, Jr.
Treasurer: L. W. Davee
Governors: M. C. Batsel
A. N. Goldsmith

The President, all the Vice-Presidents, and the two Governors were elected for two-year terms; the Secretary and Treasurer for one-year terms. Other Officers and Governors of the Society whose terms have yet one year to run are:

Engineering Vice-President: L. A. JONES
Financial Vice-President: O. M. GLUNT
Governors: A. S. DICKINSON
H. GRIFFIN
A. C. HARDY

Elections of the Chairmen of the three Sections of the Society—Atlantic Coast, Mid-West, and Pacific Coast—are yet in progress, and the results will be announced as soon as they are known.

After making sincere acknowledgment of the coöperation of the many persons and firms that had contributed to the success of the Convention (which names have been listed in the November issue of the JOURNAL), President Tasker proceeded to describe the nature and purposes of the annual Awards of the Society, namely, the Progress Medal and the Journal Award. Tracing the historical development of the Awards and describing briefly the symbolism of the designs on the Progress Medal, he called upon Dr. Alfred N. Goldsmith, Past-President of the Society, to read a citation of the work of Mr. Edward Washburn Kellogg, whom the Journal Award Committee and the Board of Governors of the Society had selected as the recipient of the Award for 1936.

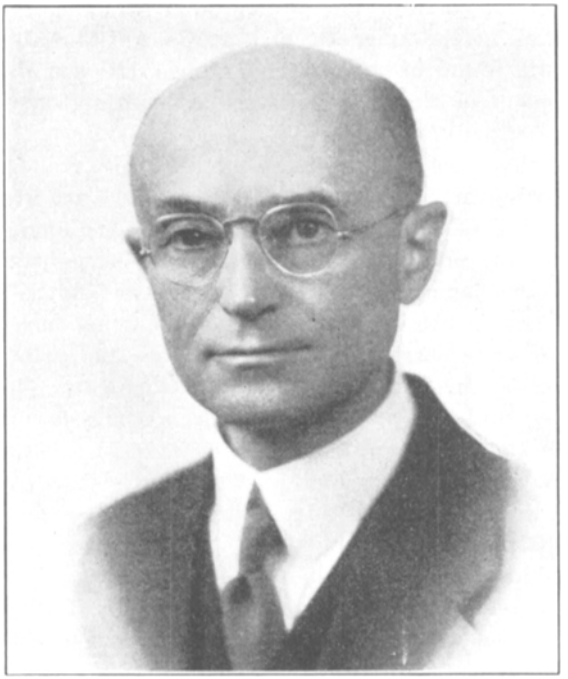
CITATION OF THE WORK OF EDWARD WASHBURN KELLOGG

ALFRED N. GOLDSMITH

It is my privilege to announce that a paper by Mr. Edward W. Kellogg has won the Journal Award of the Society of Motion Picture Engineers for 1935. I deem it appropriate now to give you some information as to Mr. Kellogg's professional career, his contributions to technical progress, and his scientific attitude.

Thirty years ago he was graduated as a civil engineer from Princeton University, later studying mechanical and electrical engineering at Cornell University. From his first employment with a great public utility company in Chicago, he turned to instruction in elec-

trical engineering at the Universities of Missouri, Texas, and Ohio. Shortly after the entry of our nation into the World War, he left the academic world and joined the Research Laboratory of the General Electric Company, at Schenectady, to assist in submarine-detection work. Thus the exigencies of war brought about the beginning of a career of industrial research and engineering notable not only for the importance of its accomplishments, most of which were either



Edward Washburn Kellogg

directly or indirectly related to the sound motion picture art, but also for its versatility.

Mr. Kellogg very soon displayed the scientific originality and thoroughness for which he later became noted. A noteworthy advance occurred in radio broadcasting when there appeared upon the market in 1925 an a-c. operated receiver incorporating a dynamic cone loud speaker and an amplifier with adequate power to drive

the speaker, this valuable product being the result of the fundamental researches of Mr. Kellogg and his associate, C. W. Rice.

Commercial radio communication has benefited considerably by the early work of Messrs. Rice and Kellogg on directional antennas, and, in particular, by their theoretical work in coöperation with H. H. Beverage on the system known as the "wave" or "Beverage" antenna.

Electrical reproduction of phonograph records reached commercial realization in considerable measure through Mr. Kellogg's development, in 1926, of the magnetic pick-up, in substantially the same form as is still found in home phonographs. He was also active in the development of electrical methods of recording on wax for the Brunswick Company.

Since the advent of sound motion pictures, Mr. Kellogg has been concerned with nearly every technical phase of the art, at the laboratories of the RCA Manufacturing Company at Camden. From the beginning he has urged the importance of speed constancy in the reproducing mechanism to prevent "wows" or "flutter," and has been most ingenious in devising means of achieving such constancy. His studies of optical systems, film resolution, and printing mechanisms have been instrumental in the development of high-quality film recording, and may be said to have become classic contributions.

The paper that has earned for him the Journal Award, "A Comparison of Variable-Density and Variable-Width Systems," is itself an eloquent demonstration of Mr. Kellogg's wide acquaintance with the problems of recording sound upon film, and of his skill and open-mindedness in fundamental analysis.

It gives me real gratification now to present Mr. Kellogg to President Tasker, who will present the Journal Award of the SMPE to him. I am doubly pleased that this honor should come to one who combines in such outstanding degree original thinking, scientific thoroughness, technical skill, and manly candor and courage.

Amid enthusiastic applause from the audience, Mr. Kellogg approached the speakers' table, where President Tasker presented to him the Journal Award certificate, addressing him as follows:

"Mr. Kellogg, it is a very great pleasure to present to you this certificate, which I should like to read for the benefit of the members of the Society. Upon this scroll is inscribed this legend: *This is to certify that the paper entitled 'A Comparison of Variable-Density and*

Variable-Width Systems,' by Edward Washburn Kellogg, has been designated by the Journal Award Committee as the most outstanding paper originally published in the Journal of the Society of Motion Picture Engineers during the year 1935."

Accepting the certificate from President Tasker, Mr. Kellogg responded in the following words:

"Mr. President, I thank you. And Ladies and Gentlemen—Dr. Goldsmith was so kind as to speak of my candor and readiness to tell the truth. It really is a great luxury, once in a while, to say what one knows is so. I am going to take this occasion to indulge in a little of that luxury and give you the straight story of what it was all about.

"The happiest experiences that come to us are often the results of a course of action that we would have liked to avoid. I certainly did not very gladly undertake to write the paper that had such a happy outcome for me. It all came about through Max Batsel's persuasive way of telling one that a certain thing ought to be done. My hesitancy was partly because the subject was, as many of you know, a decidedly controversial one. But I was encouraged by being reminded that it was not a presidential election year, and that it would be all right to tell the truth.

"For a good many years I have been studying distortion in sound. Throughout it all I have been profoundly impressed with the crudeness of our man-made sound devices and with how wonderfully our God-given powers of perception, interpretation, and imagination fill in the gaps.

"Although officially, of course, I may not admit that any of the products or processes sponsored by the company for which I work give rise to any distortion, we all know that that is not true. It is only $99^{44}/_{100}$ per cent true. In this matter of variable-density *vs.* variable-width systems, we all know that both of them can produce plenty of distortion. If some of you may not happen to know what the technical terms "variable-density" and "variable-width" mean, let me assure you that it is entirely sufficient for you to know that both of them are *variable*, as attested by many a headache.

"Having undertaken to assume a role resembling in some respects that of referee in a game between rival teams, the first difficulty I encountered was that it appeared to be necessary for me to learn something about the subject, which was fortunately made possible,

in great measure, by the many valuable papers contributed to this Society by earlier authors.

"The real gist of what I found out after prolonged study was that I should say to the members of both camps, 'Gentlemen, the other fellow's system is so bad, so full of distortion, that only by the grace of heaven can people understand anything that is said.'

"I want to express my appreciation to the Society for this Award, and to the Committee for what I know must have been a lot of hard work, and I am grateful for the very kind things that have been said tonight. I want to say one more thing: that the meetings of this Society are a profound pleasure to all us men. I do not know of any group of men where there are so many authorities on so many different subjects in which one may happen to be interested, and from whom we can find out things that we want to know. We revel in it; and you ladies who come here for a good time do not know what fun your husbands are really having."

It is a requirement of the Journal Award that honorary mention be made of not more than five outstanding papers originally published in the Journal during the corresponding year. The following are the papers thus given honorable mention this year:

"Flutter in Sound Records," by T. E. Shea, W. A. MacNair, and A. Subrizi.

"The Photographic Effectiveness of Carbon Arc Studio Light-Sources," by F. T. Bowditch and A. C. Downes.

"A Mechanical Demonstration of the Properties of Wave Filters," by C. E. Lane.

"Simple Theory of the Three-Electrode Vacuum Tube," by H. A. Pidgeon.

It is also a requirement of the regulations pertaining to the Journal Award that the names of the recipients of previous Awards be published annually in the JOURNAL:

"An Introduction to the Experimental Study of Visual Fatigue," by Peter Andrew Snell (1933).

"Reciprocity Law Failure in Photographic Exposure," by Loyd Ancile Jones and Julian Hale Webb (1934).

Continuing the presentation of the Society Awards, President Tasker called upon Dr. L. A. Jones to read a citation of the work of Dr. C. E. Kenneth Mees, who had been selected by the Progress Award Committee and the Board of Governors of the Society as the recipient of this Award for 1936:

CITATION OF THE WORK OF CHARLES EDWARD KENNETH MEES

LOYD A. JONES

It is indeed a privilege that I value most highly, and an honor that I deeply appreciate, to appear before you this evening charged with the duty of calling to your attention some of the contributions to the

Charles Edward Kenneth Mees

art and science of motion picture photography of the man who is about to receive the Progress Medal of the Society. This medal is awarded for outstanding and distinctive achievement in the field of

motion picture photography, and is the highest award within the power of this Society to bestow.

Charles Edward Kenneth Mees was born in Wellingborough, England, May 26, 1882, the son of Charles Edward Mees, a Wesleyan minister, and Ellen Jordan. His paternal grandfather was Charles Mees, a manufacturer residing in Lufton, Bedfordshire. His great grandfather and great-great grandfather on his mother's side were Wesleyan ministers.

After elementary school training he went to Kingswood School, Bath, the school founded by John Wesley for the sons of Wesleyan ministers. He then attended Harrowgate College for one year, and later went to St. Dunstan's College, Catford, a technical college, where he specialized in scientific work in preparation for University College, London, which he entered in 1900 as a student under Sir William Ramsay, then professor of general chemistry at University College. He was graduated with the degree of Bachelor of Science by research at University College in 1903, and received the degree of Doctor of Science in chemistry from the University of London in 1906 for a thesis on the sensitometry of photographic plates.

In the same year he joined the firm of Wratten and Wainwright, Ltd., of Croydon, England, as joint managing director. This concern was engaged in the manufacture of photographic dry plates. While with them he developed the first panchromatic plates commercially available, the precursor of the modern panchromatic plates and films. Prior to that time the available photographic materials, with the exception of a few slightly green-sensitive orthochromatic materials, were sensitive only to violet and blue light. With such emulsions it was impossible to make photographic reproductions of colored objects in their true relative brightnesses as seen by the eye; but the panchromatic plate, being sensitive to the entire visible spectrum, made it possible to achieve for the first time true tonal rendering of a variously colored object.

By careful study of the absorption characteristics of dyes that could be incorporated in thin sheets of gelatin, Dr. Mees was able to develop a very complete series of light filters useful for a variety of purposes in the photographic art. These have been manufactured continuously during the past quarter of a century according to the standards that he originally established, and the filters are well known throughout the photographic world, having become almost reference standards for many purposes.

During his connection with Wratten and Wainwright, Ltd., Dr. Mees also developed a series of highly efficient safelights for the illumination of photographic darkrooms.

It was during this period that he began the first systematic investigation of the resolving power of photographic materials. It is well known that one of the required characteristics of motion picture photographic materials is a sufficiently high resolving power so that fine detail may be satisfactorily reproduced even when the tiny picture on the film is projected upon the silver screen, in many cases under a magnification of 200 or 300 diameters.

In 1912 Dr. Mees was invited by Mr. George Eastman to come to the United States to organize and direct a research laboratory for the Eastman Kodak Company. At about that time Gaumont Frères, a French organization engaged in making motion pictures, attempted to commercialize a three-color additive projection process for the production of colored motion pictures, and the Eastman Kodak Company acquired the American rights to the process. The process involved the making of a set of three color-separation negatives, and, obviously, such a set of color-separation negatives can be made only with film that is sensitive to all wavelengths of the visible spectrum. At that time no motion picture film of the panchromatic type was commercially available, and the Gaumont concern attempted to produce their panchromatic film by bathing the ordinary blue-sensitive product in a suitable dye solution. The result was far from satisfactory, since the sensitivity was not particularly high nor was the uniformity good. Dr. Mees, collaborating with other emulsion makers of the Eastman Kodak Company, therefore set to work upon the problem of producing a panchromatic motion picture film, and in 1914 a very satisfactory material of that type, having excellent sensitivity to all colors of the visible spectrum and a sensitivity sufficiently high for practical purposes, was produced at Kodak Park. The Gaumont process did not succeed commercially, but not because of lack of a satisfactory photographic material. This panchromatic motion picture film was the first of its kind commercially available, and was the immediate forerunner of the modern panchromatic motion picture film on which practically all motion picture negatives are made today.

Since that time he has continued his work very actively in the development of new and improved photographic materials, particularly of the panchromatic and dye-sensitized types. Under his direction

tremendous strides have been made in the manufacture and use of sensitizing dyes capable of extending sensitivity of the photographic material to wavelengths far into the infrared. His series of spectroscopic plates sensitized to various regions all the way from the ultraviolet to the extreme infrared have been of enormous value, particularly in the fields of spectroscopy and astronomy, and one of the infrared-sensitive materials in the form of motion picture film is of considerable value to the motion picture industry for obtaining special effects.

Thus far the developments mentioned have been very largely the purely personal accomplishments of Dr. Mees, the results of work that he himself planned and directly supervised, and in many cases did with his own hands. During the past twenty-four years he has directed the activities of a great research laboratory, the technical staff of which has increased from the small beginning of a few specialists, to a large group consisting at present of some four hundred men, engaged in investigation and developmental work in almost every field of photography and in other closely allied sciences. Dr. Mees' directorship of the laboratories has been by no means a passive one, but, on the other hand, has been most vigorous and aggressive. His unbounded enthusiasm, his vivid imagination, and his uncanny ability to suggest the most fruitful experiments to perform have been a constant source of inspiration and encouragement to the members of his staff. His preëminent fairness to those working under him, his kindliness, and his humanity have endeared him to the hearts of his associates.

The accomplishments of the Kodak Research Laboratories are very largely the accomplishments of Dr. Mees. While he has been successful as an individual research worker, we feel that his great success and his great contribution lie in the ability and sagacity he has shown as director of this research organization. It is therefore fitting that we should recount at this time some of the developments of the laboratories that must be recognized in large measure as part of his achievements.

In the twenty-four years during which the laboratories have been functioning, they have published some six hundred scientific communications in which the results of their researches have been made available to the public, and many of which have been of direct value and importance to the motion picture industry.

Among the important scientific accomplishments of the laboratories

are: the development of the theory of tone reproduction, upon which depends a truthful tonal representation of the object photographed; a complete investigation of the nature of photographic gelatin and its effect in enhancing the sensitivity of photographic materials; many studies upon the nature of the latent photographic image, upon the theory of development, and upon the methods of measurement of sensitivity and other photographic characteristics.

During the World War the research laboratories of the Eastman Kodak Company were engaged, under the direction of Dr. Mees, in many problems of military importance. A number of specialized plates and many filters for specific purposes were developed, and the United States School of Aerial Photography was established at Kodak Park, in which civilian instruction was organized by Dr. Mees and his colleagues.

In 1918, in addition to continuing as Director of Research, Dr. Mees was made Director of Development of the Eastman Kodak Company, and in 1923 became a member of the Board of Directors of the Company.

After the war, work was started in the laboratories upon the development of a process of amateur cinematography, which was carried through successfully and placed upon the market by the Eastman Kodak Company in 1923. The growth and importance of the industry that has grown up around the 16-mm. motion picture film and equipment are well known to this Society and need no further emphasis.

Following this, the subject of amateur color cinematography was taken up, and in 1928 a process of direct color cinematography, known as Kodacolor, was announced and introduced commercially. Work upon color photography was continued in the Laboratories, and further progress was made with the result that a new and improved process for amateur cinematography, Kodachrome, was perfected and introduced in 1934.

Dr. Mees is the author of many books on photography, and a list of his scientific communications dealing with various aspects of photographic science would be too long to mention in detail at this time.

His achievements in the field of photographic art and science have been recognized upon many occasions, as witness the numerous awards that have been given him. Among these we may mention the Henderson Award for photographic research in 1907; the silver medal of the Royal Society of Arts in 1908 for a paper on color photog-

raphy; the Progress Medal of the Royal Photographic Society in 1913 for research contributing to the advance of photography, this being the highest award of that Society; the John Scott Medal and Award of the City of Philadelphia for research in the fundamentals of photography in 1921; the Janssen Medal of the Société Française de Photographie in 1924; the Hurter and Driffield Medal of the Royal Photographic Society in 1924 for the memorial lecture of that year.

Amid prolonged applause, Dr. Mees received the Progress Medal from President Tasker, who addressed him in the following words:

"Dr. Mees, not through any right of my own, but as a servant of the Society, I am honored to add to the honors given to you by other Societies, this Medal, which the Society of Motion Picture Engineers confers upon you this evening for your outstanding work in this field."

In response, Dr. Mees spoke as follows:

"Mr. President, Dr. Jones, Members of the Society: I am greatly honored by the presentation of the Progress Medal of the Society of Motion Picture Engineers and am deeply touched by the account that my colleague, Dr. Jones, gave of my work.

"It is particularly gratifying that the account of my work should be presented to the Society by Dr. Jones, who has been associated with me for twenty-three years in our Laboratory and who has himself taken part in much of the work of which he spoke. Indeed, the results of the work on the theory of tone reproduction, which has been one of our major problems, should be credited to Dr. Jones himself. Most of the work that has been mentioned has been done to a great extent by my colleagues, with such assistance as I could give them.

"When I started in 1901 to do photographic research, I had a perfectly clear picture in front of me of what I wanted to do. I was interested in photography, practical photography, taking pictures with a very primitive camera. Incidentally, I sold my stamp collection to buy that camera, so you can see how young I was. I was learning to be a professional scientific man, and it irked me very much that not only had I no knowledge of the science of photography but I could not find any clear information upon the subject. The books available left great gaps in the structure of the subject. Much that was published was obviously incorrect, and much more was simply insufficient.

"Dr. Sheppard and I were friends then, as we are friends still; colleagues then, as we are colleagues still; and we decided that we should like to develop a coherent science of photography. We took up the science of photography as a subject of study while still undergraduates, and after two years of initial work, concentrated upon the problem as our post-graduate subject in preparation for the doctorate degree at the University of London. When the work had been done and our theses were published, I had to look about for a means of making a living, and there was no way of making a living then by continuing the study of the pure science of photography. In order to apply the work that I had done, I went into industry and started to make photographic plates. But when Mr. Eastman gave me the chance to come to Rochester and the promise that when I came I might have a research laboratory that would work upon the science of photography, I seized the opportunity. I was able to persuade Dr. Sheppard, Dr. Jones, and several other colleagues who are still with me to join me so that we might attack the problems of photography.

"A great many of the 600-odd scientific communications from our Research Laboratory deal strictly with the technical science of photography, so that today, as a result partly of our own work and partly of that of others, I can say that we now have a coherent, definite science of photography in which there are no large gaps. There is yet much work to be done, but the greater part of the skeleton of the science of photography has been laid down and the early work on fundamentals has held its place. That is a source of great satisfaction to me and to those who have worked with me.

"I often think that I have the best job in the world. There isn't any better fun in the world than having a laboratory where you can do what you want to do and where you can get results in the field in which you are interested. I have some self-sacrificing colleagues—Mr. Sulzer, who is here tonight, has been my colleague ever since I came to the Kodak Company. He and my other associates in the company do all the hard work while I have a good time. I am looking forward to the future with the belief that I can continue to have a good time in the same way. I hope that we shall be able to fill in some more of the gaps in our knowledge, to make some better materials than we have now, to do things that we can not do now. Especially, I feel that in the future we should make photography the true representation of the glorious, colored world in which we

live. The time has come when we should represent colors in photography as colors and not as 'a correct tone reproduction' of what the colors would be like if we could not see them. That little job will probably keep us busy, happy, and very much occupied in the future."

As a requirement of the regulations pertaining to the Progress Award, the list of previous medalists of the Society is to be published annually in the JOURNAL. As this is only the second time this Award has been given, only one previous medalist can be mentioned, *viz.*, Dr. Edward C. Wente, who received the Progress Medal at the Convention of the Society at Washington, October, 1935.

As Dr. Mees concluded, President Tasker addressed the Society in the following words:

"At this time it is my pleasure to introduce to you a man whom I have admired for many years. Earlier in the evening I had the opportunity of speaking to Mr. Aylesworth for a few minutes and asked him about his present work with the National Broadcasting Company. I also asked him what he was doing before he joined that Company.

"In reply he told me that he had been Managing Director of the National Electric Light Companies, and described a little of the work of those companies, the magnitude of which astonished me. I asked him whether he had ever had a small job, and I must inform you that with a big man's characteristic modesty and simplicity, he replied, 'I still have.'

"Mr. Aylesworth, it is a real pleasure to introduce you to this Society, particularly as you have now become one of us by devoting all your time to the motion picture industry, whereas before we have had to share you with the broadcasting industry.

"Ladies and Gentlemen, I present Merlin H. Aylesworth, Chairman of the Board of Radio Keith Orpheum, and formerly President of the National Broadcasting Company."

THE RELATION OF RADIO BROADCASTING TO MOTION PICTURES AND THE THEATER

MERLIN H. AYLESWORTH

I have made so many speeches during the last twenty years without any apparent results except a complete change in my voice due

to hoarseness, that I felt it was time to swear off on behalf of both listeners and myself. But last month when approached by your Banquet Committee, whose job it is to find some speaker who promises not to talk too long or too seriously, I had a deep conviction that I would like to pay tribute to the technical profession in the motion picture industry.

In this highly emotional, sometimes jittery, field of activity in which producers, associate producers, directors, associate directors, supervisors, artists, and often executives, rush madly about, in the supreme effort to produce a picture that will entertain and sustain the motion picture habit of the fickle public—there is always that quiet but effective balance of the technical organization.

You men who represent the great background of achievement in this business look upon this scene of mad activity with calm eyes, and remind one of the men in the line of a football team who make way for the fellow who carries the ball and obtains most of the glory.

I find the same true in radio broadcasting. I can give you one simple illustration—simple, I say, from the standpoint of the engineer, but entirely marvelous to one like myself, who, although totally ignorant of the technical side of any business, is highly appreciative of the results.

The date had been set by the landlord, Mr. Rockefeller, when the NBC studios in the RCA Building in Radio City would be completed and the rent would start. I was sufficiently familiar with the efficiency of the Rockefeller organization to know that on that date the vast studios of NBC would be ready. As you know, radio broadcasting is a continuous performance and it was essential that the broadcasting at 711 Fifth Avenue, the NBC Building, should be switched to the new NBC in Radio City without interruption.

Those who had charge of the selling of business, the programs, the music, and the general conduct of the broadcasting, continued to operate at 711 Fifth Avenue without giving much thought to the great change that was about to take place. The engineering force continued to function efficiently and to all intents and purposes had their hands full.

Late in the afternoon of November 10, 1933, Mr. O. B. Hanson, Chief Engineer, visited my office with the quiet warning that my office in the new quarters would be ready for me the next morning at 9 o'clock. He said my telephone equipment was all installed, the

dialing system for auditions was working excellently, and all the mechanical equipment necessary for my convenience in listening to programs and conducting the business was in good order. Looking sternly at Mr. Hanson I explained that the mechanical equipment for my office, and even the furniture, was unimportant compared to the general technical equipment for the studios and the actual operation of the radio programs. Mr. Hanson replied that they had naturally taken care of my office last, assuming it to be of the least importance. So, during the night between November 10th and November 11th the great change took place, and in all fairness I must say that it was due almost entirely to the efficient supervision and fine working organization of the NBC technical staff.

Now, in broadcasting we have a highly emotional as well as weird show business that must function to the second. Yet in all my years of activity in radio broadcasting I have never known a time when the engineers were not well ahead of the operation, and without any trumpets or flags waving in their behalf carrying on at the head of the parade.

The engineer never becomes a maintenance man. He is constantly looking into the future, just as those in sound broadcasting today are looking with fear and confusion at the laboratory progress of television. On the other hand, the engineer welcomes advancement and progress and change in the art, and is always meeting it rather than wondering in the background what will happen next to destroy his peaceful day.

There can be no question that the very foundation of a great part of American industry rests in the hands of the engineer. I mean by that, the engineering field of activity, whether in pure science or in the practical adaptation of technical equipment in a working business, is the job of the engineer. He has done his job well. It would take me an hour to cover a small number of the great names in engineering, all closely identified with the development of our greatest industries, whether in the field of manufacturing, public utility service, radio, motion pictures, *etc.* You are discussing this week highly important problems in the development of the motion picture art. You will solve those problems and the new ones to follow. The technical position of the motion picture art is out in front in the parade of motion picture production.

As I look back to 1935 and 1936, I am impressed with the outstanding achievements of this basic industry, which vitally affects every

member of the family, both from the standpoint of entertainment and instruction, and which is worldwide in its significance as a human service. May I state a few facts of importance to the motion picture industry and the public:

In the years 1935 and 1936 there have been more outstanding, one might say great, pictures than in the entire history of the industry. The classics, the great stage plays, the great stories of fiction have been brought to the screen with almost perfect technic and artistic production. This is due in no small measure to the demand by religious, civic, educational organizations, and the general public for better pictures both from the moral standpoint and the selection of subject.

The motion picture industry quickly responded to this demand and today has established a machine of self-censorship that definitely controls the policies of motion picture production without in any way hampering or destroying the creative ability of those who produce and act in motion picture production. Many prophesied that this self-imposed censorship would bring about "Pollyanna" pictures, and would take the vitality out of motion picture production. These prophecies were entirely unjustified. Our self-imposed censorship has aided the creative genius of our producers, directors, and writers in seeking higher planes of public entertainment.

History shows that the mediocre performer on the stage saved himself by being risque. Perhaps that was not so bad, because the adult audience within the four walls of the theater could laugh without much embarrassment in the presence of their friends. The radio and the motion picture are quite different. The radio enters the homes of the people, and there is no reason in the world why any person, young or old, should be shocked or hurt by the bad taste of those who bring entertainment over the radio into the American home.

While it is true that people pay admission fees to the motion picture theater, and some argue that that is like purchasing a book, a magazine, or a newspaper, and therefore comes under the privilege of selection of what the person wants, that is not an answer that will satisfy. Aside from some great stories with well known titles, most of the titles are unrelated to the themes of the pictures, and call for general attendance. It is true that some fine pictures are produced that are more satisfactory for adults than for juveniles, and many great organizations have helped in pointing out these classifications of pictures, which, I believe, is in the interest of fine picture production.

It must be remembered that while all people like good entertainment in motion pictures, the tastes of people are quite different. Even in New York City pictures are played in the Radio City Music Hall that would not draw so well in many other theaters in New York, and many pictures shown in certain New York theaters would not draw well in the Music Hall.

In certain parts of our great country the Western type of picture is considered much more entertaining than other pictures which are called "highbrow" and simply have no appeal for certain audiences. That does not mean that the industry should make pictures to please all the people and never attempt to make pictures that appeal to lesser groups; nor does it mean that the grade of intelligence changes in different parts of the country. The attendance at motion picture theaters is one of habit and custom. People will always like what they like, and we can not compel the public to come to see anything that does not appeal to their fancy.

Although the great story or classic or stage play has a drawing power, we must frankly admit that ours is a business of great stars, who achieve popularity with the people who pay at the box-office. We now come to one of the most important problems confronting the motion picture industry. I refer to steadily increasing costs of production. I am not referring particularly to the price paid to artists, directors, agents, and the rest; but it is quite apparent that the production of a picture today, produced, directed, and acted by the same persons on the same lot will cost substantially more than it did three years ago. Whether the blame may be laid to the management, to increased taxation, to the persuasive powers of agents, or to the mad scramble for bigger and better things due to the vigorous competition or lack of coöperation among the production companies in this industry, is the question to be answered.

It must be remembered that this increased cost of motion pictures is accompanied by lower rates of admission in all parts of the country than existed a few years ago. It must be remembered also that in many theaters of the country people now receive two feature pictures, along with short subjects and newsreels, for a lesser price than they once paid for a single feature picture. So the exhibitor or theater manager has his problem as well.

While we are making much finer pictures than we did in the past we still make too many indifferent pictures. I do not mean that the so-called *B* pictures have deteriorated below the second-grade or

so-called "program pictures" of a few years ago. Nevertheless, there are indifferent pictures produced that should never be made or released and have no real drawing power and annoy the paying audience. However, the great companies, because of many contracts and large organizations, which seem essential to the business under its present policies of operation, are burdened by fixed charges that call for a steady production of pictures and a large program in the number of pictures regularly produced.

It is very easy to make statements of this sort and rather embarrassing not to be able to give the answer to the problem. However, all the forces engaged in this great industry of entertainment are giving careful consideration to these major problems confronting the motion picture and theater business.

The steadily increasing cost of production at Hollywood can be met only by real coöperation among the major producing companies in prohibiting the waste of man power and money. This can be accomplished, even in a business as competitive as ours, by the heads of the major motion picture producing companies realizing and putting into practice a plan of real coöperation which is bound to lessen the cost of production by the coördinated use of specialized man power in every department among the various studios.

I am not referring in any way to reductions in salaries of the producer, director, or artist, or any unit of labor or man power. It may be argued that it is not feasible to coördinate activities among competitors. Enough has been done along this line to show conclusively that it can and must be done.

Attendance is closely approaching the peak figure of 1929, when you engineers brought sound as well as sight to the motion picture industry. Yet in most instances the price of admission is lower than it was eight years ago, and in many cases two feature pictures are given for a price less than was paid for a fine picture eight years ago.

We have now returned to prosperity, and there is no reason why the public should not voluntarily pay an admission price commensurate with the service offered. The double feature arose out of competition and depression. Many independent theaters put on two feature second-runs in the hope of drawing from the theaters that had first-run pictures. The result was that the first-run theaters, except when unusual pictures were shown, followed the example of their brother exhibitors and also gave two feature pictures.

Motion picture attendance is a habit and public interest must be

sustained. The practice of giving one Grade *A* picture with a Grade *B* picture is like eating too much ice cream at one time; and when the public is fully informed, the theater industry will have no trouble in doing away with what I regard a wasteful, injurious practice that does not properly serve the public, who will pay to see good pictures and are entirely satisfied with one good feature picture, interesting shorts, and a newsreel.

The double-feature program was a child of the depression—cheap admission and quantity entertainment. Now with the return of good times and increased spending power, by demanding quality and not quantity entertainment, the public will give the answer to this problem.

The general situation calls for coöperation between the motion picture companies and the theaters, and, of course, the general public, which after all receives the service and pays for it.

Many exhibitors complain of the types of contracts offered by the major companies. I am very happy to say that consideration is being given by individual motion picture companies and theater groups to more satisfactory contract arrangements. Naturally, there can be no standardization of contracts, and each motion picture company will necessarily proceed independently to treat with the exhibitors in the sale of pictures. I am sure that the coming year will bring forth the treatment that this problem requires and while the answer may not suit everybody, certainly the great majority of exhibitors will know that the motion picture companies have their interest at heart as well as their own.

I think it is simply marvelous and beyond understanding, how the great motion picture companies are able to produce so many fine pictures for public enjoyment. As you know, this is a business of twenty-four hours a day of activity, short lives for stars, and with such high-speed action that the casualties, the physical and mental breakdown, are beyond those of any other business with which I am familiar.

Much excitement and discussion has taken place recently due to the so-called competitive features of radio broadcasting with the theater and motion pictures. A good many exhibitors feel that radio broadcasting is responsible for keeping people at home. Many at the motion picture studios feel that motion picture artists should not appear on the radio.

I have always believed that the radio helps the motion picture and

the theater, and that the theater and the motion picture help the radio. Although radio broadcasting is now at its all-time high in drawing power for entertainment, both on the air and at the end of the receiving set, I believe it can be safely stated that a larger percentage of the population is attending the motion picture theaters than ever before.

It is true that these forms of entertainment should coöperate more closely; that only the motion picture stars who have radio personalities should appear on the air; and that working arrangements should be made at Hollywood so that there will not be interference between motion picture production and radio broadcasting. The radio broadcaster feels that the form of entertainment he offers, with the hit tunes from the motion pictures and the best of the stars as performers, is a definite exploitation in favor of the theater and the motion picture. These people should become acquainted and work together.

The entertainment industry is now faced with the development of television, which will be with us in a short time. I, for one, believe that the motion picture industry should work with those who are developing television so that when the history is written, the motion picture, the theater, and television will work for each other and enhance the public interest in all three mediums of entertainment.

Human beings are not so constituted that they will stay home all the time. If all the food in the world were crammed into pills and capsules, and all the entertainment came out of one box, people would still leave home for outside entertainment and a change from domestic habits. People go to motion pictures to get away from the actualities of life and people leave home (no matter how contented or happy) to get a change. Thus do we maintain happiness and contentment.

Just as Amos 'n' Andy created a national slogan that has had a very great and important effect upon the habits of our people: "Brush your teeth twice a day; see your dentist twice a year"—so should the radio broadcasters help develop the slogan for the motion picture and the theater: "Take your family to the motion picture theater twice a week."