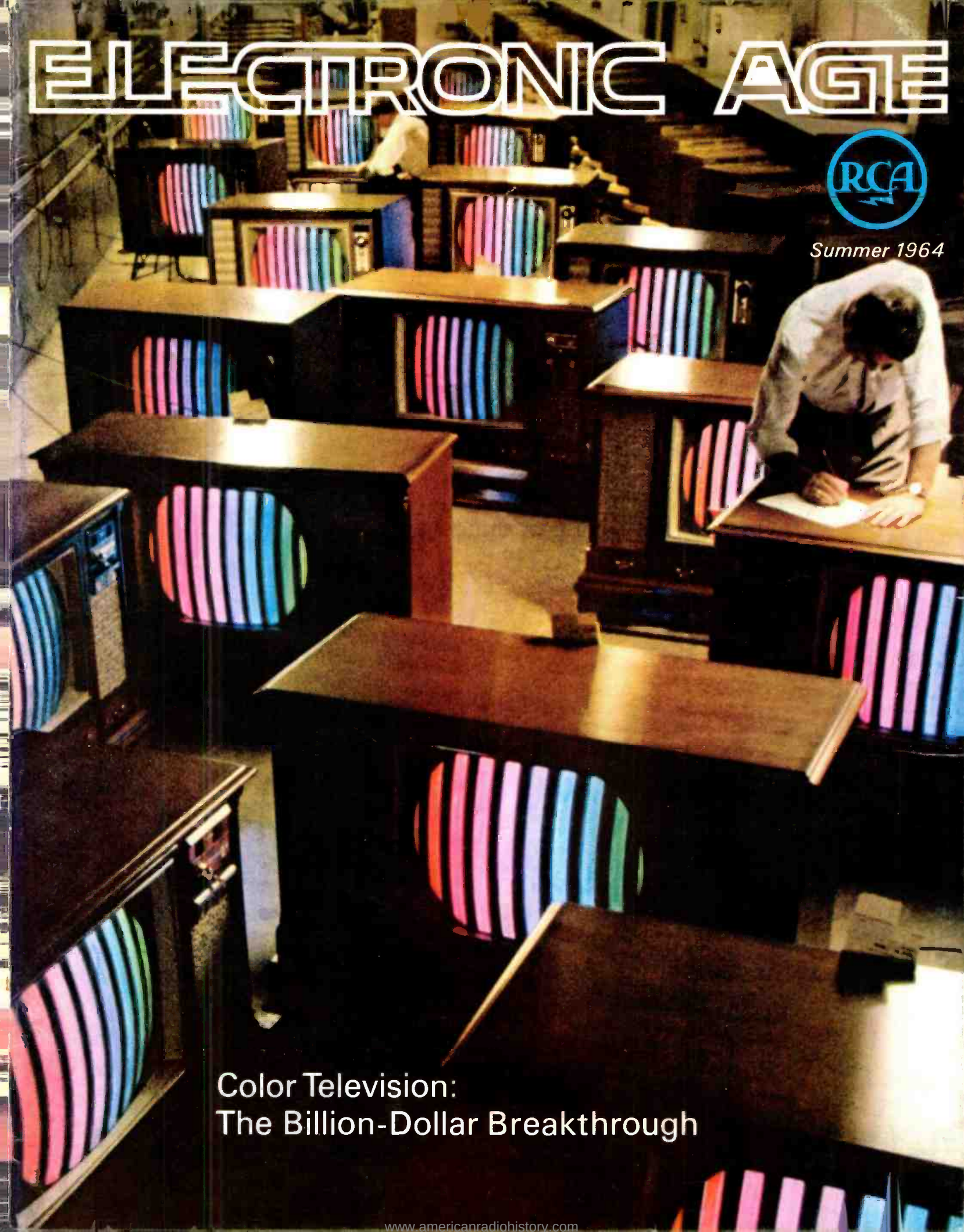
ELECTRONIC AGE

RCA

Summer 1964



Color Television: The Billion-Dollar Breakthrough

Summer 1964
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ELECTRONIC AGE

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← NBC news correspondents cover the 1964 national political conventions. Standing, center foreground, from left: Chet Huntley, David Brinkley, and Frank McGee. Seated, from left: Richard Harkness, Nancy Dickerson, John Chancellor, and Edwin Newman. Standing, rear, from left: Merrill Mueller, Sander Vanocur, Bill Ryan, Ray Scherer, Peter Hackes, Robert McCormick, Robert Abernathy, Herb Kaplow, Bob Teague, and Elie Abel. A story on political convention broadcasting begins on page 6.

COVER: Technicians at RCA's Bloomington, Ind., plant test color television sets coming off the assembly line. A report on the rapidly growing color TV industry starts on page 2.

Color TV: The Billion-Dollar Breakthrough

by Ben French

Some day early next December, a family will walk out of a neighborhood appliance store as the proud new owner of a color television receiver. This sale could elevate the color TV industry into the elite billion-dollar-a-year status.

The time and type of the actual sale that cracks the billion-dollar mark could vary. It might be the purchase of a color camera, film projector, or video tape recorder by a television station. It could be the production of a commercial for an ever-growing group of advertisers switching to color. It might be a TV technician installing a new color set in a home. When and what actually account for the billionth dollar spent in 1964 for color TV are unimportant, but it will be an important milestone for America's fastest-growing new industry.

Statisticians expect that three-fourths of the billion dollars to be spent will be by consumers for new color TV sets, with the remaining $250 million going for service, studio equipment, color program and commercial production, and other miscellaneous segments of the industry. By next year, the color set sales alone should reach the billion-dollar-a-year going rate and may well surpass dollar volume of black-and-white set sales.

RCA, developer and pioneer of the compatible color TV system, already reached the point last year where color set dollar volume ran higher than black-and-white. In fact, there's a good chance RCA's color TV dollar sales this year will be more than the total for all other RCA Victor home instruments, including radio, phonographs, and tape recorders.

The principal reasons for the current upsurge in color TV set sales are new lower prices, more and better color programs from independent stations as well as networks, and the recent federal income tax cut. All major set manufacturers are now marketing color sets.

The new low prices were first announced in May by RCA and other manufacturers. The 1965 RCA Victor line of 23 color sets (actually there are 42 models, counting various colors and wood finishes) now has an optional retail starting price of $399.95 for a table model with an all-channel tuner. That's $80 below the price of the comparable set in the 1964 line. Reductions are in effect throughout the rest of the new line.

The nationally advertised starting price for color remained stable at $495 from 1956 through mid-1963 when a number of manufacturers introduced table models at $449.95, with all-channel models selling for $30 more.

The latest price break, designed to broaden the mass market for color television, was greeted with enthusiasm by distributors and retailers as RCA said it had included adequate profit margins for all levels of distribution in the new low prices. RCA's May factory sales were nearly double those of the same month a year ago.

In explaining the new prices to the Denver Sales Executives Club early in June, Raymond W. Saxon, President, RCA Sales Corporation, said they were "in keeping with our past promises to the public that, as demand increased, the price of color receivers would be brought down.

"We look for a continuation of this pricing pattern, but on a gradual basis, since we see no major technological breakthroughs on the horizon that could bring about extreme cost reduction," he said.

Mr. Saxon predicted the industry's lower-priced color sets would have an over-all dramatic effect on the total color television market, with the greater impact on sales to come later this year.

Noting that color's share of the total domestic television market is now at a one-in-seven ratio, Mr. Saxon expects this ratio can be changed to one in four in 1965. "With each reduction in price, color television is brought within the economic reach of a greater number of people," he said.

Mr. Saxon also noted that the initial reaction to the new prices raised the possibility that earlier forecasts of 1.3 million industry factory color set sales "may have been too low." That would make this year's sales nearly double those of 1963.

This December, somebody will buy a color TV set, a color video tape recorder, or a color TV camera, and the color television industry will join the elite billion-dollar sales club.

Packaging color television sets at RCA's Bloomington, Ind., plant.

Earlier this year, RCA announced it was increasing its color picture tube production by more than 50 per cent this year and would be able to turn out 1.3 million tubes for color sets. Three other firms are now manufacturing color picture tubes – National Video Corp., Sylvania Division of General Telephone and Electronics Corp., and the Rauland subsidiary of Zenith Radio Corp. Together, these three firms are expected to manufacture this year about 400,000 color tubes for an anticipated industry total of 1.7 million.

Nearly all color picture tubes this year, RCA officials point out, will be of the present standard RCA type of 21-inch round shadow mask tube, with a small number being rectangular versions of the same three-gun principle. Motorola is now marketing sets using a 23-inch rectangular tube in the $650-and-up price range. RCA and several other manufacturers are expected to introduce late in 1964 a few sets with a new 25-inch rectangular tube.

Chief advantage of the new tubes is that they are four to five inches shorter in depth, a feature appealing to those families with floor space problems. However, as RCA recently told its customers among the other set manufacturers:

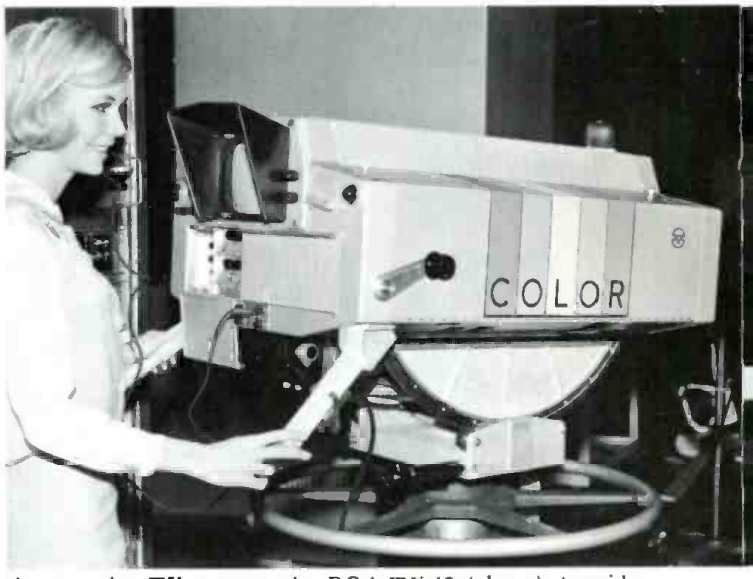
"It should be pointed out that the rectangular tube will be basically more costly to manufacture than the round tube, and therefore will be priced accordingly. It is believed that economics will play a key part in the acceptance of either type."

A number of other types of color picture tubes have been discussed widely in the trade and financial press recently as interest in color TV grows. Some involve reported new principles while others are dusted-off versions of tubes previously talked about but never produced.

"No other type of color tube from any source, domestic or foreign, is expected to become available on the market in significant quantities during the year," said W. Walter Watts, RCA Group Executive Vice President. "It is one thing to talk about a new-type tube but an entirely different matter when you try to produce such a tube in significant commercial quantities."

There is no doubt that the present type of color

Production scene from NBC's color presentation of Perry Como's Kraft Music Hall show.



A new color TV camera, the RCA TK-42 (above), provides viewers with a richer-hued color picture. Technician (below) uses mirrors to check the fidelity of color TV reception.

...within five years... one of every four TV sets in use will be color.

picture tube is one of the most complicated devices to produce of any consumer product. The three new color picture tube manufacturers were many months behind schedule in getting the RCA-type color picture tube into commercial production.

Newest technical feature in color television receivers is the Automatic Color Purifier, which removes the impurities caused by the earth's magnetic field from the color picture tube without the necessity of calling a serviceman when the set is moved to a new location.

The number of color TV sets in use today is estimated by industry observers to range from 2.3 million to 2.8 million. The highest rate of color set penetration exists in cities such as Los Angeles, Chicago, Cincinnati, Omaha, and the Dallas–Fort Worth area, where local color programming has been available in considerable quantity for some time. *Radio-Television Daily,* a trade paper of the broadcasting industry, recently estimated that Los Angeles, Chicago, and Cincinnati have color sets in approximately 8 per cent of the homes.

New York, the nation's largest market, is currently enjoying an upsurge in color set sales following the inauguration of colorcasts of the New York Mets baseball games by WOR-TV from the new Shea Stadium. WGN-TV has been broadcasting the home games of the Chicago White Sox and Cubs in color for several years while WLW-TV, which pioneered night baseball colorcasts, transmits home games of the Cincinnati Reds in color.

Of the nation's 564 commercial television stations, more than 400 are equipped for some type of color broadcasting, with nearly 50 stations able to originate live local programs in color. The National Broadcasting Company regularly schedules more than two-thirds of its nighttime shows in color as well as a number of daytime programs. The American Broadcasting Company has recently expanded its color schedule. The Columbia Broadcasting System offers an occasional color special.

The continual refinement of color broadcasting equipment also has had its effect on the color surge. Undoubtedly the reliability and high-quality picture delivered by current-model color cameras, for example, are factors in moving more local TV broadcasters into color.

Equipment improvement is continuing. At the recent National Association of Broadcasters convention in Chicago, RCA demonstrated color studio apparatus replete with new features. Highlight of the line is the new TK-42 live color camera, which adds a monochrome channel to the red, green, and blue channels found in conventional cameras. The addition of this high-quality monochrome information to the color picture results in improved color detail, fidelity, and registration—in the same way that the black plate enriches the three-color image in color process printing. At the same time, the fourth channel provides a crisper black-and-white picture in color transmission.

This four-channel system will also be available in a new color film camera for presenting color movies and slides. Both the live and film cameras are completely transistorized with standardized plug-in modules.

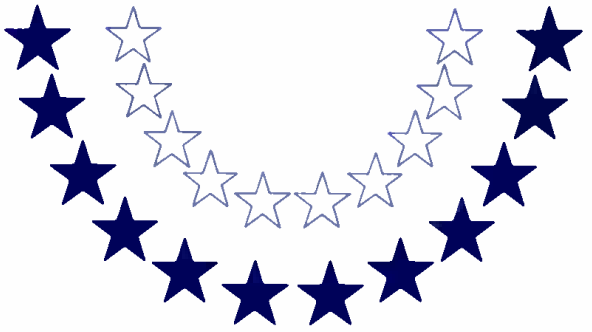
What about the future of color TV? Most industry observers see it this way:

—Color set sales will continue the present steady growth pattern, with an anticipated 15 million sets in use within the next five years. Then, one of every four TV sets in use will be color. Black-and-white set sales will decline only gradually, but the production will be almost entirely in the portable category.

—The starting price for color sets will be reduced gradually as production increases and manufacturers pass on resulting economies. However, color will always be considerably more expensive than black-and-white models because of additional and more costly components.

—Within five years, most new major television programs will be broadcast in color. Black-and-white transmissions will be limited to repeat shows and old news films. Almost all sports events will be telecast in color.

—Worldwide color programs, beamed via satellites such as Relay, will be commonplace, bringing into American living rooms the treasures of the other continents in their natural colors. ■



From McNamee to Huntley-Brinkley: 40 Years of Political Convention Broadcasting

by Owen Comora

Advances in electronics over the past 40 years make it possible for millions of Americans to have ready access to the sights as well as the sounds of national political conventions.

Four years ago at one of the national political conventions, several delegates huddled around a portable television set. "It's the best way to find out what's really going on," one of them remarked.

This year – the fortieth anniversary of the first convention broadcast – more than 100 million Americans will be tuning in their television sets to find out "what's really going on." This means an all-out effort by the various networks. For example, NBC is utilizing the equivalent of almost half the entire broadcasting facilities at its headquarters in the RCA Building in New York City.

"We'll have more of everything – more manpower, more equipment, more programming – than we had four years ago at the 1960 conventions," says Robert Northshield, General Manager of NBC News, who is supervising NBC's political coverage this year.

Convention coverage, which has been improving continuously, dates back to the first radio broadcasts of political conventions in 1924. In that year, WEAF, the forerunner of NBC, was hard at work attempting to establish the first coast-to-coast network of radio stations. Because the station was hampered by a lack of equipment and trained personnel, it was technically impossible to serve more than 12 cities. Thus, the Republican and the Democratic Party leaders were asked to select 12 cities from a list of 18 with which connections were possible.

Three million Americans heard those first radio broadcasts over loud-speakers or earphones or by standing on street corners at large centers of population where special loud-speakers were set up by WEAF.

It was during this period that Graham McNamee, WEAF's young announcer, emerged as a national figure following his colorful description of the Democratic Party convention, which took 103 ballots and 15 days before the delegates decided that John W. Davis would be the party's Presidential candidate.

By 1928, NBC had grown to a network of 43 associated stations. More than 500 people (375 of whom were engineers) aided in putting these conventions on the air. Once again, Graham McNamee was NBC's top announcer. From time to time, McNamee peppered his comments with tidbits passed along by the humorist Will Rogers who attended the '28 conclaves.

1924: *Graham McNamee (as seen in 1936) becomes a top figure in radio.*

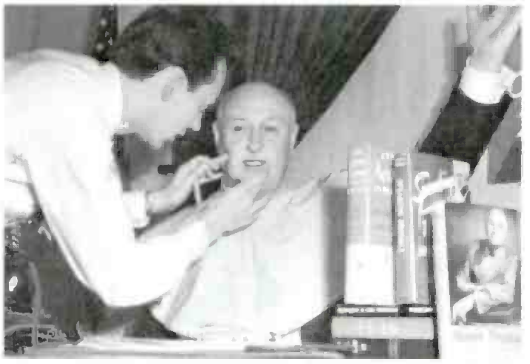
1932: *Parabolic mikes pick up sounds in convention hall.*

1936: *Innovation of main control booth overlooking convention floor.*

1940: *Republican Convention — first national political convention to be televised.*

1944: *"Beermug" mike is used for on-the-spot reporting.*

1948: *"Walkie-talkie" is new feature of Republican Convention.*



1948: *James Farley being made up for TV at Democratic Convention.*

1952: *Introduction of "crash-truck" — a TV newsroom on wheels.*

1952: *Use of "walkie-lookie" — a portable TV unit.*

1952: *Comedian Bob Hope and announcer Ben Grauer comment on convention humor.*

1952: *NBC "skylift" for cameras enhances convention coverage.*

Referring to one day's convention agenda, Rogers said, "All they are going to do today is to tell us what they forgot to do yesterday."

Before the '28 conventions, NBC had gone to great pains to ensure uninterrupted coverage of the conventions. In a press release, the network noted, "In order that nothing will interfere with the broadcasts, there will be a double installation of radio apparatus in both convention halls. All wire circuits will be duplicated, and each mike will be accompanied by a silent mike to be switched on in case of a breakdown of the working mike."

Within days, NBC's engineers were faced with technical difficulties, which can pop up in the most unexpected places. In this case, a break in the wires developed, and, after workmen quickly spliced them together again, NBC was broadcasting the commentary of another network's political announcer.

By 1932, the NBC station count had jumped to 88. This was the year the network introduced its parabolic microphones. Between five and six feet in diameter, they were powerful enough to pick up the speeches and the sounds of demonstrations in any part of the huge halls. People at home could now hear the proceedings more clearly than could the delegates in the halls, because engineers were able to filter out extraneous noises.

At the 1936 conventions, NBC used its new microwave transmitter, predecessor of the "walkie-talkie." It was about the size of a cigar box and could be carried freely to any spot in a crowded hall. For the first time, microphones could be brought to the speaker rather than the speaker to the mikes.

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The 1940 Republican National Convention in Philadelphia was the first to be televised. It was purely an experiment, but it marked the first time an event was ever telecast in one city for broadcast in another. The viewing audience was optimistically estimated at 50,000, mostly in and around New York City, "but others," NBC proudly announced, "will be scattered all the way to remote parts of Pennsylvania and Massachusetts."

NBC's experimental station, W2XBS, was located atop the Empire State Building and connected with Philadelphia's Convention Hall by 108 miles of special wire circuits. At the time, this operation was referred to as an experiment in the art of "radiovision." NBC's entire television staff consisted of 20 technical and programming men with four TV cameras.

TV coverage of the Democratic National Convention from Chicago was more difficult. Pathé News shot special films of the convention, which were shipped by airplane to NBC in New York and telecast for approximately 10 minutes, twice a day, over W2XBS.

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Critical wartime shortages of equipment and trained personnel complicated the broadcasts of the 1944 conventions, both of which were held in Chicago. By means of a three-city television network connecting New York, Schenectady, and Philadelphia, and with good flying weather, TV viewers in those cities could see film excerpts of the proceedings some 10 to 12 hours after they occurred in Chicago.

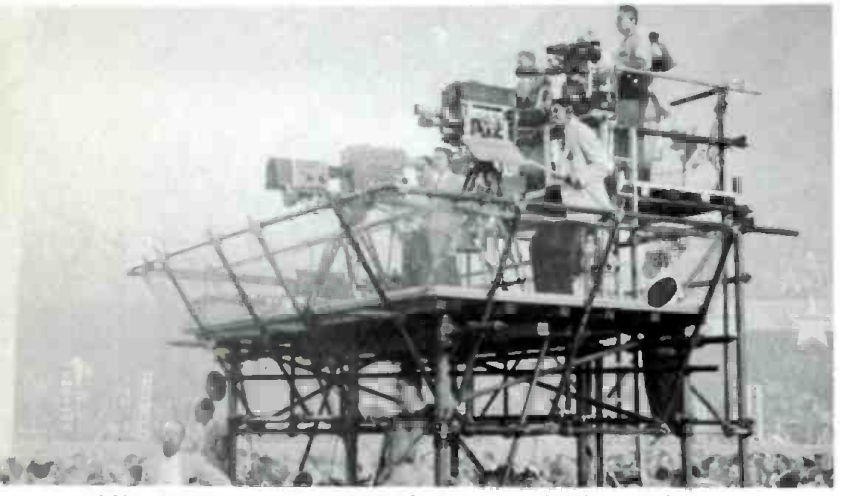
By 1948, the NBC television network extended to 16 cities, only seven of which were directly connected for live transmissions. The remaining nine stations, located in the West and Midwest, relied on kinescope film recordings, which were introduced for the first time at these conventions.

At the 1952 conventions, NBC unveiled RCA's newly developed "walkie-lookie," a self-contained portable TV camera and transmitter. The "crash-truck," another new development, was a TV newsroom on wheels, equipped with self-powered electronic and film cameras. It had its own dark room capable of preparing film for projection on the air in less than 10 minutes.

Bob Hope was on hand as an NBC commentator at the Republican National Convention in Chicago. After Eisenhower's selection as the Republican candidate, Hope commented on the condition of the Chicago streets, which, he said, were filled with "confetti, old newspapers, debris, and lots of acceptance speeches. . . "

More than 350 NBC broadcasters and staff members covered the two conventions in 1956. Forty TV cameras were used to shoot the proceedings from every conceivable angle. These included everything from a 60-foot "hi-reach" to the "ultra-portable," weighing four pounds with a power pack transmitter of only 15 pounds. Many other miniaturizations of standard equipment were employed, including two-way radios no larger than cigarette packages.

1956: *Huntley-Brinkley begin partnership at Republican Convention.*



1960: *TV cameras on raised platform provide better view.*

1964: *Closeup shots are taken with completely portable cameras.*

At each convention site, NBC constructed "Convention Central," a giant communications center that housed more personnel and equipment than are normally needed to operate three full-scale TV stations.

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It was during the 1956 conventions that Chet Huntley and David Brinkley teamed up for the first time. Recalling their initial telecast, Huntley said he had seen Brinkley only once before in his entire life. "Now, suddenly, we sat down; the red lights came on, and there we were. Looking back, I know I made some mistakes. David may have made some too, but I don't remember them. We were feeling our way, and for some unaccountable reason a great many people watched. I don't know why. If I knew, I certainly would pickle it."

Approximately 92 million Americans watched the 1960 conventions on television. For NBC News, almost 400 editors, correspondents, engineers, cameramen, and technicians played a part in televising more than 98 hours of convention coverage.

The most important technical innovation of the 1960 coverage was video tape, which made it possible for TV to record several events at the same time and to present them in rapid order. It was estimated that video tape replaced 80 to 90 per cent of the network's filmed national political convention coverage.

NBC installed enough telephone switchboard equipment and wiring at each convention hall to supply the needs of a small city. In addition, there were four other complete and separate systems of communications: a production private line system, an engineering private line system, radio frequency communications, and an arena-studio public-address system.

By the time the 1964 conventions are completed in August, it is estimated that more than 100 million television viewers will have been electronic witnesses to them. Approximately 550 NBC newsmen, engineers, and technicians plus more than 100 other NBC employees, utilizing more than 50 tons of equipment, have been assigned to each convention. The objective — to make this year's telecasts the most comprehensive in the 40-year history of convention broadcasting.

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Coast-to-Coast Annual Meeting

by Romney Wheeler

For the first time, closed-circuit color TV enabled shareholders 2,500 miles apart to participate simultaneously in a corporation's annual meeting.

Imagine an annual meeting of corporate shareholders in which . . .

—The meeting room measures 2,500 miles, wall-to-wall.

—Shareholders and company officials on opposite sides of the continent see and converse with one another via color television.

—The mechanics of the transcontinental meeting are equal to those involved in televising the annual Emmy Awards.

All these, and more, were elements in a historic innovation in shareholder relations, on May 5, 1964, by the Radio Corporation of America. For, on that date, RCA used closed-circuit color television to join 925 shareholders in Burbank, Calif., with 1,200 others in New York in its forty-fifth annual meeting.

The experiment was an unqualified success. For three hours, shareholders on both coasts watched, listened, and questioned company officers from the floor, regardless of whether the shareholder was in Burbank or New York.

Like any operation involving complicated logistics and precise timing, the event itself was preceded by a long period of detailed planning and effort — in this case, more than seven months. But even this might not have been sufficient if it had not been for technical know-how evolved gradually over more than 30 years.

Beginning in 1935, after occupancy of the RCA Building in Rockefeller Center, the annual meetings of shareholders had been held each year in New York in the National Broadcasting Company's Studio 8-H, now known as the Peacock Studio. In the early days, when broadcasting was synonymous with radio, the annual meetings were wired for sound only. Even so, it was necessary to devise a method of mounting sensitive microphones on the ends of aluminum "fishpoles," so that questions

...arrangements were as detailed as those of a major live television show.

could be picked up clearly when asked by shareholders on the floor.

This arrangement sufficed so long as the number of shareholders attending the annual meeting could all be fitted into Studio 8-H. However, attendance continued to increase until, in 1955, it became necessary to seat some of the shareholders in a nearby studio. In order that they also might see and hear the proceedings, TV cameras were placed in Studio 8-H, and the entire meeting was televised on closed circuit for projection on a large screen and on monitors in the overflow studio.

The use of black-and-white television, itself an innovation in corporate shareholder relations, continued until 1962, when RCA made the transition to color television.

With the annual meetings already being seen in two places, via TV, it was not illogical to carry the idea a step further and use the medium of color television to broaden the base of shareholder participation to nationwide proportions.

Historically, the greatest number of RCA shareholders, if not a majority, had been concentrated in the areas around New York and Boston. Meetings held in New York invariably were well attended, with some interested shareholders appearing year after year. However, corporate officers noted a significant trend. More and more shareholders with residences in the Middle West and the Far West appeared on the registration books. Illinois now ranked closely behind the eastern states, and the number of shareholders living in California and in the southwestern states increased annually.

The decision to hold the forty-fifth annual meeting in Burbank, Calif., as well as in New York, was a logical one. In addition to the large number of shareholders residing in southern California, there were in existence the major color studios of NBC at Burbank. Hence, it became a matter of linking these with the NBC Peacock Studio in Rockefeller Center via color TV.

However, the difference between theory and practice, between planning and doing, was almost as great as the distance between the Atlantic and Pacific coasts. Where previous meetings had required only interconnection between two separate studios in the same building, there now arose logistical problems of considerable magnitude.

Transcontinental video and audio circuits would be required to link the two meeting places. Fall-back circuits would also be needed in case one line or another should fail. (The constant nightmare of television engineers is having the

RCA Board Chairman David Sarnoff addresses meeting of shareholders in California while . . .

screen go blank at a critical moment and a distant, disembodied voice saying: "Don't know where the trouble is. The picture is all right going out of here. Must be trouble west of Denver.")

Transportation planning would be required to fly the Board of Directors and the company's top executives from New York to California and back. Actually, this involved painstaking detail in scheduling, so that no more than two directors or executives traveled on a single plane.

There were other logistical and planning problems, such as instruction of key personnel in California as to what takes place at a shareholders' meeting; conferences with Guest Relations and Public Relations; meetings with scenic designers and the building of the sets themselves; traffic control; and plant security. And there were, of course, hotel reservations that had to be made, checked, and double-checked.

After it was all over, one harried executive exclaimed: "It was easier moving the Ninth Division across Africa than moving the Board of Directors and everyone else to California and bringing them back again."

Technically, the television arrangements were as detailed and complicated as those of a major live television show. The main control point was at Burbank, where the TV director supervised the production and watched developments on both coasts by means of a bank of TV monitors. A subsidiary control room was located in New York, linked by telephone with Burbank.

One of the most difficult aspects of the TV production was lighting. Color TV requires considerably more light than does black-and-white. In most TV programs, this presents no great problem. The stage is lit, the artists follow the camera cues, and that's that.

This is not so in a production where audience and company officials must see one another without being blinded by lights and where TV monitors must be visible to the audience in true colors, rather than "washed out" by bright overhead lights.

The visual responses of color cameras also influenced the planning of displays behind the rostrum. Planners were advised to stay away from large areas of red in the background, and to give preference to "cool" colors, for although the system reproduces all colors faithfully, proper color balance must be maintained between foreground and background for a pleasing over-all effect.

The main problem, however, was to maintain a balance between the lighting of people in the foreground and the lighting of the background displays.

Said one NBC engineering executive: "You have all the complications of putting on something like the Emmy Awards, plus the fact that the audience also participates."

Four color cameras were used in each location

. . . 2,500 miles away, Executive Vice President Robert L. Werner moderates the meeting in New York.

...the Chairman kept control of both meetings as though they were one.

or program origination point and, as in the case of lighting, there were unusual problems. Because the shareholders had to have an unobstructed view of the dais, and vice versa, the cameras had to be located along the sides of the hall in relatively awkward positions.

Finally, there was the problem of sound — or "audio" — which required great care in order to avoid interference from the public address loudspeakers. Also, sound from New York had to go to California and back again before being heard by those in the Peacock Studio, because audio control was in Burbank.

In carrying on the transcontinental meeting, Chairman David Sarnoff, President Elmer W. Engstrom, and the principal operating executives of the company were on the dais in California, together with 12 members of the Board of Directors. The New York meeting was presided over by Robert L. Werner, Executive Vice President and General Attorney, who also is a member of the Board of Directors.

Colorful backdrop depicts broad range of RCA electronic products and services at unique coast-to-coast meeting.

Two rehearsals preceded the actual meeting of shareholders. On Sunday, May 3, there was a checkout of technical facilities and communications. On Monday, May 4, there was an abbreviated "dress rehearsal," complete with two-way audio and video circuits between Burbank and New York. This allowed key officers to become familiar with the arrangements and provided an opportunity for camera rehearsal.

On Tuesday, May 5, the history-making annual meeting went off without a bobble. Central control called the shots both in New York and in California. Astonishingly, however, the key to electronic perfection was not the eye of the camera but the ear of the microphone.

"Picture can fall behind sound, and you're not in much trouble," explained an NBC network executive, "but if sound trails behind picture, you're in serious difficulty. Everything depends on the speed with which the audio engineer can identify the location of what is happening, and pick up the sound."

During the early part of the meeting, when the Chairman, the President, and the principal operating executives are giving their reports, the expectation was that production problems would be at a minimum. When the meeting switches over to questions from shareholders, anything could happen, and often does. "It's catch-as-catch-can," said an NBC engineer.

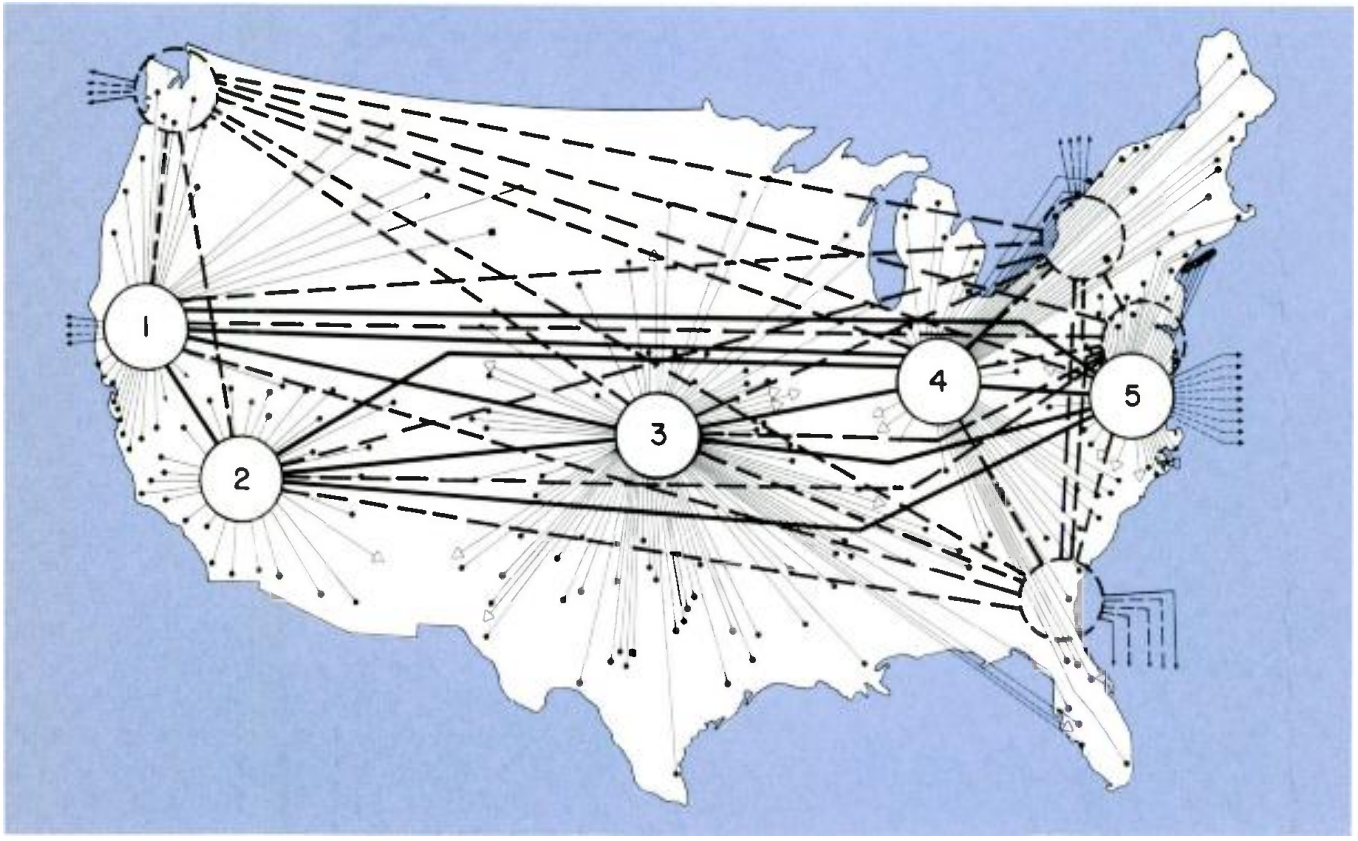
Nevertheless, careful planning and earlier rehearsals overcame these difficulties. One camera always remained focused on Board Chairman Sarnoff. Watching his monitor, the TV director took his cues as the Chairman recognized shareholders first in Burbank and then in New York. At the same time, a telephone circuit linked Secretary John Cannon, on the dais in California, with Robert Werner, presiding at the meeting in New York. In this way, contact was maintained during the session, enabling the Chairman to keep control of both meetings as though they were one.

Was it a successful experiment in shareholder relations? The answer may have been offered by one of RCA's shareholders who has attended annual meetings for many years. Speaking from the floor, he told Chairman Sarnoff that the value in good will and in shareholder relations was "something you couldn't buy for all the money in the world." ■

AUTODIN: Computerized Communications for Defense

by Thomas I. Bradshaw

A computerized high-speed information system that is the world's largest and most advanced military data communications network.



Proposed new centers and interconnecting communications lines of AUTODIN are indicated by broken circles and lines. Arrows mark "gateway" connections to overseas points.

America's defense establishment has been armed with a new "weapon" – computerized high-speed information for the rapid exchange of vital information. This network is as far removed from its predecessors as the telegraph was from the pony express.

The continent-encompassing Automatic Digital Information Network (AUTODIN) is described by military leaders as the world's largest and most advanced data communications hookup.

AUTODIN is capable of automatically relaying 100 million words a day on a priority basis, em-

ploying five electronic switching centers — each serving a sunburst pattern of satellite points.

Four additional switching centers are planned in the continental United States, as well as expansion of the present five centers, to handle nearly five times as many "customers." This expansion will raise the present total of 350 defense facilities and industrial suppliers served by the network to more than 2,300.

Coupled with the recently announced program for expanding the system was the development by RCA of a "go-between" buffer unit to tie in electronic computers directly with the AUTODIN network. This is a major step in data communications that opens the way for computers a continent apart to function as an automatic team.

Computers, tape stations, teletypewriters, and paper tape equipment make up an AUTODIN switching center.

AUTODIN stemmed from a specific need: as global Air Force operations grew more complex, efficiency of the support system became an increasingly critical factor. In 1958, after several years of basic study, a special Air Force planning group developed concepts for an automatic data switching system to take the place of the existing manual system.

The Western Union Telegraph Company was named to manage the project. RCA was called on to equip the switching systems with an eye toward realizing a degree of speed, accuracy, and reliability never before achieved.

The operational concepts and technical features of AUTODIN were designed specifically to meet Department of Defense requirements for a modern communications network. More than 1,500 RCA specialists played a part in the design and development of the tailor-made equipment and in the new data communications concepts involved in the first five switching centers that formed the backbone of the AUTODIN network.

Each of the centers contains both message-switching and circuit-switching elements so that message traffic can be handled on a store-and-forward basis as well as on a direct user-to-user basis. A subscriber may be connected either to the store-and-forward or user-to-user service but has the ability to interchange messages with all subscribers.

The first official message was relayed over the AUTODIN system in February, 1963. The message, from the Air Force Chief of Staff, General Curtis E. LeMay, went from Andrews Air Force Base near Washington, D.C., to the four other switching centers at McClellan AFB and Norton AFB in California; Tinker AFB, Oklahoma City, Okla.; and Gentile AFB, Dayton, Ohio. It read in part:

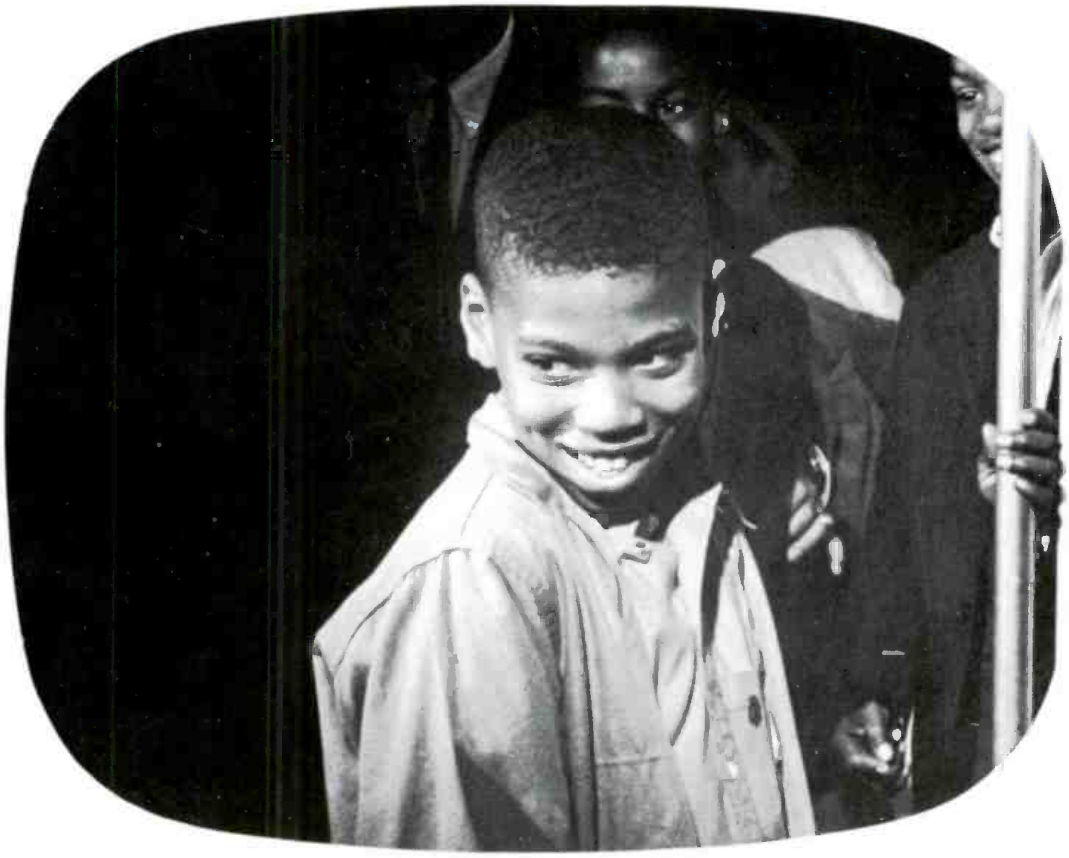
"The activation of this new data communications system may not be so spectacular as the launching of an ICBM, but it is every bit as important to our security."

The new AUTODIN buffer, in itself a computer of sorts, has been placed in operation at the Defense Industrial Supply Center (DISC) in Philadelphia, a field activity of the Defense Supply Agency. The buffer will enable an RCA 301 data system at DISC to process a requisition for any of the 700,000 industrial supply items managed by DISC in less than a second after receipt of an order over the AUTODIN network.

One of the principal users of the AUTODIN system, the Air Force Logistics Command (AFLC), plans to install 14 RCA 301 computers in pairs, with buffering equipment, at seven strategic spots to handle, on a priority schedule, the flow of some two million material items ranging from washers to warheads.

The new systems will be in addition to the 30 RCA 301s being installed at 10 key sites in the United States to provide AFLC with more comprehensive management reporting and faster response to the needs of command aircraft and missile units in every part of the world. ■

SEE YOURSELF ON TV





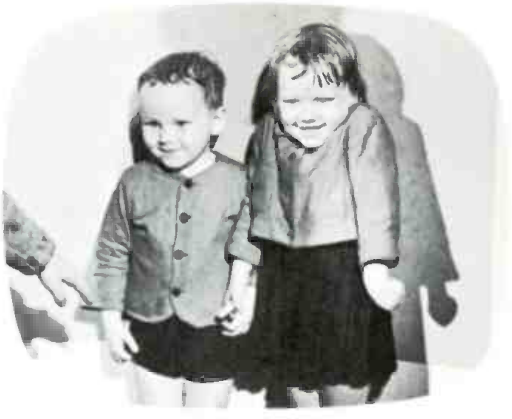



Visitors to the RCA Pavilion at the New York World's Fair have the opportunity to see themselves on color television, both

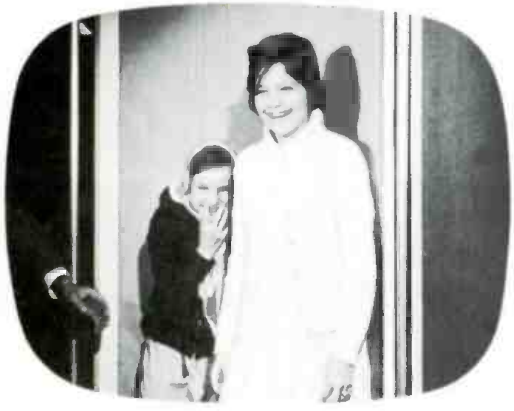







live in front of the color TV camera and, 15 to 20 seconds later, on a second TV set via a color tape delay system.






The Tastemakers

by William Bender

Is the record company A & R (Artist and Repertoire) man a taster or a tastemaker? More often than not, he is a little bit of both.

To RCA Victor's Stephen H. Sholes, Division Vice President, Popular Artist and Repertoire, one of the biggest requirements of the job is the ability "to put a finger on a fad."

"Our big audience for pop singles is the subteen-ager, the youngster between nine and 13," he was saying the other day. "And most of the subteen-agers who buy records are girls. I hate to admit it, but *they* are the tastemakers."

Sholes knows his business, but he is also a modest man, as any of his associates will testify. It was he, for example, who had the idea to take such a sophisticated performer as trumpeter Al Hirt down to Nashville, the home of country and western music, and who came up as a result with such successful albums as Hirt's "Honey in the Horn" and "Cotton Candy." The product was a combination of Hirt's smooth stylings with more vigorous rhythms and accents, thereby setting what may turn out to be a definite trend.

On another front, it was Sholes and Roger Hall, Manager, Red Seal Artist and Repertoire, who together sent Hirt to Boston to make a recording that ranged from Haydn's Trumpet Concerto to a special arrangement of "Java." This recording was made with Arthur Fiedler and the Boston Pops Orchestra and was a conscious effort to bridge the chasm between the pop set and the longhairs. Fiedler's recording of a favorite Beatles' number, "I Wanna Hold Your Hand," was another step in the same direction.

For his part, Hall, who came to RCA Victor only last year from the managership of the Philadelphia Orchestra, also was reluctant to be categorized as a tastemaker.

"That is an awesome and flattering thing to say of anyone," he commented. "I sometimes wonder whether the dog wags the tail or the tail wags the dog. I must confess that I have never thought of myself as a tastemaker. If we are tastemakers here, I think it is probably because of the size and prestige of RCA Victor."

Sholes and Hall belong to a new breed of impresarios who have risen with the emergence of the phonograph as a significant cultural force in the 20th century. They are the arbiters of taste in an artistic field that has broadened tremendously in the last 15 years, largely because of the advent of magnetic tape and the LP record.

To the public, the A & R men are virtual unknowns. But to those who earn their bread and butter in the record industry, they are the real professionals, the guys who make the "guts" decisions, the men whose taste and judgment go a long way toward determining the success of their companies and artists. Once the tape recorders are running, it is the performers who must deliver. But that does not take anything away from the A & R men any more than a brilliant end run by a football halfback detracts from the quarterback who called the play.

Who are these A & R men and how do they operate? Befitting their place in the 20th century, they span continents in the latest jets in search of new talent, and have the latest in sound-reproducing equipment at their disposal. And though they must be alert to new trends and fads, they must also have the necessary cultural training and business experience to be able to make decisions on the basis of their own distinctive taste.

One good example is RCA Victor's A & R producer Richard Mohr, who supervises recording sessions with such artists as soprano Leontyne Price, pianist Van Cliburn, and conductor Erich Leinsdorf and the Boston Symphony Orchestra. Wherever ideas for records come from — whether from the artists, from Mohr himself, from Hall, or from George R. Marek, Vice President and General Manager of the RCA Victor Record Division — it is Mohr's job to convert the ideas into reality. It is he, and other producers like him, who presides over the actual recording sessions, worries about microphone placement, and — score in hand — makes sure

The story of the men who anticipate
and satisfy the changing tastes of the people for recorded music.

Vocalists and Conductor Von Karajan at a recording of "Carmen."

...the A&R man is a kind of winegrower who must sample many grapes before he can select the best...

all the music gets in. It is he who, later, goes back to the sound laboratories with his engineers to edit the tapes.

And, of course, there are the high-level decision-makers like Sholes and Hall.

Sholes, a burly, soft-spoken man of about 50, came to work for RCA Victor in 1929 when he was still going to school. He is responsible for all RCA pop albums and singles as well as for RCA Camden and Groove recordings. The first recording sessions he supervised were jazz recordings in the late 1930s, and his very first such session was with a group led by the late Sidney Bechet.

Since that time, he has developed many of the nation's leading popular artists such as Chet Atkins, Eddy Arnold, Hank Snow, Homer & Jethro, The Browns, Hank Locklin, and Jim Reeves. The way Sholes discovered Atkins is a good example of the A & R man in action.

"It was in the mid-40s," Sholes recalled. "I heard a guitar record — a transcription for radio stations' use — of a thing called 'Canned Heat.' The player was a guy named Chet Atkins. I liked the record and went looking for him. It took time. I finally tracked him down in Denver. I sent him a contract and he signed it.

"In those days I was handling country and western music, and we used to go to cities like Charlotte and call in the natives to make the records. But then a lot of the musicians began gravitating to Nashville, and we began recording there exclusively for that kind of music. Chet Atkins moved to Nashville, too, and I began using him on guitar in some of the pickup groups. Then I made him a leader. He was a quiet, unassertive type, but whenever anybody asked him for a suggestion he inevitably came up with a great idea — say, for a song nobody else knew about, or for a way to blend instruments. Finally, I got him to come into the control room, and now he's running our whole Nashville operation."

Although Atkins has now joined the ranks of A & R men, he is still making records and continues to be one of RCA Victor's biggest stars.

Sholes doesn't trudge the hinterlands as much as he used to, but he still keeps in touch. Men like Atkins inform him of new developments. So do RCA Victor's 18 field salesmen and eight promotion men who cover the country, visiting stores and contacting radio and television stations.

He also keeps informed through disc jockeys, station owners, and many other acquaintances and friends he has made during his years in the business. The radio stations, which can make a new pop record a success by exposing it to the kids, are usually eager to help the companies. The reason is that most stations depend on records for their lives.

And then there are the endless auditions the RCA Victor A & R men must sit through. Sholes walked into one the other day and walked out three songs later, groaning, "Why do they all sing 'Granada'?" That is one of the hazards of the A & R life. Another hazard an A & R man encounters is that before he discovers one major talent he must deal with dozens, perhaps hundreds, of mediocre artists.

Sometimes, even a high-caliber artist doesn't make the job easier. Hall, for example, read the very favorable reviews one morning of a New York debut by a young European pianist. Within hours, the pianist had been invited over "to do a lacquer," which is the trade term for making a test record. Such an invitation is as potentially important to a young musician as a screen test is to a starlet.

The "lacquer" was promising enough to draw Hall and his assistants to Carnegie Hall a few weeks later for the pianist's return recital. It was a good recital, but Hall decided that the artist was not what RCA Victor was looking for at that time, and the matter was dropped then and there. Money down the drain? Not really. In a business as competitive as the record industry, no opportunity can be overlooked to find a new star.

Sholes and Hall already have their recording plans set through the first half of 1965, and their release schedule is charted through the end of that year. In making such plans, the two A & R men meet regularly with RCA Victor's merchan-

Soprano Anna Moffo consults score with RCA Victor Record Vice President George R. Marek.

Singer Ann-Margret expresses her viewpoint to RCA Victor Record's A & R Vice President Steve Sholes.

Conductor-composer Morton Gould confers with RCA Victor Red Seal A & R Manager Roger Hall.

dising staff and keep in touch with the company's field representatives. It helps to know whether the merchandising department has enough money in its budget to promote a new singer in May, 1965. If it does not, then the release may be put off until the following fall. It also helps to know what difficulties, if any, the field salesmen are having with an existing release or whether a certain artist is suddenly selling big.

"The public is not an amorphous mass," said Hall. "There is no longer a 'musical public' as such. There are many publics – the publics for opera, folk, guitar, and Vivaldi, for example. To maintain RCA Victor's leadership, we must cater to all these publics. My philosophy is, 'whatever you want, you should be able to get it on RCA Victor.'

"I plan to increase our chamber music, Baroque, and contemporary catalogues wherever and whenever possible so that we can contribute to the art of our time. But we can't go off half-cocked or devote ourselves to a small, fringe group. Our task is to serve all the publics, and, to the best of our abilities, we are going to try to do it with the finest artists and finest recordings we can make. We want to make money, of course. But, by the same token, I do feel that in the Red Seal department we have a broader mission to represent all the major areas of current musical activity.

"There are three things that concern me – the artist, the performance, and the recording. Each must be first class.

"My guideline is not primarily 'will it sell?', but is it a fine recording? Is it artistically successful? Does it have good taste, and does it have a public?"

What does all this mean in the end? Well, think of the A & R man as a kind of winegrower who must sample many grapes before he can select the best and then nurture a fine wine. He may not have invented the seed or sent the rain to make it grow, but wine fanciers the world over depend on him – and so does the good name of his company. ■

Superconductive Magnets

by Bruce Shore

Mix three parts niobium with one part tin. Place in heated oven and raise to evaporation temperature. Add chlorine. Reduce resulting vapor mixture in hydrogen atmosphere, allowing niobium-tin coating to form on surface of hot stainless steel ribbon moving through bottom of oven. Frost lightly with copper or silver, wind into large coil, and cool in liquid helium. When chilled to 484°F. below freezing, add electric current and serve.

Such is the RCA recipe for *gausses glacés* — a culinary metaphor for superconductive magnetism. A gauss is a unit for measuring magnetism, and *glacé* is menu parlance for "frozen." Combined, they characterize one important by-product of superconductivity — super amounts of magnetism.

With the discovery in the mid-1950s that certain man-made superconductors such as niobium-tin produce very high magnetic fields without losing their superconductivity, a search was launched to find the best way to prepare such mixes.

Several methods were tried with varying success and then, in 1961, Dr. J. J. Hanak, a chemistry "chef" in the materials research "kitchens" of RCA Laboratories reported the creation of a new recipe for the vapor deposition of niobium-tin.

Believing, with Dr. Hanak, that the new recipe could be used to produce powerful superconductive magnets, the Electronic Components and Devices activity set up an applied research laboratory at the David Sarnoff Research Center in Princeton, N.J., to prove it.

Under the direction of Norman S. Freedman, this laboratory quickly cooked up several experimental magnets using the Hanak recipe. These were not of sufficient strength and reproducibility, nor of low enough cost, to be offered for sale, however. It took another year of arduous, step-by-step effort to get something in that category. At last, when a magnet with commercial potential was unveiled in May of this year, it proved to be the most powerful unit of its type ever built.

What is it like, this peculiar magnet that operates only when steeped in liquid helium? It consists of two stainless steel spools, nested one inside the other, and wound with two and three-quarter miles of stainless steel ribbon specially prepared in accord with Hanak's recipe. In size and shape, it looks like a half-gallon paint can. In weight, it tips the scales at 26 pounds.

Yet, for all its unprepossessing size and appearance, when energized, this pint-sized powerhouse generates a magnetic field 214,000 times stronger than the earth's. Scientists estimate that, if two such magnets were placed end to end so as to attract each other, it would take an approximate force of 40 tons to pull them apart.

Such overt displays of magnetic muscle are not its purpose, however. (Its field of 107,000 gauss is developed at the center of the two nested spools in a cigarette-length, one-inch diameter hole.) Rather, it is designed to control the hot streams of charged particles employed in hydrogen fusion research, magnetohydrodynamic (MHD) generation of electric power, atomic particle accelerators, and certain space propulsion systems.

What is the reaction of potential customers to the huge portions of *gausses glacés* served up by Freedman's superconductive *corps de cuisine*? Already, the National Aeronautics and Space Administration, the Atomic Energy Commission, several universities, and a few industrial laboratories are calling for seconds. ■

Color TV Programming at the World's Fair

by Robert Shortal

A piano-playing duck to a news analyst typify the range of features on the 12-hour-a-day telecasting at the RCA Color TV Center.

The precocious duck watched its trainer for the cue, then began playing the toy piano with its bill, much like a child picks out "Chopsticks" with one finger. A few minutes later, the color television studio was filled with the sounds of a Chopin polonaise, only now it was a professional pianist at a concert Steinway.

The fast change from duck to man on the keyboard is characteristic of the tempo of the world's busiest television studio, where frequently a scorecard is needed to keep track of the large number of performers.

Sometimes even a scorecard isn't much help in RCA's Color TV Center at the New York World's Fair, a facility operated live 12 hours a day, seven days a week, in full view of the public. The parade of performers through the "goldfish bowl" studio is reminiscent of a great vaudeville show where one act was always in the wings ready to go on stage when another finished.

Operating a color television studio live 12 hours a day – or a total of approximately 2,000 hours each season of the Fair – is an unprecedented broadcasting feat. Even so, this is only part of the story of television at the Fair. In addition to the studio, RCA also operates a closed-circuit color TV network on the Fair grounds 12 hours a day, seven days a week.

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1. *Winthrop Rockefeller (far right), Republican candidate for Governor of Arkansas, on NBC's Meet the Press.*
2. *Guy Lombardo assisted by Miss USA (left) and Miss Universe.*
3. *Fletcher High School Band of Jacksonville, Fla., marches past RCA mobile TV unit.*
4. *Sonny Fox talks with group of Boy Scouts before taping his children's participation show.*
5. *Hopi Indians from New Mexico perform their traditional hoop dance.*
6. *Program Manager Louis B. Ames interviews soprano Anna Moffo.*

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The closed-circuit network utilizes some live material from the studio, but the bulk of the programming consists of color tapes made at the Fair and short, Fair-oriented film clips provided by other exhibitors.

Since there is only about a 10 per cent overlap between the programming in the studio and what goes out on closed circuit, the two operations combined call for approximately 4,000 hours of color programming each season of the Fair, which runs from late April to late October both this year and next. This is greater than the total number of hours of color broadcasting scheduled by the three major networks for all of 1964.

The closed-circuit network, which is fed from the studio control room, has monitors located in almost every private lounge and club on the Fair grounds, and in many restaurants, waiting rooms, and pavilion areas open to the public. The entrance hall to the New York City Pavilion, for example, has eight color monitors that are in full view of all visitors.

How are 4,000 hours of color program material developed? A combination of ingenuity, sweat, luck, cooperation, and television's unique appeal provides the answer. Every exhibitor at the Fair has been invited to participate in the studio and closed-circuit operations, and many exhibitors have

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1. *Downbeat, a talented duck from Florida, plays toy piano with his bill.*
2. *Walt Disney and a friend of long standing were on hand to inaugurate the National Comics Council's weekly show.*
3. *Columnist Bob Considine interviews for the TV show FYI at the Fair.*
4. *Cameras from the RCA mobile unit tape highlights of entertainment at Hawaiian Pavilion.*
5. *Fashion shows are one of the features of TV programming at the Fair.*

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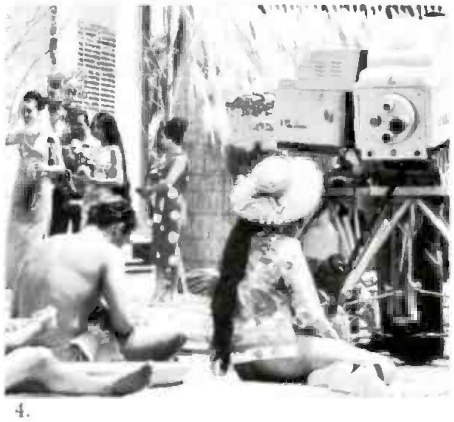

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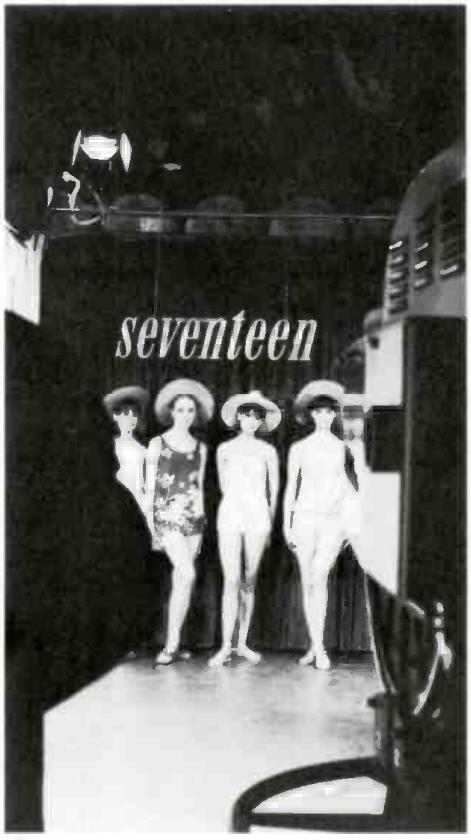

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responded by providing talent from their own shows or by opening their doors to RCA's mobile unit at the Fair.

A number of regular weekly programs have been developed exclusively for the Fair, including an animal show by the Bronx Zoo, appearances by top newspaper cartoonists, children's shows, "Concerts in Miniature" featuring leading musicians brought to the Fair by Steinway & Sons, man-in-the-street interviews with Fair visitors on a wide range of subjects, and many more.

The studio itself is a beehive of activity from 10 A.M. to 10 P.M., reverberating with the jungle rhythm of African dancers, the staccato beat of Spanish flamenco dancers, the skirl of bagpipers, the rhythm of a calypso band from the Caribbean, or the tom-toms of Hopi Indians from New Mexico. Magicians make way for folk singers who, in turn, may be followed by a visiting dignitary, a lost child, or a 15-foot python.

Singers and dancers, judo and trampolin experts, kings and ambassadors all have shared the excitement that is the hallmark of a television studio in operation.

Sometimes the climate gets a bit electric. For instance, a king snake recently became a bit belligerent under the hot studio lights during a Bronx Zoo show. The zoologist put the reptile in a re-

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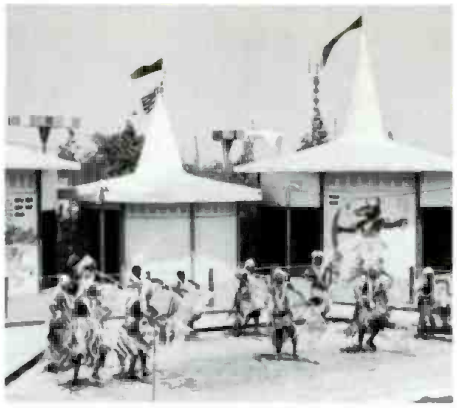

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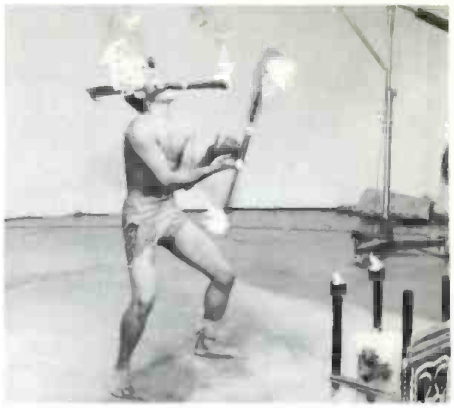

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1. *Cartoonist Vern Greene sketches visitors to the RCA Pavilion.*
2. *Watusi dancers from Africa perform their tribal dances.*
3. *Native dancers from Tahiti perform their fire dance.*
4. *Burr Tillstrom and his puppets, Kukla and Ollie.*
5. *Former President Dwight D. Eisenhower taped two messages for the People-to-People program.*
6. *Musical performance by Mayan children from Guatemala.*

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frigerator to cool it off. An innocent party opened the refrigerator and saw a gyrating cheesecloth bag on the shelf. His reaction was quite normal — he screamed.

On another occasion, a ring-tailed raccoon became impatient while waiting for a pompous chimp to get off camera and bit a press agent, causing mild concern among zoo officials who zealously guard the health of the animals.

Most of the programs in the studio are recorded on color tape, which is edited for the closed-circuit network. It may take as much as an hour of studio time to produce a five-minute show on tape. Since the World's Fair crowd is a mobile group, scurrying to see as many things as time will permit, the emphasis for closed circuit is on short programs, averaging three to 10 minutes in length.

Some of the international groups that have performed in the studio have been show stoppers. The young dancers from Tahiti, who perform daily in the Polynesian Pavilion, had never seen television before coming to the United States. When their performance was played back on color tape, they sat before a color TV monitor and giggled, squealed, applauded, and even shouted encouragement to themselves on the TV screen.

A group of boys and girls from Guatemala, direct descendants of the ancient Mayan civiliza-

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1. *RCA Victor recording star Peter Nero plays the piano while cartoonist Vern Greene sketches for the audience.*
2. *President Lyndon B. Johnson addresses a union convention in the Singer Bowl, an event covered by RCA's mobile TV unit.*
3. *Simon Rolleau (left), a 63-year-old visitor from France, had the distinction of being the first person lost at the Fair on opening day.*
4. *Astronaut L. Gordon Cooper (left) chats with announcer Randy Kraft.*
5. *The Wayfarers, RCA Victor artists, at recording session.*

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tion, put on a demonstration of their music and art. The edited tape was played on closed circuit and resulted in several donations to their Indian Community School in Chichicastenango. Even though these children came from neighboring villages in Guatemala, they spoke different dialects and were able to communicate with one another only through a Spanish missionary priest who understood all the dialects.

The mobile unit has made tapes at such pavilions as those of Japan, Morocco, Jordan, Hawaii, Sudan, Africa, Florida, West Virginia, and others, which, in addition to serving as a unique video guide for visitors, offer some interesting insights into the different ways people live, dress, eat, and work.

No network could afford to duplicate the magnificent stone wall of Japan, the resplendent facade of Thailand, the temple of Indonesia, the traditional imperial palace of the Republic of China, or the vast array of towers, domes, pylons, concrete tents, mushroom shapes, or "umbrella" roofs of the other architecturally grandiose exhibits. Nor could they match the wide variety of entertainment available throughout the grounds.

The World's Fair could be called the first billion-dollar TV set in history – a spectacular backdrop for the greatest show on earth. ■

Billing by Computer

Every month, two million statements for customers are being handled by the New Jersey Bell Telephone Company's electronic computers at data processing centers.

Physically, New Jersey resembles a rangy letter "S," nosing up to Port Jervis, New York, in the extreme northwest and dipping into the Atlantic Ocean at Cape May, 170 miles to the southeast as the sea gull flies.

The upper arc of the "S" includes one of the most populous areas in the United States. The southern half ranges from sparsely settled pine barrens to dozens of seashore resorts with seasonal pulsations of activity.

Handling the complex communications demands of this diverse area is one of the busiest telephone companies in the world.

The New Jersey Bell Telephone Company has two million customers using 3.3 million telephones, which means that two million statements must be prepared and mailed every month and records kept on this mammoth billing operation. In addition to their normal local area calls, New Jersey Bell's subscribers place 36 million toll calls a month – involving an almost infinite variety of rates depending on distance, time, and type of call.

New Jersey Bell handles more toll calls per customer than any other company in the Bell System. To cope with one of the most overwhelming paperwork problems in the telephone field, New Jersey Bell is two-thirds along the way toward converting to a complex of electronic computers at three strategically located data processing centers.

In the spring of 1963, New Jersey Bell "went on the air" at the first of the three planned centers. At Teaneck, N.J., an RCA 601 and four companion RCA 301 electronic data processing systems began processing up to one and a quarter million transactions daily involving toll call accounting and the preparation of bills for the heavily populated northern portion of the state.

The five computers at Teaneck now are processing 15 million toll calls monthly – a total of 24 million individual data processing transactions.

Early in April, the second New Jersey Bell data processing center went into operation at Trenton – with the same complement of an RCA 601 and four satellite RCA 301 systems. This electronic "command post" is geared to handle a volume comparable to that now being processed at Teaneck. The third center will be established at Cranford – near Elizabeth, N.J. – next year.

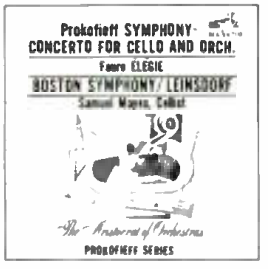
The data processing systems print the finished monthly bill, with the billing function divided into 20 cycles monthly. The computers also maintain master files for each account. In addition, the electronic systems will turn out traffic pattern studies and statistical analyses. ■

New Jersey Bell Telephone Company employee demonstrates the spools and reels of an electronic data processing system that will soon handle the paperwork involved with 36 million toll calls.

For the Records...

News of recent outstanding RCA Victor recordings.

MOZART: CONCERTO NO. 17, Artur Rubinstein, pianist, with the RCA Victor Symphony Orchestra conducted by Alfred Wallenstein (RCA Victor LM/LSC 2636). This is the newest in the Artur Rubinstein series of Mozart recordings and also is the pianist's first recording of this work which always has been one of his favorites. Additionally, it is the first album released since the pianist's 75th birthday anniversary and the signing of a new, long-term contract with RCA Victor. It is a work that demands the utmost of piano virtuosity, adorned as it is with full flourishes of arpeggiation and decoration. Completing the album are performances by Rubinstein of two piano solos—Schubert's Impromptus, opus 90, Nos. 3 and 4.



PROKOFIEFF: SYMPHONY - CONCERTO FOR CELLO AND ORCHESTRA, the Boston Symphony Orchestra, Erich Leinsdorf conducting, with Samuel Mayes as the cello soloist (RCA Victor LM/LSC 2703). Earlier this year, the Boston Symphony, long identified with the works of composer Sergei Prokofieff, announced a long-range plan to record all the major works of this important Russian composer. This is the second release of the series. The Symphony-Concerto in its original form was given its American premiere in 1940 by the Boston Symphony. Prokofieff thereafter decided to revise the work, finishing it a decade later. This Dynagroove recording is the only stereophonic version of the work currently available. Samuel Mayes, the orchestra's first cellist at the time of the recording, is the soloist. Also in the album is Faure's Elegie, opus 24.

COTTON CANDY: AL HIRT, with orchestra and chorus (RCA Victor LPM/LSP 2917). This is more music in the vein that made Hirt's previous album "Honey in the Horn" such a national favorite that it became a "Gold Album Seller." And, once again, Hirt went to Nashville to employ the "Nashville Sound," which is coming to be more and more popular throughout the world. Selections, in addition to the title song, which already is also a popular single record, include "Hello, Dolly!," "Walkin'," and "Big Man."

THE PINK PANTHER: HENRY MANCINI AND HIS ORCHESTRA (RCA Victor LPM/LSP 2795). In recent years, Henry Mancini has established himself as Hollywood's most brilliant and sought-after composer. Mancini's success, in part, can be measured by his recording technique, which precludes using the soundtrack of the film at hand for his albums. He insists on writing the score for the film, then going into a regular studio and recording the work again for albums. Thus Mancini's albums always read "Music from the Score . . ." rather than "Original Soundtrack Recording." It is a means whereby Mancini can "pull the score together" for more cohesive flow in recording. Since "The Pink Panther" is a comedy-satire, the music emerges in a light, sophisticated vein.

THE KURT WEILL CLASSICS: LADY IN THE DARK WITH GERTRUDE LAWRENCE AND DOWN IN THE VALLEY (RCA Victor Vintage Series LPV 503). A short time ago, RCA Victor reached the decision to launch a new series of reissues of historic recordings of the past in the popular vein as a companion to its Treasury of Immortal Performances Series in the classics. This is one of the initial releases, and it makes available two of the most important and memorable past performances of the theater. "Lady in the Dark" was a vehicle for Gertrude Lawrence at the height of her career. Recorded in 1941, it was one of the earliest original cast albums, and its reissue is of significance to collectors and all who may wish this documentation of a great Broadway career. "Down in the Valley" is known as "An American Folk Opera," and the recording dates from 1950. Starring are Marion Bell, William McGraw, and Kenneth Smith. Peter Herman Adler is the conductor.

Electronically Speaking

News of current developments briefly told.

THE ELECTRON ACCELERATOR

An experimental "hot electron" propulsion technique that could be used to propel spacecraft to the limits of the solar system at speeds of 100,000 miles per hour or more has been developed and successfully tested at RCA's David Sarnoff Research Center in Princeton, N.J.

The experimental unit ejects electrons and ions similar to a rocket exhaust at the rate of six miles per second. This would generate sufficient thrust to accelerate a vehicle in space over long periods once it had been boosted from the earth by conventional rocket power. The principles used in the RCA unit open the way to a host of long-lived electric engines whose ability to stop and start on command could extend their operating usefulness to space missions lasting several years.

A new and more powerful electric propulsion unit is now in preparation at the David Sarnoff Research Center.

PROJECT FIRE

One of the problems encountered during space travel is the breakdown of communications during the crucial period of a space vehicle's re-entry into the earth's atmosphere. This "black-out" is caused by the plasma sheath that surrounds the superheated spacecraft as it re-enters. This sheath is impenetrable by current electronic signals. An example of this was the temporary silence that caused some apprehension during the re-entry of Scott Carpenter after his three-orbit space flight in May, 1962.

To help lick this problem, an RCA data acquisition and communications system was installed aboard the National Aeronautics and Space Administration's Project Fire re-entry vehicle as part of the primary objective of that agency's efforts to obtain data on re-entry heating and the plasma sheath surrounding re-entering spacecraft.

As a result, when the 200-pound, heavily instrumented model re-entered at a speed of 25,000 miles per hour last April 14, the equipment returned temperature readings from 258 different points spotted throughout the Apollo-shaped vehicle's six-layered heat shield. It also telemetered more than 2,000 bits of data per second to ground receiving stations on the Atlantic Missile Range during the spacecraft's blazing re-entry.

Return of the data required two separate transmitters. The first transmitter beamed the data directly to ground stations. The second transmitter recorded the information and stored it during the plasma sheath communications black-out interval. It then transmitted the data to the receiving station when the black-out period ended.

ANNIVERSARY FOR A STAR PERFORMER

TIROS I, the world's first meteorological satellite, recently celebrated its fourth anniversary. Launched on April 1, 1960, TIROS was the first spacecraft to transmit a television picture from space. Since then, seven additional TIROS satellites have been successfully orbited. All eight have worked in space and have met or exceeded their mission requirements.

During their time in space, the eight satellites, orbiting the earth at 17,000 miles an hour, have televised more than 330,000 pictures of weather events around the globe. These pictures include hurricanes, sea-ice conditions, and mountain snow conditions in the Alps, Himalayas, Rockies, and Andes as well as such atmospheric phenomena as dust storms over Saudi Arabia and the Persian Gulf.

Forthcoming TIROS satellites, including one that will employ an RCA-designed "wheel" configuration, are expected to provide daily global coverage of weather conditions. In the "wheel" mode, the present hatbox-shaped TIROS will be turned on its side and made to "roll" through the sky in a near Polar orbit. Every major part of the world will be photographed at least once a day by the "wheel" TIROS.

The TIROS satellites have been built by RCA for the National Aeronautics and Space Administration.

THERMIONIC CHAIN PROCESS

The development by RCA of the industry's first thermionic energy converter module to operate from a single heat source could lead to the design of power systems for space probes.

The module is part of a system that combines nuclear power and the module and results in the conversion of nuclear heat directly into electricity. In short, it is a chain process of nuclear heat to the module and then into electrical current.

The importance of the new energy converter module is that power can be obtained from thermionic converters at higher and more useful voltages than was previously possible with a single device.

Space-suited engineer peers through scope of TV camera → in Apollo command module that will go to the moon. The camera is being developed by RCA for North American Aviation — principal contractor on the Apollo command and service modules to NASA's Manned Spacecraft Center.

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...RCA IS PART OF YOUR LIFE

1. If you drive a car: RCA helps make cars safer and more reliable. The Public Health Service uses an RCA-designed driving simulator to study behavior in highway crises. Transistors built by RCA go into more efficient ignition systems.

2. Seek a new career: Through classroom and correspondence programs, RCA Institutes train thousands of men for careers in computers and communications electronics—men whose new skills keep electronics working for you.

3. Use canned foods: To keep the flavor, color and purity of foods, American Can Company uses the RCA electron microscope in developing new finishes for can linings. RCA metal detectors in packaging plants guard against foreign matter in foods.

See Walt Disney's "Wonderful World of Color," Sundays, NBC-TV Network.

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