

# 71st Semiannual Convention

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The several sources and aspects of the Society's overall interest were reflected from the opening Monday noon Get-together Luncheon right on through the eleven-session technical program organized by Program Chairman Geo. W. Colburn and held at The Drake in Chicago on April 21-25. Besides sessions arranged by topics such as television, screens, high-speed photography and usual motion picture subjects, one session was labeled as to source—the armed forces production session. The complete roster of the authors and their papers is given on later pages of this *Journal*.

Excerpted below are the convention introductory remarks by President Peter Mole, who also introduced the principal speaker, Dr. W. R. G. Baker, General Electric Vice-President and General Manager of its Electronics Div., Syracuse, N.Y. Mr. Mole noted that Dr. Baker, known for his pioneering in radio and television, has, among his numerous contributions to

American industry, service as a key figure in the coordination of technical developments through the work of industrial and technical societies. He has been President of the I.R.E. and R.T.M.A. His speech on the work of the National Television System Committee is given in part below.

President Mole also welcomed Jimmy Frank as one who needs no introduction to old timers of the Society. He spoke as Deputy Director of the Motion Picture and Photographic Products Div. of the National Production Authority and his speech is excerpted below.

A lighter part of the luncheon program was the appearance of Leon Ames, motion picture actor then starring in Chicago's long-run stage performance of *The Moon Is Blue*. He came to the luncheon through the kindly offices of George Colburn to assure engineers in a whimsical fashion that even actors and engineers can get along more and more agreeably as they increase their appreciation of the other fellows' side of the business.

## Get-Together Luncheon Remarks by President Mole

It is encouraging to note that an interest in engineering is developing quite generally among motion picture people who have not had technical training or experience. Evidence appears in many places—in plans of motion picture interests to appear before the Federal Communications Commission in the matter of theater television—in current efforts to produce stereoscopic motion pictures for theater release—in the first steps toward extending the field of view of theater patrons through changes in screen design or illumination of the surrounding area—and in widespread introduction of new or enlarged facilities for release printing in color. Another significant indication of the new interest in engineering is the all-industry research program proposed last winter by Dr. L. A. du Bridge, President of the California Institute of Technology.

The motion picture industry need not wait for the institution of an extensive research program, however, before further progress can be made along technical

lines. A great deal can be done on a small scale. Each manufacturer of equipment, each producer of motion pictures, and each exhibitor who possesses an engineering or technical department can conduct his own development program.

Young engineers can be hired to bring new blood into an old organization, and promising students can be employed during summer vacations. Many students would be glad to take temporary jobs on a trial basis, with the chance for full-time work after graduation. The more apt students might well be given scholarships and encouraged to pursue a course of study relating directly to a particular industrial problem.

Other steps which can be taken toward the same goal include the placing of development contracts with commercial research organizations.

Our Society serves to coordinate those activities of the industry that relate directly to technical standardization and interchangeability. It also conducts studies

designed to assist entire branches of the industry in learning more about their technical operations. Through the *Journal*, published twelve times each year, it provides a valuable source of technical data that helps in the orientation of engineers just entering the field.

These are the means for steady substantial technical growth, and they are available at nominal cost.

By working in concert with each other and with the men who manage the business

of making and using motion pictures for various purposes, our members provide an effective and valuable service. For that reason the Society deserves the continued active support of all related commercial interests, as well as its members.

Given such backing, the Society will continue to function as a fountainhead of the technical progress which underlies both service and profitable operation in all branches of the motion picture and television industries.

### Excerpts From Address by Dr. W. R. G. Baker

Authorized by the Radio-Television Manufacturers Association, the present National Television System Committee is a committee whose members are representatives of organizations broadly interested in and experienced in the television field, or of technical organizations vitally interested in research and development of television, as well as qualified individuals not associated with any organization, association or company.

The Committee is charged with the task of assembling technical data on: (1) the allocation of channels in the ultra-high-frequency band; (2) procedures enabling the FCC to lift the "freeze" on very-high-frequency allocation; and (3) basic standards for the development of a commercially practicable system of color television; and it is directed to undertake such additional work as may be indicated to provide more adequate television service to the American public.

Various projects within the framework of the charter of the NTSC are assigned to individual members of the Committee or to technical panels named by the chairman with the concurrence of the vice-chairmen. The members of the panels are drawn from any company, association or organization regardless of affiliation. The only requirement for membership on any panel is recognized skill, interest and ability in the assigned project. When each panel completes an assigned project, it submits a report stating both majority and minority opinions to the NTSC.

The frequency spectrum and particularly that portion utilized in communication, is one of our national resources, as much a national resource as are the supplies and

reserves of crude oil or forests or mineral ores. Although the frequency spectrum transcends all geographical or political boundaries, most of the spectrum is of its greatest value within such borders, and therefore can be considered a physical asset of political entity.

Misuse or inefficient use of the spectrum is as great a physical loss as destruction of our other natural resources. And efficient use of the spectrum is difficult to achieve for these reasons:

(1) The spectrum has physical limits. At any one period in the development of the electronic art, only a stated amount of information can occupy the spectrum.

(2) The "lock and key" element is present in every use of the spectrum. Receiving equipment is useless without transmitting equipment and vice versa. Development of the two elements must proceed simultaneously.

(3) Economics often prove a greater factor in governing rate of development than does scientific knowledge. The cost of moving a service from one section of the spectrum to another may be so great that it is not, at any stated time, in the public interest to make the move even though it would result in efficiencies throughout the entire spectrum.

Although the Federal Communications Commission maintains its own group of technical experts, the competition inherent in a private enterprise and within industry — and I'm sure you all will agree there is no industry more competitive than the electronics industry — would normally be an obstacle to the FCC

obtaining free access to the latest technical information, and particularly information concerning promising avenues of developmental research.

It is also true that in a competitive business you may have persons or concerns who will fight more vigorously for acceptance of an idea, or a development, than will others with equally acceptable ideas or developments. To reach a point closest to a correct evaluation of ideas or developments, to make such information available to the FCC, to help focus research and development toward the quickest solution of a problem, an organization like the National Television System Committee is necessary.

In 1939 the FCC held a hearing to determine whether it was practical to establish standards for monochrome television. This hearing developed two important facts. First, monochrome television had been developed to a point where from the technical viewpoint, commercialization was a distinct possibility. Second, at the hearing the industry had demonstrated beyond a doubt that about the only agreement on standards that could be expected was an agreement to disagree.

As of January 15, 1940, the status of the necessary standards for the establishment of a national system of television was substantially as follows: There was no great difference of opinion in the industry with respect to the frequency assignments for television. However, it was clearly apparent that in the industry there was wide divergence of opinion concerning the system standards. Furthermore, there was every indication that unless and until these divergent ideas could be reconciled, progress toward a national system of television was practically at a standstill.

Fourteen months later, after the formation of the first NTSC, full commercial operation of monochrome television began with the approval of the Commission. In this short time the plan for the National Television System Committee had been formulated, the committee assembled, its meetings held, its minutes recorded, technical reports compiled and its final report delivered to the Commission. When the Committee's recommendations were made to the Commission, the complexion of the industry had changed from a discord of counterclaims to a concord of expert

opinion which persuaded the Commission to acknowledge its value and to proclaim the art open to the public.

From the time of the first NTSC, color television has been under serious consideration by the engineers of the industry.

You are all familiar with the recent hearing on color television. If one reads the transcripts of the monochrome television hearing preceding the establishment of the first NTSC and the recent color television hearing, certain facts are quite evident:

(1) At the time of the monochrome hearing several experimental transmitters were in use providing television programs to several hundred receivers. There was little if any question on the ability of the industry to provide a commercial monochrome television service from the viewpoint of providing products in the form of transmitters, studio equipment, receivers and certain specialized tubes. The public had ample opportunity to see television and accepted it enthusiastically.

(2) The industry was not faced with any prior obligation such as obsolescence of equipment in the hands of the public. No television receivers had been sold, hence the public had made no investment.

(3) While there was no disagreement within the industry as to the availability of the tools necessary to establish a commercial monochrome television service, there were wide differences of opinion as to the standards on which such service should be based.

The comparable situation with respect to color television was as follows:

(1) There was no extensive experimental broadcasting of color television as was the case with monochrome television. There were very few color television receivers viewing such color television broadcasting. A real question existed as to the ability of the industry to produce color television equipment capable of rendering a commercial service. While there had been some exposure of color television programs to the public, it was not in any sense as extensive as was the case with monochrome.

(2) The public was confronted with the possibility of the investment it had

made in monochrome television receivers being obsoleted. There had been some experience in the case of FM with the mass obsolescence of products in the hands of consumers and it was difficult to look with favor on a repetition of this problem. The entire problem can be summed up in the idea of compatibility with which you are familiar.

(3) There was certainly real and justifiable concern as to the availability of the tools necessary to commercialize color television.

Right or wrong, and personally I think it was right, many engineers felt that insufficient foundation had been laid to warrant selection of a system of color television.

With these facts in mind, it seemed to the RTMA Television Committee that one possibility of resolving the problem was through the formation of a second NTSC. Such action was recommended to the Board of Directors of RTMA and approved.

The NTSC proceeded under its assigned charter but in the late fall of 1950 it became clear that because of the many advances and new proposals relating to

color television systems and components, it would be necessary to have an up-to-date appraisal of the state of the art. A special, or ad hoc, committee of the NTSC was established. Some months later, the committee proposed a reorganization of the NTSC to permit a more direct study on the problems and outlined the broad framework of a new standards for color television achieved by combining the best elements of the furthest advances of existing proposals.

The NTSC accepted the ad hoc committee report because it stated a philosophy without specifying details of a color television system. The NTSC technical panels were revised and the work of building around the framework established by the ad hoc committee has gone forward.

The value of the NTSC, to my mind, has been the fact that, in almost every case, when the technical panels sat down to work, those forces which could have distorted their vision, their deliberations, were left outside the door. Engineers and scientists tend to forget their pride in their own idea or research when they are joined in a conference with many others whose technical competence they respect.

### **Excerpts From Address by James Frank, Jr.**

The National Production Authority, under the authority of the Defense Production Act of 1950, created in the Department of Commerce in September 1950, and the Defense Production Administration established in January 1951 were set up to accomplish certain basic objectives. The most important of these were:

(1) To set up programs and procedures which would permit the most efficient rapid progress of the defense mobilization program and, in the event of the necessity of full mobilization, to meet the requirements of the Department of Defense and the Atomic Energy Commission. This objective has been fully met by this time, with emphasis on the fact that a full Controlled Materials Plan has been put into satisfactory operation.

(2) To get the defense mobilization under way so that the military could, as quickly as possible, build up its supply of necessary material.

(3) To the extent possible, to permit the

accumulation of critical materials, for which we depend on imports to a large extent, as a stockpile in the event of full mobilization.

(4) To encourage and effect expansion of facilities for the production of raw materials and military products to meet the requirements of the Department of Defense and the Atomic Energy Commission in the event of full mobilization.

(5) To carry out all of the above objectives without handicapping civilian industry to any greater extent than need be.

Let us get straightened out on some confusing issues. The defense mobilization program has been increased, not decreased, and the 1953 Budget before Congress now calls for an increase from 3,500,000 men and women in the armed services to 3,700,000 and, in the case of the Air Force, from 95 Wings under the present program to 143 Wings. The new program also calls for certain increases in the Army, Navy and Marine Corps. As a result of

world conditions at this time, our military and civilian authorities believe that our rearmament goals should be set somewhat higher. At the same time, however, the rearmament program has in fact been lengthened from approximately three years to approximately four years, but we are now talking about the new increased program.

There has been some cancellation of military contracts but not to as wide an extent as some are led to believe by the newspapers. One of the reasons for this is that the armed services at first placed some contracts for military goods for the increased program in the belief that that program would be achieved in three years, rather than four years. When the term of four years was decided on, they cancelled some contracts. Another explanation is that the design of new machine tools, substitution of materials, etc., has required some changes in planning. Furthermore, constantly improving design of weapons calls for the altering of contracts and cutting down or ceasing production of the old types of products.

The amount of material that was returned to DPA by the Department of Defense for the second quarter can be misleading. 25,000,000 pounds of copper returned is 12,500 tons, or less than one-half of one per cent of our annual consumption of copper.

The easing of material shortages is explained by the above minor return of material and the fact that there has been a considerable increase in our production of certain basic metals, as well as electric power, petroleum and the like. For instance, steel production has been increased from 100,000,000 tons a year, pre-Korea, to 109,000,000 tons, and will continue to rise to 120,000,000 tons per year. Aluminum production has increased by 150,000 tons and eventually will be double pre-Korea. Furthermore, the operation of the Controlled Materials Plan has really begun to work and manufacturers are able to book orders with mills when they get such allotments. That has minimized scare buying and has encouraged reduction of large inventories.

However, there are now two serious problems with respect to controlled materials. All of the copper products, as well as nickel-bearing stainless steel, are

and will continue for some time, to be in tight supply.

The constant flow of civilian products during the past year, despite material shortages, is a tribute to the ingenuity of engineers such as those represented by this Society. They have affected remarkable conservation in the use of critical materials to permit maximum production of end products. However, at this time, certain vigorous efforts are required to minimize the use of all of the forms of copper and of nickel-bearing stainless steel.

There is definite evidence that the officials of DPA and NPA are anxious to lift controls the moment that they can do so safely. This is evident with respect to rubber, lead, non-nickel-bearing stainless steel, and others. However, we still must travel a long road before we reach the desired stage of decontrol. In the third quarter, direct defense needs will take 18% of all our carbon steel, 35% of our alloy steel, 19% of our copper foundry products, 27% of our copper wire mill products, 46% of our copper brass mill products, and 43% of our aluminum. To some extent, moreover, expanding production of materials in the months ahead will be counterbalanced by expanding military needs.

It is our feeling that until such direct defense needs of any controlled material reaches the level where they are not in excess of 20 or 25% of total supply, they should not be completely decontrolled. It is hoped that certain forms of carbon steel and aluminum may be decontrolled early next year.

Some people have asked whether we are not taking a terrific risk in extending the Defense Mobilization Program from three to four years. Unquestionably there is a calculated risk, based on current world conditions, but it is felt that it would be unwise to break ourselves or cripple our economy with a mad rush in rearmament and then find we had a mountain of weapons rapidly becoming obsolescent. We are gathering strength in an orderly fashion, which will keep us stronger over a longer period of time than if we rushed now into all-out mobilization.

One of the serious problems is military design changes. Such design changes mean improvements. Improvements mean a finer fighting machine. For our

members of the armed forces they mean more offensive power, more defensive protection. It is a hard decision to have to make between freezing designs and pouring out the stuff, or allowing more design changes and slowing up production. If we thought the Soviets were going to attack tomorrow, of course we would freeze and pour it out, but if they did not attack, we would have spent a lot of money, chewed up a lot of much-needed copper and aluminum, and have on our hands a mountain of obsolescent weapons. By allowing for a reasonable number of design changes: we get better weapons in the long run; we use up less material; and we save some money for the be-deviled taxpayer.

Since the establishment of the National Production Authority, a year and a half ago, a strong organization has been

developed, basic regulations and controls have been created and improved as a result of close cooperation with industry, the Controlled Materials Plan has been re-created, and is now working effectively, and a system of priorities has been brought into existence. While many difficulties have been encountered and mistakes made, the job has been done. Military production, industrial expansion, and all defense supporting programs are moving ahead at rapid rates. Moreover, the organization, control techniques, and experience, all of which represent tremendous resources, equal to the weapons of war, will stand us in good stead should the necessity for their increased use arise. While all of us hope that this will not be the case we must continue to emphasize the importance of preparedness.

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"Chicago" was a very smoothly functioning Convention, due to the cooperative and coordinated efforts of the many Chicago people who worked hard: George Colburn for the Papers Program and the Luncheon and Banquet and C. E. Heppberger for the overall of Local Arrangements. Supporting George Colburn on the procuring of papers were Papers Committee Chairman Ed Seeley and Vice-Chairmen J. E. Aiken, F. G. Albin, G. G. Graham, R. O. Painter (for High-Speed Photography), W. H. Rivers and R. T. Van Nimman, with some assists by Editorial Vice-President John G. Frayne.

To get the folks registered and oriented is a real job at each convention and, though high on the list of the many cares of the Society's Convention Vice-President Bill Kunzmann who is always on deck, registration is a major operation — at Chicago well done under Chairman Jim Wassell with a strong assist by Reid Ray and help by Steve Hunter, Ken Mason, Charles Nesbitt, Jack Powers and Paul Ireland.

Public address and recording were the bailiwick of Robert P. Burns who put and kept the Society's equipment completely under control to record a goodly lot of convention discussion, while listening with one ear to the Sound Dept. of Balaban & Katz where he is Director.

I. F. Jacobsen, Projection Supervisor for Balaban & Katz, kept steady control of the convention projection, with E. W. D'Arcy initially responsible for 16mm projection plans. In charge of rounding up the motion picture shorts was L. E. Weber, assisted by R. J. Sherry.

An assist for television papers planning was given by Wm. C. Eddy. Chairman for hotel and transportation arrangements was Wm. C. De Vry. Membership promotion activities were headed by Col. S. R. Todd who is the Membership Committee's Vice-Chairman in Chicago. Ray Gallo, Chairman of the Membership Committee, was on hand with active meetings and planning in the latter part of the week.

Publicity was handled on the spot by Len Bidwell who kept a solid volume of information going out through channels to trade and general press, with some nice, effective help from Mrs. Bidwell. Co-hostesses for the Ladies' Program were Mrs. C. E. Heppberger and Mrs. Geo. W. Colburn who presented a highly praised program of which one highlight was a luncheon production of *Miniature Grand Opera* by Fredrik A. Chramer who presented *Madame Butterfly*, with realistic puppets and with music recorded by the Metropolitan Opera Company.

Committee meetings continued to be an

important part of the week's activities. There were eight engineering committee meetings which have been covered in the May issue of the *Journal* under the usual column "Engineering Activities." In addition to the Membership Committee

Meeting mentioned above, there was a papers and editorial meeting under the aegis of Ed Seeley and John Frayne, chiefly to pass on to Joe Aiken the main mantle for the next convention—of which much in detail in the next *Journal*.

## Engineering Activities

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**Color** As noted in the February 1952 *Journal*, the four-year limitation term of office required appointment of a new chairman to the Color Committee. To this end, Fred Bowditch, Engineering Vice-President, recently appointed J. P. Weiss of Du Pont to fill the post.

**Television Studio Lighting** The committee met on June 4, 1952, and further discussed specifications for incident light and brightness meters, amending the former by placing a 10% tolerance on the deviation from a cosine response. Word was received from Photo Research Corp. that they are producing a brightness meter which meets the committee specifications and the committee is eagerly looking forward to an opportunity to study and test it.

A subcommittee on terminology under the chairmanship of Hank Gurin was formed to start activity on this vital project.

**Glossary** Glossary activity in the past has depended primarily on the activity of individuals and engineering committees whose chief interest lay in specialized subjects and projects. This has produced much useful material but not the industry-wide layman type of glossary that is required. The Engineering Vice-President has therefore established a committee charged solely with the responsibility of bringing out a useful glossary. Bill Offenhauser has accepted the chairmanship of this committee and is looking about for competent and eager members. The Committee will first take inventory of past work and then draw up its plan of attack. It will correlate its activities with similar activities of other societies and call upon all branches of industry and all SMPTE engineering committees for any required assistance. Those interested in participating in the

work of this new committee are asked to so advise Bill Offenhauser or Hank Kogel at Society Headquarters.

**Television Film Equipment** The main order of business at the May 27, 1952, committee meeting was the discussion of the film recording and reproduction dimensions. The committee has been attempting to reach agreement on proposed standards with no success as yet. Differences have cropped up both on the East and West Coasts. One claims an excessive loss of material in the kinerecording process; the other is seeking to increase the size of the reproduced or scanned area. The detailed discussion of these problems is contained in SMPTE 461, a copy of which is available upon request.

In addition, agreement was reached on proposals regarding dimensions of slides and opaques which must now go to a letter ballot of the full committee.

**ISO/TC 36** The Technical Committee on Cinematography of the International Organization for Standardization met as scheduled on June 9, rolled up its sleeves and proceeded to do a very workmanlike job. After establishing the order of importance of the various items on the agenda and extending the meeting to three days instead of the two originally planned, the committee broke up into informal work groups for round-table discussion. The areas of agreement and disagreement were thoroughly canvassed (to the degree that time permitted) with a considerable measure of success. The delegates were agreed that an excellent foundation had been laid for international standards activity which could now be fruitfully pursued through correspondence. A more detailed report will be made available to the Society at a later date.—*Henry Kogel*, Staff Engineer