Complete
Transcript of Business Sessions

TWELFTH ANNUAL CONFERENCE

OF

ASSOCIATED POLICE COMMUNICATION OFFICERS, INC.

October 28th, 29th, 30th, 1946

Hotel Statler
Buffalo, New York

REPORT

OF

PROCEEDINGS

TWELFTH ANNUAL CONFERENCE

OF

ASSOCIATED POLICE COMMUNICATION OFFICERS, INC.

* * *

OCTOBER 28, 29, and 30, 1946

HOTEL STATLER

BUFFALO, NEW YORK

Bramley, Frank	Radio Supervisor	Hartford, Conn.
Brandenburg, H. A.	Radio Operator	Manitowoc, Wis.
Brodie, LeSueur	New York Telephone	Toronto, Ontario
Bryant, J. W.	General Electric Co.	Syracuse, N. Y.
Budelman, F. T.	Link Radio Corp.	New York, N. Y.
Burus, Francis A.	Inspector	New York, N. Y.
Carlson, H. V.	Doolittle Radio Corp.	Chicago, Ill.
Carnahan, F. A.	Spvsr. Ill. State Police	Macomb, Ill.
Carr, W. H.	Sergeant	Kansas City, Kan.
Carter, Robt. W.	Carter Motor Co.	Chicago, Ill.
Castenholz, Fred E.	Radio Chief	Muskegon, Mich.
Cattrell, B. P.	Sales Rep. Western Elect.	New York City
Clair, John J.	Frederick Hart & Co.	New York, N. Y.
Clark, Foster	Sergeant	Hornell, N. Y.
Connell, Wm. J.	Lieutenant	Rochester, N. Y.
Crowder, Fred	Radio Engineer	Los Angeles, Cal.
Curry, A. A.	Farnsworth Radio Corp.	Fort Wayne, Ind.
Dengler, C. E.	Chief Radio Operator	Rochester, N. Y.
Denstaedt, E. C.	Div. of Comm.	Detroit, Mich.
DeShaffon, Roy	Supt. of Communication	Kansas City, Mo.
Doyle, Vincent I.	Supt. Radio Bureau	Bayonne, N. J.
Dull, M. F.	New York Telephone Co.	New York, N. Y.
Duncan, Harry	Asst. Chief Operator	Jefferson City, Mo.
Ellison, C. W.	Captain	Los Angeles, Cal.
Emmons, C. J.	Communications	Columbus, Ohio
Endlich, Raymond	Radio Engineer	Sheboygan, Wis.
Erickson, Ero	Secretary-Treasurer	Chicago, Ill.
Evans, H. R.	Chief Radio Operator	Lafayette, Ind.
Farmer, Charles	Captain	Raleigh, N. C.
Fortman, Kenneth	Chief Engineer	Mason, Mich.
Franklin, Paul E.	Supervisor of Radio	Houston, Texas
Frauman, Burt	Shure Bros. Inc.	Chicago, Ill.
Free, Russell	Radio Engineer	Springfield, Ohio
Furlong, R. A.	R.C.A.	New York, N. Y.
Gada, N.	General Electric	Syracuse, N. Y.
Gamble, W. M.	Chief Radio Operator	Pittsburgh, Pa.
Gano, Kenneth	Leece-Neville	Cleveland, Ohio
Garn, A. A.	General Electric	Toledo, Ohio
Gebenini, William A.	Captain	Olympic, Wash.
George, U. W.	Motorola	Chicago, Ill.
Gillman, Alain	Lieutenant	Ecorse, Mich.
Gocha, Edward	Radio Engineer	Berkley, Mich.
Goebel, Gene	Motorola	Chicago, Ill.
Golson, W. T.	Captain	Baton Rouge, La.
Groenier, Ray	Radio Engineer	Madison, Wis.
Hall, Edward J.	Wilcox Electric	Kansas City, Mo.
Hall, M. E.	Wilcox Electric	Kansas City, Mo.
Harrington, J. T.	Communications Engineer	Boston, Mass.
Harris, Jim	Carter Motor Co.	Buffalo, N. Y.
Heiden, C. M.	General Electric	Syracuse, N. Y.
Hicks, Ralph	Superintendent of Radio	Tulsa, Okla.
Hirsch, J. W.	Karr Engineering Co.	Marion, Ohio

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Ackerman, Claire	Mgr., F. M. Antenna & Tower	Albany, N. Y.
Allen, Wm. K.	Chief Inspector	Mineola, N. Y.
Audritsh, Zellon E.	Indiana ~State Police	Indianapolis, Ind.
Bakos, Michael	Chief Radio Operator	Cleveland, Ohio
Ball, M. T.	Astatic Corp.	Conneaut, Ohio
Batts, Robert L.	Captain	Indianapolis, Ind.
Baumgart, Roy	Galvin - Motorola	Indianapolis, Ind.
Baxter, Jack J.	Sales, Fred M. Link	Younstown, Ohio
Beall, Frank M.	Lieutenant	Washington, D.C.
Beard, L. S.	Radio Supervisor	Rockford, Del.
Beck, Carl	Chief Operator	Toledo, Ohio
Benson, Russell	Sheriff's Office	Gowanda, N. Y.
Beyer, R. T.	General Electric Co.	Schenectady, N.Y.
Biel, Tom	Electro Voice	Reading, Pa.
Black, Howard P.	Supervisor	Mobile, Ala.
Boas, Walter J.	Lieutenant	Hartford, Conn.
Bond, M. E.	Galvin Mfg. Co.	Chicago, Ill.
Boss, L. J.	Federal Tel. & Radio	Newark, N. J.

Hoffman, Raymond	Supervisor	Madison, Wis.
Howe, Russell	Radio Engineer	River Rouge, Mich.
Hull, Milton J.	Chief Operator	Ligonier, Ind.
Jackson, Neal	APCO Bulletin	Detroit, Mich.
Jeffries, J. W.	R.C.A.	Camden, N. J.
Johnson, Robert N.	Radio Supervisor	Jamestown, N. Y.
Jordan, Roy	General Electric	Syracuse, N. Y.
Kadow, A. C.	Radio Engineer	Elgin, Ill.
Kendall, R. B.	Belmont Radio Corp.	Chicago, Ill.
Knaack, H. S.	Doolittle Radio	Chicago, Ill.
Knudel, C. H.	Sergeant at Arms	Toledo, Ohio
Laakko, Eli H.	Radio Operator	Cincinnati, Ohio
Lahij, John A.	Jordon's	Cleveland, Ohio
Lascansky, M.	Wincharger Corp.	Sioux City, Ia.
Lathrop, R. E.	Radio Engineer	Waukesha, Wis.
Latterell, Esther	F&M Television Mfg.	New York City
Lee, W. M.	Radio Engineer	Richmond, Va.
Machon, Victor	Shure Bros. Inc.	Chicago, Ill.
Marrs, Homer	Motorola	Chicago, Ill.
Marshall, R. F.	Kaar Engineering Co.	Marion, Ohio
Martin. W. B.	Chief Engineer	Kansas City, Kan.
Matheson, L. F.	Bendix Radio	Baltimore, Md.
McCall, Floyd	Motorola	Chicago, Ill.
McCullough, J. A.	Utel McCullough	San Bruno, Cal.
McDonald, Ramsey	Field Engr. F. M. Link Co.	Richmond, Ind.
McFarlane, Donald J.	Lieutenant	Brighton, Mass.
McLaughlin, F. W.	Radio Service	Chicago, Ill.
McIlwain, M. S.	General Electric	Cleveland, Ohio
Meachan, S. A.	Wilcox Electric	Kansas City, Mo.
Mickel, H. F.	R.C.A.	Camden, N. J.
Mohrman, W. V.	F. M. Television	New York City
Morris, I. P.	Galvin Mfg. Co.	Chicago, Ill.
Morton, Fred D.	General Electric	Denver, Colo.
Mulnane, John E.	Lieutenant	Trenton, N. J.
Munro, Glenn	Motorola	Wayne, Mich.
Nard, Charles	Chief Engineer	Des Moines, Ia.
Nelson, A. R.	N. Y. Tel. & Tel.	Buffalo, N. Y.
Nevins, Carlton R.	Radio Engineer	Ann Arbor, Mich.
Nicholson, C. H.	Chief Engineer	Springfield, Ill.
Nicholson, R. M.	Radio Engineer	Ottawa, Ill.
Noble, Daniel E.	Galvin Mfg. Co.	Chicago, Ill.
Obenour, R. W.	R.C.A.	Camden, N. J.
O'Neil, Maurice B.	Major	New Orleans, La.
Pasco, T. G.	Leece Neville Co.	Cleveland, Ohio
Paterson, S. G.	Rogers Majestic Ltd.	Leaside, Canada
Pettengill, G. W.	R.C.A.	Camden, N. J.
Phelps, Norman	Clerk-Sec.	Toronto, Canada
Poff, J. K.	The Astatic Corp.	Conneaut, Ohio
Pountney, Richard	Inspector	Toronto, Ont.
Quandt, H. M.	Radio Tech.	Waukegan, Ill.

Reed, F. R.	Radio Operator	Akron, Ohio
Reid, J. E.	Ontario Provincial Police	Toronto, Canada
Robbs, Harry B.	Radio Supervisor	Kansas City, Kan.
Ryan, F. M.	Radio Cordinator, A.T.&T.	New York City
Sache, Alfred A.	Pole and Tub Works	Newark, N. J.
Scharf, Carl	Chief Operator	Flint, Mich.
Schierff, F. O.	Supt. of Fire Alarms	Philadelphia, Pa.
Schnell, F. H.	Radio Engineer	Chicago, Ill.
Schwartz, A.	Field Engineer	New York City
Scott, G. G.	Federal Tel. and Radio	Newark, N. J.
Searle, George M.	Department Supt.	Albany, New York
Sherman, E. L.	Chief Operator	Salisbury, N. C.
Shirk, Albin B.	Communications Officer	Hilliards, Ohio
Sigel, Morgan	Sheriff	Little Valley, N.Y.
Silva, A. J.	Sergeant	Sacramento, Cal.
Sloop, W. B.	Chief Operator	Raleigh, N. C.
Smith, L. W.	R.C.A.	Cleveland, Ohio
Smith, Roy	Captain	Muncie, Indiana
Snelgrove, C. R.	Rogers Majestic Ltd.	Leaside, Canada
Soules, W.	Electro Voice	Buchanon, Mich.
Sowle, N. Arthur	Supervisor	Reno, Nevada
Spring, Louis	Sheriff	Warsaw, N. Y.
Squires, Herbert W.	Chief Radio Operator	Binghamton, N. Y.
Stone, Floyd	Chief Engineer	Janesville, Wis.
Stotsenburg, Ralph	R.C.A.	Camden, N. J.
Stout, Samuel	State Trooper	Wilmington, Del.
Stringer, C. R.	Communication Engineer	Leaside, Ontario
Stringer, William H.	Commissioner	Toronto, Ontario
Swepston, Robert	Radio Engineer	Columbus, Ohio
Tanner, P. B.	Bendix Radio	Baltimore, Md.
Teeter, James H.	Lieutenant	St. Louis, Mo.
Thomas, W. C.	Captain	Richmond, Va.
Tilton, A. C.	Winberger Corp.	Sioux City, Iowa.
Turner, Carroll	General Electric	Kansas City, Mo.
Ury, Mather	Auto Electric Distributors	New York City
Veazey, D. J.	R.C.A.	Camden, N. J.
Vickerson, Arthur H.	Captain	Boston, Mass.
Villers, Ralph	Radio Technician	Steubenville, Ohio
Wagner, D. E.	Lieutenant	Harrisburg, Pa.
Walker, George	APCO	Albany, N. Y.
Walker, Nolan	Radio Engineer	Canton, Ohio
Wamble, Fred	Federal Tel. and Radio	Albany, N. Y.
Ward, W. G.	Canadian General Elec.	Toronto, Canada
Wareing, Herbert F.	Radio Engineer	Milwaukee, Wis.
Watson, Vernon	Radio Engineer	Oak Park, Ill.
Weinzel, H. F.	Radio Technician	Galveston, Texas
Weston, Donald	Patrolman	Highland Park, Mich.
Whitaker, E. E.	R.C.A.	Cleveland, Ohio
Whiting, William E.	Radio Engineer	Bakersfield, Cal.
Wickham, Fred	Lieutenant	Jefferson City, Mo.
Winner, Lewis	Editor of "Communications"	New York City
Wofford, J. H.	Federal Communications	Washington, D. C.
Yeager, Clair J.	Communications Engineer	Endicott, N. Y.

MONDAY MORNING

October 28, 1946

PRESIDENT GROENIER: I now declare the 12th annual conference of the APCO in order. We will open the session with an invocation from Father Logal.

FATHER LOGAL: Almighty and most merciful God, this morning we call down thy choicest blessing on this assembly of law enforcement officers. Grant them thy special aid in all their deliberations; give them wisdom in their resolutions and uprighteousness in their decisions, and inflame their hearts with love and respect for the institutions which they represent. Give them proper reverence for the Civil Laws which they enforce, and let them see in human law, the reflection of thy own Divine and Natural Moral Law upon which all the laws of man and state must be based if justice is to prosper. Above all, Almighty God, make them instant in their personal lives, to observe the laws of God and man, which it is their duty to enforce, so that from their individual zeal and example, an ever greater respect for law will spread abroad throughout this land. In the name of the Father and of the Son and of the Holy Ghost. Amen.

PRESIDENT GROENIER: Unfortunately the Mayor who was to give us an address of welcome has been called to Washington, and I am sure we can say that the Mayor would rather be here than in Washington, those of us who have been there so many times the last three or four years.

Also the President of the Council hasn't arrived as yet, so we will go on now to the address of greeting by Commissioner Thomas McMahon.

COMMISSIONER McMAHON: Mr. President, ladies and gentlemen: As your President has told you, the Mayor was called to Washington. He is wondering what he is going to do up there in the picket line. He doesn't know whether he is going to get in or out; so he told me the other day to welcome you to Buffalo and also for the Department, I am very glad to welcome you here. I hope you have a good time, and we will do everything possible for you. Thank you. (applause)

PRESIDENT GROENIER: Thank you, Commissioner.

Response to the welcome: If I remember correctly, a response usually consists of telling a story. The only story that I can think of is about a buffalo. Several months ago I was introduced to a newspaper man in Madison, and he invited me out to his home. He had a little bar fixed up down in the basement, and over this bar was a big buffalo head. I remarked on the size of the thing. I said I never saw a buffalo that big. I says, "I suppose you shot that up north." "No," he said, "I tell you I'm not much of a hunter." I said, "Where in the devil did you ever get a buffalo that size?" "Well," he said, "I'll tell you. I went up with a bunch of fellows and I went along there just kind of to do the cooking and sweeping up around the cabin, and this particular day they had all gone out hunting. I looked out in the yard and here was this great big buffalo; the biggest animal I ever saw in my life. I didn't have a gun around; I wouldn't know what to do if I did; so there was a can of turpentine there; we had been doing a little painting; so I just turpentined that buffalo. The buffalo shot out in the woods and hunted up the biggest tree he could and started scratching himself. I went back in the house and finished my work. Finally I decided to check up. I went out to the tree where he was, and that is all there was to it." (laughter)

Well, I think I can truthfully speak for the organization when I thank Buffalo for accepting us. Most of you know what a difficult time we had to obtain a convention city. It was easy enough back in 1937 and 1938 when the community needed money to say, "Sure, come on; fill up your pocketbooks and come down; we'll entertain you; we'll show you a good time;" but for a community in the last few years to say, "Well, we are crowded", and lord knows Buffalo was crowded. Their effort during the war needs no repeating by me. We all have somewhere heard of the P-38 and all of their factories, for Buffalo didn't say "No". They said, "We will move over; we will share our meat with you; you come on down." And I certainly think that is more indicative of true hospitality than some of these other cities that said, "No, we can't take you now, but you wait a little while and when there isn't so much money in the country, then we'll take you." So, Commissioner, in behalf of this organization I certainly want to thank you. I want to extend this thanks to the Mayor and the Council for accepting us and showing the hospitality that you have and will the next few days because we certainly appreciate it.

Now, as is customary, a lot of familiar faces are here. We know each other, most of us; but a lot of us don't. We will have our self-introduction of guests starting over here with my home state, Wisconsin.

(The representatives introduced themselves stating their name and city.)

PRESIDENT GROENIER: I think we have got everybody. Before introducing the manufacturers, we have a couple of convention committees that are required and a few announcements to make. First, I want to announce that you men who have brought your wives, tell them to meet in Parlor G at 1:30; is that right, Larry? Parlor G at 1:30.

MR. GENO: Yes.

PRESIDENT GROENIER: And Larry assures us they will be taken off our hands. (laughter)

The Nominating Committee which wherever possible consists of past presidents will be Captain Batts, Chairman Herb Wareing, Ed Denstaedt, Maurice O'Neil and James Teeter; Teeter being the past secretary. We lack one past president.

The Resolutions Committee for the convention which will take care of drafting and introducing the necessary resolutions will consist of Lathrop, Chairman; Sowle, Kadow, Quandt and Watson. If you men want to have your Chairman announce your meeting places at any time, you can advise me. Those two committees, of course, must function during this convention.

Now, we are going to have introduction of the manufacturers, and I may miss a few, not having a complete list of all those represented, and I certainly hope that there is a salesman here with enough nerve to get up and say so if we have missed anybody. I don't want to slight anyone. We will have to take them from memory. We will start in with J. Bryant.

MR. BRYANT: Thank you for calling on me, Ray. I am sitting right next to my boss here, Matt Gada, who is in charge of our radio communication equipment section. I introduced him first, I think, to my friends of APCO out at the Five Chapter Conference. At that time he talked so much to fellows like Harry Quandt, I think he was clear out of voice. This time I am going to let him speak for himself.

MR. GADA: I certainly appreciate the opportunity to say a word to you gentlemen. We have a booth out here. Come along and visit us. Perhaps you might like to know a little about what we are doing in Syracuse. The electronics department of the General Electric Company is like the rest of the company. We will never give up being first. To that end the company has spent twenty-two million dollars putting up a special electronics plant which will manufacture, as well as other electronics equipment, your equipment. We expect to move into that plant promptly about the first of the year. Your section or my section, which is your section, is moving in there at that time; and we certainly hope that when we do move into that plant, that each and every one of you will see your way clear to visit us because I think we will have something there that will be outstanding, something that has never been heard of as far as electronic fields are concerned. I would like at this time to introduce some of the boys here. I will start out with Mr. Garn from Toledo, Mr. McIlwain from Cleveland, Mr. Morton from Denver, Mr. Turner from Kansas City, Mr. Harrington from Boston, Mr. Heiden our engineer from Syracuse. Of course you know "J". We have several others but I am afraid they are all still asleep. I don't know. Thank you. (applause)

PRESIDENT GROENIER: We, being in General Electric home territory, certainly has been very advantageous to us, I am sure. They are well represented and as we will find out in the next few days, they have assisted greatly in compiling our program. "J", I thought you didn't have a boss. (laughter)

MR. BRYANT: He isn't. He just says so.

PRESIDENT GROENIER: We will try and catch them as we go along. Are you all RCA has got here, George? (laughter)

MR. PETTENGILL: I seem to be the only one here this morning, but we certainly are glad to be with you all again in another annual conference. We want to welcome you to our booths and to our room. Now, we have with us here Mr. Stotsenburg who can talk on facsimile; Mr. Mickel who is manager of the department; Dave Veazey, who many of you remember formerly being from Memphis; and oh, there is a number of others that you will meet. We have several novel devices that we want to show you at the booth. Among other things we have one of these Sniperscopes that we plan to show you which operates on the infra-red light. We have part of the booth screened off, and we hope to show you the actual working demonstration of that device. We hope to see all of you and we will be willing to spend whatever time we can with you.

PRESIDENT GROENIER: What is your room number? (laughter) (applause)

Is Gene Goebel here?

MR. GOEBEL: Good morning. Motorola is very glad to be present at this APCO meeting in Buffalo. We have been looking forward to coming to Buffalo for several years. The war came along unfortunately and took our host away. I think he has come back a much better man and I think maybe the conference we are going to have here will be a lot better for his experience. I would like to introduce the Motorola family that are here today. First our Director of Research and manager of our communications and electronics division, Dr. Daniel E. Noble. (applause)

MR. NOBLE: I shall talk too much before the conference is over, so I won't say anything now.

MR. GOEBEL: We have with us Homer Marrs. I think he is acquainted with most of the members of APCO. Homer, will you arise. (applause) Hold up the cards, Homer. You may see some of these little cards around the Hotel. These cards are really a personal invitation to all of you, and your wives and sweethearts if you want to bring them with you, to visit Motorola's room at Room 560. We have an exhibit there of our new 160 megacycle equipment. One transmitter I think you would be particularly interested is in the two frequency transmitter, and the two receiver unit which was designed particularly to meet the APCO frequency allocation providing for communication with the mobile unit and also the point-to-point frequencies. That unit is in Room 560. I think you will be very much interested in it. Also in Room 560 we have our Chief Engineers: Floyd McCall of the transmitter division, Marion Bond of the receiver division. They will be there all during the convention to answer any questions that you may have. In addition, Harry Robbs from Kansas City territory will be there; Glenn Munro from Fort Wayne will be there; and we have a new member of our family that I think has been a member of APCO for many years, and I am happy to introduce Mr. George from Chicago, Illinois. Motorola is happy and pleased to come down to Buffalo, and we invite you to come to Room 560 and we will be happy to see you. (applause)

PRESIDENT GROENIER: Now we have Mr. Carlson from Doolittle Manufacturing Company, Chicago, Illinois.

MR. CARLSON: Doolittle is also very glad to be here, and we want to invite all of you boys to look at the equipment in the booth. Our Chief Engineer is here and we will be glad to explain any of the devices. We are not the largest firm in the world, but I think we are producing very good equipment. Thank you. (applause)

PRESIDENT GROENIER: Do you want to say anything more about your equipment? The reason I mentioned that -- I think it is agreeable with most of the manufacturers that I say this -- you do have 160 megacycle frequency meter here which I think is the only one on display; is that correct? I know there has been a lot of interest in that. That is the reason I mentioned it; not throwing in any special plug, but I know you men are interested.

Is there anyone here from Kaar Manufacturing Company?

MR. MARSHALL: We would like to welcome everybody to our booth. Mr. Hirsch and myself are handling the booth. We are representing the J. E. Alfing Company in this territory and we are also making Alfing's Company represent Kaar Engineering. We have some equipment on display, and I might say we have got a direction finder that might come in a little handy to you fellows about midnight tonight. (laughter)

PRESIDENT GROENIER: This afternoon when we convene, I am going to ask more of you to come down a little closer and state your names more clearly so your stenotypist can get it.

The Leece-Neville Company?

MR. GANO: We are very glad to be in a position to participate in this activity. We have a booth here with the alternater equipment which I think has been publicized a little bit previously; maybe not too widely as yet, but we have had some good experience with it and I think it will be of interest to you in a way. We feel it is a little bit of an accessory to the fact, but in your communications work, you certainly need good power and we feel we have it. It is an outgrowth of some wartime experience we have had and fitted in so beautifully with the variable speed drive on automotive equipment.

We have a room at 702, and we will be glad to go into detail with anybody at anytime. I want to introduce Mr. Pasco, our gang so to speak, here which will be here for the duration. (laughter and applause)

PRESIDENT GROENIER: I think a little special word about that is in order because he has a piece of equipment which we are all interested in for some reason or another. These manufacturers have kind of kidded us a little bit on low-drain, and we need that extra push that some of these generators have got.

Is the Bendix Company represented here?

MR. TANNER: Yes. We are newcomers to the police field. We are not showing anything because we have nothing to show yet. Speaking of low-drain, however, we expect to have a set, our engineers tell us, for delivery in March, the drain of which will meet all of your people's requirements. It is too new for us to tell very much about it. We have some pictures which are of the mock-ups, the mock-ups which we install in an automobile; so you could see the space that is required for it. It is a low powered set, approximately four watts output, but our experience in the VHF Field in aviation has indicated to us that four watts delivered by a mobile set, will give adequate communication for almost any police requirements as far as municipal requirements are concerned. We hope that the next time that we attend an APCO convention we will be there and have a set to show you. (applause)

PRESIDENT GROENIER: Shure Brothers?

MR. MACHON: Shure Brothers and APCO are old friends. In fact, we have attended so many of these conventions it is now an institution for Shure Brothers to be here. As many of you know, we have been working for years on the application of microphones on emergency communications. We are still working along those lines and have a number of new developments that will be coming out very shortly. We will be very interested in discussing those developments with you at the booth. In addition, I would like to present a new member as far as APCO is concerned, while he is an old member of Shure Brothers; that is, Burt Frauman, who will be making contact with many of you in the near future. Burt. (applause)

MR. FRAUMAN: Thank you. I know most of you fellows will drop into our booth. I would like to get the opportunity of seeing you personally. (applause)

PRESIDENT GROENIER: Now, who have we forgotten. I know there are others.

MR. McCULLOUGH: Eitel McCullough, Inc. I think most of you people are familiar with our products. I guess we have common interests at the present time because they are used quite extensively. The equipment is available in your field. I can't help, however, to reminisce just a little bit and go back over the twelve years and see the strides that have been made in police radio equipment. A long time ago it was nothing but a ham job. It took a great deal of selling to the city fathers to appropriate any money at all to accomplish the job to be done. Now, we see a vastly different picture. Police radio is absolutely a "must". Municipal governments would not think of existing without it, and it no longer is unreliable. We don't know whether we are the chicken or the egg, but somehow or other we have to be here; we have to supply the tubes that will be used in future equipment of police radio. I think we have done a pretty good job and we will try to keep our ears to the ground and try to find out what the FCC requirements are going to be, and maybe at some later date we will have a product to move up the next order of efficiency in the radio. (applause)

MR. KENDALL: Belmont Radio Corporation, Chicago, Illinois. You probably all heard of Thyatron. Some of you have had good and bad experiences with the tubes in the past. Some of you have had good and bad experiences in radar; and a little over about two years ago they decided to enter the two-way communications field. A year ago that project was transferred along to the Belmont Radio group in Chicago. We had to back out of the exhibit at the last minute for this particular convention. We will be here next year and in the meantime I will be very happy to talk to any of you people about what we have and what we propose to do in the future. We do have a very compact design complete for introduction right now. With the orders that we have, we are booked up through about February, and we don't want to take any more orders until we are sure of how many more we can make at that time; but we do have a design I would like to show any of you fellows and go over it with you to see if it is the right thing and is applicable to your field. Thank you very much. Just holler for "Red" Kendall at any time and we will talk to you.

PRESIDENT GROENIER: Thank you.

MR. CARTER: Carter Motor Company. I would just like to say we are happy to be able to attend again the APCO show, and we have a booth explaining all the latest types of receivers, transmitters, power supplies, and we also have some 162 megacycle motor supplies which I am sure you will all be interested in seeing. Our representatives, Mr. R. W. Carter and Jim Harris will be on hand to discuss your power supply problems with you, and we will be pleased to see you at the booth. Thank you very much. (applause)

PRESIDENT GROENIER: Who else have we missed?

MR. WALKER: New York Telephone Company. We are glad to be with APCO. I believe this is our first experience. We are a little bit different from most of the fellows around here. We have nothing to sell except service, and the exhibit we show you uses the established tele-typewriter exchange service which is used by county, municipal, state and federal government very extensively. We also have a map of the thirteen states Eastern network tele-typewriter setup which ties together these thirteen Atlantic states. We hope to interest some of the boys a little further South and a little further West in the extension of that tele-typewriter network. We are glad to be here. If we can be of help to you, call upon myself; Mr. Nelson, our Division Service Manager; Mr. Ryan, the AT&T; Mr. Brodie is here from the Bell Company in Canada. (applause)

PRESIDENT GROENIER: Is there anyone else?

MR. MEACHAN: Wilcox Electric Company, Kansas City. We are youngsters in this field, and there are a couple of our engineers here with me. Both of them, the Hall Brothers, as they are called in the lab, are here and will be very glad to have an opportunity to talk to all you fellows, and find out what you want; find out how we can build equipment for you. Being youngsters in the field, we haven't had enough experience in this line. To date, we have a ground station transmitter to display and we would be more than glad to show all of you what we have, and we hope we have the opportunity to do so. (applause)

PRESIDENT GROENIER: Oh, yes, Federal.

MR. BOSS: Federal Telephone and Radio Corporation. We have space No. 50 down here in the corner. We have 30 to 40 megacycle equipment and 152 to 162 megacycle receivers down there, and we would be very happy to show you all about it and show you the small size current drain and help you out in any of the communication problems. We have Mr. Russell, Mr. Scott, and Mr. Wamble here, in addition to myself, and after you have looked over the technical features of our equipment and feel in need of some refreshments, we would be very glad to see you down in Suite 1418-20. (Applause)

PRESIDENT GROENIER: Who else have we?

(No response) I guess that is all the manufacturers unless someone else has something to say.

MR. CARLSON: I failed to mention that we have a new 152 megacycle meter out there which you boys might like to see. All of you boys are interested in 152 megacycle equipment and it is on display at our booth.

PRESIDENT GROENIER: Is that all of them. Does anybody have anything else to say?

MR. GOEBEL: Well, I was going to be like the boy from California if nobody had anything to say, I was going to talk about the weather in California. (laughter)

PRESIDENT GROENIER: Well, if that is all the manufacturers, I have a note here of something on the agenda. I might as well mention it at this time; and that is the loss of our old friend Jack Wilt. I really am serious when I say I can't find the right words and the right things to say. Jack has always been one of my best pals at this convention, and I think most of you are well aware of the circumstances under which he passed away. You know his former connections with our organization and you know what he has done for us, so there is nothing more that I can add unless this body feels that it would be in order to pass a resolution to send Mrs. Wilt. I think there is nothing more I can say about it, but before we adjourn for lunch, I think we ought to rise and stand for just a few seconds in memory of Jack. We will all rise.

(All members of the convention rose and stood in silence for a few moments.)

PRESIDENT GROENIER: We will adjourn for lunch. After lunch we have a very hot discussion, but I am sure it won't get out of hand. It is going to be very interesting, and we will all be back here promptly at 1:30.

(CONVENTION ADJOURNED UNTIL 1:30 P.M.)

MONDAY AFTERNOON

October 28, 1946

PRESIDENT GROENIER: The meeting will come to order. We will get on with our program. We are not very much too late. We would ask you men to move down who are in the back there. I hope some of you didn't forget to remind your wives they are supposed to be down in Parlor G. They have the busses chartered and they are going to take them out on a tour this afternoon. Any of you who would like to inform your wife, if you want to do so, you can run out and tell them at this time.

The first thing we have on the program this afternoon is the report of Zellon Audritsh as Chairman of Committee 1 of Panel 13 of the Radio Technical Planning Board. This report will be very valuable, I know, to most of you who haven't attended the various conferences and meetings that we have had and will also constitute a few proposals, and I want to warn you that being as delicate a subject as it is, we don't want to let it get out of hand. That doesn't mean we don't want a discussion on the matter at all, but let's not let it get out of hand; so that we can continue with our program on schedule at 3 o'clock with the next speaker. So, Zellon, you will come up here and just take over.

MR. AUDRITSH: Thanks, Mr. President.

Gentlemen: I recall at Toledo that when we had the Police Committee give its report, we asked the Chairman of the sub-committee to come up on the platform, and so I'd like to ask Ed Denstaedt, Chairman of the Municipal group; Al Shirk, Chairman of the State Police group; Captain Batts, Chairman of the Police Committee; Maurice O'Neil, Chairman of the Radio-Telegraph; Frank Bramley, Chairman of the Standards Committee; Don McFarlane, Chairman of the Metropolitan area. I think I have included the sub-committee group at the present.

(The members of the sub-committee took their place on the platform.)

MR. AUDRITSH: I want to explain that we had a nice committee meeting yesterday, and the work of that committee is not yet finished; so this part of the program is a little premature, and we would have liked to postpone it, but unfortunately it was on the program and we want to give you as much of the report on events that have led up to this time as possible. We are going to have another Police Committee meeting tonight at 7:30, so we would like all members of the Police Committee to be here in Parlor A on the mezzanine at 7:30 sharp. We have much more work to do. I might mention that a recent announcement by the Federal Communications Commission has brought about the new happening or a new subject that is going to require some further work, so we couldn't finish our work in one day. We can tell you a little more about that later, and when the Police Committee's work is finished, we will have more of a report to bring you right up to date.

So I would like to go back to about a year ago when we held a meeting of the Police Planning Committee in Indianapolis. That was on August 18th and 19th. We had a very large representative group there from all over the country, the Middle West, East, and the West. We discussed quite a lot about the new frequencies that have been allocated to us by the Federal Communications Commission. At that time we were very much concerned about how these channels were to be arranged. We knew we had a certain number of channels in the bands, but we didn't know where they would be. Quite a number of departments were wanting to know where they could ask the Federal Communications Commission to be assigned. That was one thing that we were very anxious to get. Also there was quite a little -- quite a lack, I should say -- of information of what the new frequencies would do; so we wanted to find out all we could, and so we invited all the manufacturers' representatives to be there as we could find. We formulated certain tentative proposals and got along very well at the meeting. We learned a lot, and one of the significant items of business was the formulation of a block system of assignments. We were instructed at that meeting to submit a report to the Federal Communications Commission on our findings at that meeting, but due to some difference of opinion from the New England area, primarily, we delayed that report.

As you know, we had a Five Chapter meeting in Chicago on November 7th, 1945. Our function there was mostly that of reporting what had gone on up to that time, although at that time we did witness some demonstrations on new frequencies on the 150 megacycle band. Some of the departments had gained some new information that they gave us, but there wasn't a great deal accomplished at that meeting.

Then on November 26, 1945, this report was made to the Federal Communications Commission concerning our findings at the Indianapolis meeting and subsequent study. We sent that to the IACP, which was the proper channel for that report, and it was duly forwarded to the Commission. The controversy that had delayed the report wasn't so much on the new band at that time, as on 30 to 40 megacycle band; so in this report we submitted our recommendations on the new bands, and we more or less gave all the police viewpoints on the 30 to 40 megacycle band with no specific recommendations. In other words, we by-passed the subject of 30 to 40 megacycles. I might add that the reports in all these meetings, and this report of November 26th, 1945, was printed in the Bulletin. This may be old stuff to most of you.

On January 18th and 19th, 1946, we appeared before the Federal Communications Commission at their hearing which had been requested by some of the FM broadcasters, concerning the occupancy of the 42 to 50 megacycle band. Our purpose in appearing at that hearing, of course, was to defend the police allocations in the 42 to 44 megacycle band. We didn't have to do a lot of testifying there, as it developed, but we do think that our representation there was an important factor; and as you know, our channels were retained for the police service as were those of the other mobile services on that band. The next meeting was a joint meeting of the Steering Committee, Panel 13, RTPB;

that was police and fire, public utilities and all the rest together with the RMA, I should say, the emergency service equipment committee of RMA. It met in Washington for the purpose of studying equipment standards and formulating service allocation recommendations for the new bands, still trying to get these channels allocated such that each service would know where they would go. Actually there was a lot of conflicts and problems to be ironed out. It seems like it would be an easy thing just to say one service goes here, another goes there, and another goes there; but it is the hardest thing to get an agreement on that; but during that particular meeting we did come to a tentative agreement.

Then on the following day, February 6th, representatives of Panel 13 met in offices of the Federal Communications Commission for an informal conference with the engineers of the emergency and special services division, and we laid before them this proposal we had arrived at the day before as to the recommended service allocations. The Commission at that time said they would try to rush those through as fast as possible, but there were still some conflicts. One in particular was with the relay broadcasters. They had some problems that they felt hadn't been solved in the allocation, and so that was holding the final determination up somewhat. The subject of the 30 to 40 megacycle band came up again. You must remember that a number of services other than the police were assigned to channels in the 30 to 40 megacycle band, and they told us they wanted to use these channels, and they felt that the police should make up their minds so that they could proceed to make their plans; but the police group more or less refused to go into the 30 to 40 megacycle band at that time; so it was tentatively said that another meeting would be held to discuss the 30 to 40 megacycle band, specifically; and that meeting was scheduled and held on March 11th and 12th of 1946, in the LaSalle Hotel in Chicago. I think you will recall that was the hotel that burned. There was no connection, I don't think, between that and our meeting. (laughter) But the purpose at this meeting was to study the 30 to 40 megacycle band re-allocations and working out proposals for that band. The meeting again was well represented. Representatives from the West and the East and the Middle West were there, and the other services were well represented and we arrived at a proposal which again was based on the block system of allocation for the police. It was again reaffirmed. That resulted in a pretty fair agreement among the services there. Now that proposal was to be given to the complete membership of Panel 13 in our police group. It was done through our publication. The other services presumably did the same thing. Without going into great detail on that, I will say there was an interim plan and a final plan. The interim plan was to extend until July of 1951. After that, there was to be final allocation that services would go into and remain in. Now, that brings us up to the present.

We called a meeting of the Police Committee to precede this conference as we always do. At the time the Police Committee meeting was called we didn't have anything particular to discuss. We thought we would talk about the micro-wave frequencies, that we were trying to get some information on, and some other matters, but since that time a number of things have happened and so we found we had plenty to discuss and plenty to talk about. Again we had excellent representation in the meeting yesterday and I do believe that we are making progress. I think we are making excellent progress. I noticed one thing: there is a great contrast between that meeting and the one we had at Toledo, Ohio. If you recall, all was not tranquil at Toledo; but at this meeting I might say there was better standing among all groups, and I really think we are accomplishing something.

Now, the work of the Police Committee has been primarily concerned with arrangement and assignment problems, and the new frequencies are a very important part of that problem. Some of the members of the Committee have not only talked and planned, but they have installed equipment on the new frequencies. There are other people who are not on the Police Committee who have done the same, and they gave us some excellent information on what we can expect in the higher frequency bands, and it is very important to us because it gives us some idea of what we can do in those bands. I believe there is still a considerable lack of information on what the new bands are capable of doing, and I know at this Police Committee meeting we had yesterday and the discussion on the new bands helped a great deal in permitting us to view this allocations picture as a whole, and so I have talked about long enough. I was asked at this meeting to simply go through this briefly and give you a general outline, and it isn't going to take the whole hour to do it; so I would like to do today like we did up in the Police Committee meeting and call on some of the individuals who have used the new frequencies to tell us what they found about them - throw it open for a panel discussion on questions you might have and questions of those who would care to talk about their equipment, and maybe we can get that out of the way; and so I would like to call on the same individuals who talked to us yesterday. Bob Swepsten of Columbus, Ohio, told us about the results he has had with his equipment. We found it very interesting, and if Bob is here we would like to have him give us what he can on his results from the 152 to 162 megacycle band. (No response) He isn't here. Well, Fred Crowder of Los Angeles Police, I think was the next gentleman who told us what results he had in between campaigning for Los Angeles and discussions on it. So, for the benefit of the group, I would appreciate it very much if Mr. Crowder would tell us some of the things he has encountered with his system in the same manner he told us yesterday.

MR. CROWDER: I wonder if I had better use the microphone. Maybe you might hear a little better. I will move it up a little ways for me. Well, I think I could start by explaining what we have in Los Angeles, what we have to cope with. It will give you a better background picture. Considerable of this material I did discuss yesterday, but for the benefit of anyone who might not have been there, I will say Los Angeles covers an area of 475 square miles. There are three mountain or hill ranges running through Los Angeles, whose heights vary in the case of the Baldwin Hills, which are about 500 or 600 feet running along to Tujunga, which goes up to 5,091 feet. There is another range, Santa Monica Mountains, which just about runs through the middle of the territory of Los Angeles. The height of this range runs from 2,000 feet. When I say 475 square miles, it doesn't mean it is an area that would be just the square root of 475 square miles because due to the construction of the City of Los Angeles, it surrounds a number of other towns and it also runs out through kind of a ribbon or streamer into the county; so that actually the territory is spread over considerable distance. The fact is from the Tujunga area down to the harbor at Wilmington and San Pedro is a distance of about 56 miles. Our receiving point where we ran most of the tests on 154 megacycles is located approximately in the center of this area, with an elevation of the antenna above general ground level of about 300 feet. Equipment was installed there on 30 to 40 megacycles with antenna only about 100 feet distant. It would not be sufficiently distant to cause a great variation of results in all probability. We also ran tests on 73.9 megacycles. The first tests were made under Experimental License W6XKK which was granted about the 1st of this year and extensive tests were run on both the 154.85 and 73.9. Insofar as coverage was concerned, we didn't see a great deal of difference between the frequencies. However, there was less noise, both ignition type and that from streetcar lines and the like on the higher frequencies. There was one thing we noticed on the higher frequencies which was very pronounced as compared to 30 to 40 and that was the better coverage through the downtown area of Los Angeles. We of course don't have the skyscrapers such as you have in New York, but we do have a number of fairly good sized buildings with steel frameworks, and in most cases you got 30 to 40 down there, down some of the alleys, running second stories over across that the 30 to 40 was virtually useless; probably due to the absorption and screening and frameworks of the buildings. On the higher frequency of 154, it was almost possible, at the receiving point of the station, to tell whether or not they did actually in one of these underpasses. That was probably due to the fact that the framework of the buildings, being so much larger in comparison to the wave length, offered very much less shielding; and another thing that we encountered, contrary to our belief before running the tests, was that down behind these hilly areas coverage was in every case superior to 30 to 40, probably due to the reflection from other hills. We noted that although in some places the signal of 154 was weak, in every case of those weak places, 30 to 40 was also weak; and when going into a spot where reception was, I would say, definitely unusable that the 152 gave the best results. The 30 to 40 in each case failed out first. Tests were run from this point which is a circular area of approximately 30 miles since we were interested only in covering the City of Los Angeles. Since that time we have moved the receiver up to the top of Mt. Hollywood. The elevation of Mt. Hollywood is 1,652 feet, and from that elevation we can cover approximately 90 per cent. I say this with a little qualification since we haven't had time to run all the tests we would like. We are trying to make some tests to determine what the allocation pattern has to be to avoid too much interference in our area; so we have been running tests outside our city limits up to about 60 miles. We find that in about 90 per cent of the cases communication is perfect. The times when it is not perfect it is directly behind some of the higher hills; and where it is far enough away, that reflection apparently is not sufficient to produce a good signal.

Now, I am not going to tell you there are no dead spots at all in Los Angeles. From this one location there are two dead spots; one of them is along the Roosevelt Highway below the cliffs near Malibou. There the land slopes down for several miles, and finally ending up about 300 or 400 feet above sea level and then abruptly drops at a vertical cliff about three or four hundred feet and there is a highway that runs along the bottom of the cliffs and there is also an area of say a thousand yards varying in width from the highway to the seashore with the beach and beach cottages and service stations in the general resort and beach area down in there. There is nothing to reflect the signals on the other side. The only thing there is the Pacific Ocean, and from there on Japan. There is an absolute vertical wall of three to four hundred feet, and we do not get any signals at this one test point which is located about twenty miles from here, back from this location. We also are unable to work on 30 to 40 in this same location.

The other point where we have trouble is at Sepulveda Canyon. That is a canyon running between peaks of around 3,000 feet, running and twisting like a snake, and some places only 150 feet wide. There is a highway which runs through connecting West Los Angeles with the San Fernando Valley area. In that area our reception is not good. It is spotty. On the 30 to 40 likewise, it is not good; and aside from those two areas I mentioned, all through the harbor area, a distance of about 26 miles from the receiving point. The reception is perfect all through the downtown area and all out Highland Park, in that area in there; and the fact is there is hardly any comparison between the 152 and 162 and our present 30 to 40 megacycle equipment. We at present have fifty units operating on 155.01. We also have 260 units operating on 30 to 40 megacycles right side by side; so we are in a position to make a pretty good comparison. We were a little bit afraid, like many tests, you test the object points and if they work, then when you put the thing in service you find out there were lots of things you should have tested or lots of things that happened which you didn't expect. We were very favorably surprised in that regard - that actual operations confirmed our tests. We found that for about thirty miles the reception was very good and the transmission very good at this one point about 300 feet above sea level and then it abruptly dropped within a distance of a half a mile, and the signal was gone from a perfectly usable signal to where it was almost inaudible. I might give you just a little more on our system as a whole to give you an idea of what the comparison is. Our system is normally on the control frequency. It is a low frequency control station on 1730 kilocycles. Most of our experience has been with 30 to 40 on 152-162 talk back. However, during our joint meeting with the California Police Radio Association, we did have a 250-watt FM setup there, on 156 megacycles; and also a two-way equipment setup in the cars, both operating on 156 megacycles. We found this 250-watt station located in the same location as our 1730 station actually covered the Los Angeles Harbor area better than our 1730 - 500 watt station does, and that was largely due to the high noise level out in the harbor area which interfered with good reception on 1730 around to the shipyards and industrial districts out in the harbor. That is approximately 26 miles distant from the location of the transmitter. Our system is running there at about 6,000 originated calls per day. That means original calls for police assistance. Sometimes they involve three or four transmissions for each call, and it would probably give you a fairly good idea of how the system operates. I wonder if there are any questions I could answer for you? Thank you. (applause)

MR. AUDRITSH: Thanks a lot, Fred. There are other people I am sure who have used equipment on the 152 band or if you have used any in the 70 bands, we are anxious to hear what you have to say. We have all used the 30 to 40 band. I think we are pretty well familiar with it, but is there anyone else who would care to tell us what results they had with the 150 megacycle band? Mr. Kadow from Elgin, Illinois.

MR. KADOW: While we don't have anything like Los Angeles to work with, we have 90 square miles to cover. We were up against the proposition of buying new equipment, and after observing four tests it was quite convincing to me that we were going to choose the 150 megacycle band. Now, we have operated in this band since July, and it has so far exceeded our expectation of what we thought we were going to get out of it. It has been really a good revelation. Our setup is one where we put the antenna 100 feet above the ground. Originally having it 170 feet above the ground, just cut the antenna mast off and brought it down to where the base of the antenna is just above the peak of the water tower. We couldn't come any lower than that. We did this for mechanical reasons and also feeling that with this new frequency, we didn't have to be so high in the air. With that setup we are operating five cars. We have been able to carry a solid area around the City of Elgin of twenty miles solid, two-way; while we can go out far beyond that and get some very good points of reception, we have never considered them because the twenty mile area was far in excess of what we wanted to do or need to do. Of course, I was primarily interested in one thing in going over some of these tests, and that was that in my county work I have always felt I could use the same frequencies in that. Therefore, I used my Elgin equipment for a guinea pig to -- I heard that before -- to make tests and see whether we could reach out and get solid coverage. In my county work, I will have to reach about 22 miles. I know in my own mind that I can do it, and we are going to put in that kind of equipment on that channel. I used their 200 foot antenna, of course, for elevation. I don't know that there is much more to add to it. The terrain we cover, I would call it reasonably flat. I don't believe between the antenna site and any points out to any of the distant points there is difference of over a couple of hundred feet. There are some valleys you go down and little hills, but I don't think they amount to anything; at least we have never encountered any points where the signals varied enough to even notice it. If there is any question anyone has, I would be glad to answer them if I can.

MR. AUDRITSH: Have you any questions of these fellows?

MR. MULNANE: What power?

MR. KADOW: We were using 50 watts; 30 on the talk bank.

MR. HICKS: About how far can that be used? Can that frequency be used to have inter-city communication?

MR. KADOW: Well, for point-to-point work, for instance, we went out into a place where the State Police expected some point-to-point work. For a line of twenty-seven miles we could drive a car down there and get perfect point-to-point operation around the place: so if we put an antenna up in here at that place, there is no question in our mind but that it will operate. I believe some of the Indiana boys probably are going to have to work farther than that, and I don't believe that point-to-point is going to be any problem because from car to station already is such a good performance that when you get two antennas up in the air, there is no reason why we can't make it work.

MR. FRANKLIN: With what type of equipment and what frequency were you operating on?

MR. KADOW: Our old equipment, 33.1 AM.

MR. HULL: I might add something that may be of interest to you. We went to Plymouth the day before we came here just to do a little testing between two cars. Quite a few of you fellows are interested in car-to-car. We tested over there all afternoon between a sheriff's car and a city car. The terrain around Plymouth is level to gently rolling, and it looked like with about, I would say, nine to ten miles as near as we could tell in that type of terrain was a car-to-car coverage. Now, that may be of interest to some of you. It is more than we expected. We couldn't find a dead spot anywhere within nine miles. Also on this point-to-point feature, we have been monitoring 155.370 for about a month now, and we are getting a readible signal from Anderson practically all the time. It is usually very strong, and they are just 95 miles, air line. Their antenna, I believe is about 160 feet and ours is 400, at 95 miles.

CAPTAIN BATTS: Mr. Kadow, I would like to get you to mention something else too, and that is the fact that you have been hearing Shelbyville.

MR. KADOW: Shelbyville is just 135 miles, and we are hearing their 15-watt transmitter about five or six hours out of the day. That is 135 miles, and I believe their antenna is only over a little over a hundred feet high.

MR. AUDRITSH: Does anyone else have anything to offer?

MR. KENDALL: I would like to ask if this five or six hour period is consistent at certain times during the day?

MR. KADOW: Yes, it is. It seems to start about midnight, and just after daylight around seven o'clock in the morning, it begins to drop. It would be good and strong until shortly after daylight, and then it will -- oh, I would say it would be usable for about two or three hours more. About eight o'clock it seems to go out. Of course, that goes right out. Now, Anderson's signal pulls up all around the twenty-four hour period, and it drops down to where it is still usable, but the signal is fading out somewhere from about noon until five or six o'clock in the afternoon; but even during those hours we have a usable signal for 95 miles.

MR. AUDRITSH: We still have, I think, about twenty minutes before the next part of the program. Are there any others who have had any experiences they would care to talk about? I have had a suggestion that perhaps some of the manufacturers might care to discuss some of the results they have obtained at different places. Fred Budelman, would you care to say something? I understand you broadcast around New York, and I wonder if you would care to talk about that at all on what results you have obtained?

MR. BUDELMAN: Well, I doubt if there is very much I can add at the present time except some general statements of how we feel after running a good many tests on various bands. You specifically mentioned New York City. 160 megacycle tests in New York City show the same general characteristics that have been mentioned here before; that is, they provide a solid and cleanness of signal that is in our opinion very advantageous in the network. That characteristic in New York City of course requires a high transmitting and receiving location; and when using such a location on any of the higher buildings, why the results have been rather good. For many months we ran tests from a building which is 42 stories high on Madison Avenue, and it covered about -- oh, I'd say 90 per cent of the five burroughs with well usable signals. Since that time the American Broadcasting Company has run some very thorough tests from the RCA Building using the same type of equipment, 15-watts in each direction. They have used a directional antenna at the pickup point, but they have been able to get relay broadcast service from everywhere in the five burroughs with the exception of one or two small designated spots. I don't remember what they are at the present time, but that one pickup point using a directional antenna, I believe, of about 6db following the mobile unit in a general direction, they have been able to get a signal which they feel is satisfactory for relay broadcasting. That is better than we normally require; and throughout the city, if the usable technique requires a location of the antenna on a low building, there have been many tests run that would indicate you cannot cover over some of the hills which run through the area as particularly out on Long Island. However, it follows pretty much superior to our expectations. Comparative tests we have run between 70 megacycles and 160 megacycles in the city indicate much better results on 160 megacycles. I say "much better". They are better because of better discrimination against noise; the lack of noise, lack of additional noise or better discrimination against it. The equipment does have a wide base band and a little bit greater deviation; and I think you should not overlook that in analyzing the results. That makes quite a difference. There have been a number of interesting tests run in the last few months on the 70 megacycle bands which perhaps you would be interested in. The 30 to 40 megacycle band has become so crowded that a number of utility companies have found themselves forced to consider higher frequencies very carefully.

One utility company in the Central Hudson Valley recently set up and monitored their probable channel 30 to 40 megacycle band and within a space of one afternoon recorded 34 stations which they could identify and a number which they could not identify, just over a period of a few hours, all of which could constitute interference to their system. Of course, their system is rather extensive and would require using the signals from the mobile units right out to the fringe. They consequently set up and ran a series of tests comparing 30 megacycles against 70. 160 megacycles was the first tested; and, briefly, it was more or less ruled out because of the extreme variations in altitude within very short distances. That occurred up in the Catskills among the Hudson Valley. They started off with a very sensible attitude and said that 70 megacycles is going to take more elevation than 30 megacycles to cover the same distance; so we want to find out just how much more it takes; and working on that basis they found that from one of their proposed locations, for instance, that they could cover their desired area with a forty foot mast with 50 watts on thirty megacycles, and it required 165 foot mast on 70 megacycles to cover that same area with the same degree of satisfaction. They derived from that a proposition that for so many dollars they could get an equivalent performance on a higher band; and that was certainly worthwhile in their case because it gave such an improvement in lack of interference. They have heard nothing on that band at all.

Other tests further up in the state by another utility company have shown that from an elevation of about 1600 feet at the top of a hill, which is a very favorable location, where the ground fell away rapidly on all sides of the antenna that they were able to cover a distance in the neighborhood of 50 miles, 55 miles, airline, with 30 megacycle equipment and 70 megacycle equipment. The 30 megacycle test had the edge in distance; that is, at 50 miles it was probably from 5 to 10 miles difference in ultimate range in favor of 30 megacycle. However at the 40-mile distance in cities such as Schenectady the signal to the noise ratio was much better on the 70 than it was on 30; but the 30 megacycles gave more ultimate range. The tests on 160 megacycles did not indicate that it was possible to cover that particular area anywhere near as well with either of the other two frequencies. It is very rough terrain, and they need a maximum distance of 65 miles in one direction and 55 miles in another direction.

These comments are rather general, but so little has been said about the 70 megacycle band that I wanted to mention it. I might also mention -- probably some other people here today can give us a much better first hand report -- but comparison between 70 megacycles from our repeater work and 116 megacycles for our repeater work have shown a tremendous advantage for long range work in favor of 70 megacycles. We have now records of dozens of repeater stations which were previously operating on 116 megacycles and have now changed over to 70 megacycles, and signal strengths have come up tremendously. Perhaps we could get Bill Lee from Virginia State to point us some actual examples. He has some long circuits up there. That band looks like it is particularly applicable for point-to-point work, as we had decided a year ago in Chicago. The Police Committee decided at that time to recommend setting aside some channels for point-to-point use and that has been done. It has been very satisfactory.

PRESIDENT GROENIER: I would like to ask a question if it isn't out of the way: Have you found any objections to the standards as set up by the Commission in regards to the 150 megacycle band? Are they reasonable; that is, the frequency tolerance and the deviation?

MR. CROWDER: Yes, I believe so. Mr. Wofford, has the Commission definitely established a deviation for the 160-megacycle band or has it left the deviation plus the tolerance?

MR. WOFFORD: The police service rules have not been modified to include those frequencies in 152 megacycle band inasmuch as no final allocation plan has been adopted as such by the Commission at this time. The two services - railroad radio service and utility radio service - have such rules, and those rules specify a tolerance of .005 per cent for stations operating in the 152-megacycle band. The railroad industry wanted a 20 kilocycle deviation when using FM equipment in that band, and it seemed very reasonable. As a matter of fact, it is on the basis of the initial carrier frequency compared with the 15 kilocycle deviation on 30 to 40 megacycle. It is not very great, so permitting a 20 KC deviation for FM, that is positive and negative deviation from the assigned carrier, makes a 40 KC communication band leaving only 20 KC for frequency and stability. Well, at 160 megacycles, .01 per cent is of course 16 kilocycles, so that is a total band width of 32 kilocycles with the 16 positive and 16 negative. 32 plus 20 or 32 plus 40 would be too much of course; so we had to make a .005 per cent as a round figure, and we had several discussions with people who are up on stability - with crystal manufacturers and others - and they promised us it would be economically feasible to observe a .005 per cent tolerance, and that was adopted as a standard for railroad radio service and shortly it was followed by the utility radio service, and it appeared at this time it would be necessary to adopt the same degree of stability for the police radio service in this band and all authorizations issued on a regular basis at this time have been issued on the basis of .005 per cent tolerance. That permits at least a 20 kilocycle deviation using FM. It can go a little more. It is permissible to occupy the entire 60 kilocycle channel for a transmitter.

MR. CROWDER: Thanks. I didn't intend to evade your question but I did want to bring out the fact that FCC has not yet established those rules; although it is sort of an unwritten law, and we certainly have no objection to them. We have found it is perfectly economically feasible to maintain that .005 per cent tolerance and particularly inasmuch as it allows a greater swing, it is very desirable to do so.

MR. DENSTAEDT: Mr. Budelman, in your New York City tests, we all realize it is desirable to locate the antenna as advantageous as possible on a high building. It is not always practical, however, to do so. Were you able to judge the shadow effects of buildings, and have you any opinion of what effect a large building might have at various distances from an antenna if this building was rather massive and possibly higher than the antenna location? That is, would the shadow be very much more pronounced if your antenna were several hundred feet from a building, and, let us say, a hundred feet lower? And would it be considerably less pronounced if it were two or three thousand feet from the building and again a hundred feet lower?

MR. BUDELMAN: Well, this is going to be purely an opinion now, and it is very difficult to come up with any records for this reason without actually measuring the field strength variations. The signal so seldom drops down to a level that it is unusable when you are used to transmitting with an antenna that you just never notice any change in signal strength due to shadows: when you are further away, of course, you do notice it. For instance, testing from uptown New York, the one bad area is on Manhattan Island. I am speaking of 15 watts in each direction. One particularly bad area is in the Wall Street district. It is down at the extreme tip of the island and has some of the narrowest alleys. They are very narrow and the buildings are very high. It is like going into a tunnel almost, and there the shadow effects are definitely noticeable. There is considerable difference, of course, between avenues running north and south and streets running east and west. That is particularly noticeable. There is quite a bit of indication that they may even increase the signal strength due to reflection.

Talking about out of New York City, we have had a number of tests where one car was parked on 34th Street between the two halves of the Gimbell Brothers' store, and right under their overpass, and we had perfect two-way communication between that car and another car traveling west all the way to Mont Claire, New Jersey. There were no dead spots. We had solid communication all the way. There are several ranges of hills in between those two points, and if those buildings were not there, we could not communicate. As a matter of fact, when you move out somewhere in a clear area, you cannot get through. Even with the antenna on top of an 8-story building, you have trouble in getting through from downtown New York; but with that channel there facing east and west right in the direction of the other mobile units, it was working. Somehow the signal got up into the air and we had very solid communication. Of course, Mont Claire is about 20 miles air line.

MR. AUDRITSH: Mr. Kendall.

MR. KENDALL: We had some very similar experiences in New York and also in Chicago which may shed some light on this shadow problem. In New York we had much the same situation. The places that were on Wall Street were in a very low area of course, and one spot was particularly bad down by the Battery. We were using the Lincoln Building on 42nd Street, and down there where the Staten Island Ferry pulls out. There is nothing to reflect the signal back to the mobile unit except the bay, and of course there is nothing to reflect it there. The same thing was true along the West Drive. On top of the West Drive, it was much poorer than underneath the West Drive because underneath the West Drive you had the reflection from the dock buildings.

Now, the shadow reflections in Chicago: We made one test from a 10-story building right next to the Opera Building. The Opera Building is around 50 stories and very broad, and that really put a shadow on that signal on anything anywhere beyond say a half a mile this side of the Opera Building. Up to a half mile or so the other side, the signal bounced around and got through. Out farther there was a definite shadow from that building. In a space where there were no buildings in between -- we happened to be out towards the airport to the southwest -- communication was very good, even from this 10-story building down in the loop, very well shadowed by other buildings. So you have two distinct effects: one is the shadow effect and the other is the definite advantage of the reflections back to you.

Another interesting thing we had in the last month or so was in Boston. My opinion is that the buildings were not of steel construction. They are old buildings and quite low and all stone and brick, and I think that they absorbed a lot more signal than they reflected, and we had more difficulty getting around the streets of downtown Boston than we had in New York where everything is steel. So there I think it was a case of absorption.

MR. CROWDER: I would like to confirm one remark you made. We had a test on the 42nd story of a building at 515 Madison Avenue. Originally we had the antenna mounted about 50 feet off the roof on the platform of a television antenna tower, and our coverage north -- in fact, in all directions -- was very good. Later we moved the antenna down on the roof -- still above the 42nd story -- but the new location for the antenna was shadowed to the north by the elevated penthouse, and the tip of the antenna was perhaps 18 feet along the top of this 2-story elevated penthouse, and that just put a blanket on coverage to the north side. You can't even reach the George Washington Bridge from that location, but south and west and east the transmission reflection is not effected at all. Drawing on a map you can just take the arc which is blanketed by that penthouse from the antenna, both sides of the penthouse, and just -- I don't know what the ratio of the signal is -- but it knocked it down terrifically in both directions, so it is very important that the signal gets started. If it gets a good send-off, apparently it will bounce.

MR. AUDRITSH: Dan Noble, do you have anything you would care to add to this?

MR. NOBLE: I think the story has been told so many times that I don't need to say very much. In the last couple of years we have run very many tests. We tested in Chicago very extensively, of course. There was Bedford, Indiana, Boston, Houston, Texas, Kansas City, Los Angeles, San Francisco, Seattle, and many other places, and the conclusion was the same: that 160 megacycles is simply superior for municipal coverage. Signal noise ratio is far better than that obtained with 30 to 40 megacycle operations, and when you consider the skyway interference probability on 30 to 40 megacycles, certainly 160 megacycle represents a preferred band for operations. 72 to 76 would certainly be very useful. The only point we are waiting to determine about that is just to what extent we shall have difficulty with television stations and other stations which may either be a source of interference to reception in the 70 to 76 band or will receive interference from operations in the 70 to 76. I rather suspect that we will interfere more with poorly designed television receivers than the other way around; receiving interference in our own FM communication receivers from television transmitters. Thank you.

CAPTAIN BATTS: Dr. Noble, I would like to ask a question: Did you find bad shadows in covering the City of Boston or can you cover it very well or fairly well or what did you find out up there?

MR. NOBLE: I was not present in many extensive tests there, but we have installed a system there. It is now in operation. I have not received a full report from our field engineer at the present time. When I was there, we simply put an antenna on top of the Statler Hotel, and while I was in the telephone room -- while I was in the control room -- we ran one mobile unit out 24 miles with very successful communication over the range. During one of the meetings we placed a mobile unit out under the Elevated at the city limits, in one direction which was 8 miles away and communicated while that mobile unit moved on toward our control point. I think those who witnessed the demonstration would agree that any noise was negligible. The communications were remarkably free from noise. As a matter of fact, someone remarked that it was unfair to hide the speaker; that is, they thought a man was reclining under the control box because there wasn't any noise coming in, and he felt the noise was coming in from -- or rather the speech was coming from -- a man concealed under the control box. We can have at a later date a rather extensive report since there is a system in operation there that covers Boston and Cambridge, and at some later date we shall be glad to report on that.

MR. AUDRITSH: Pass this along a little bit. George Pettengill from RCA -- do you have any experiences that would be of interest?

MR. PETTENGILL: Why I think the various ones have covered most of the same tests and comparative tests. The only thing I would like to add is that we have actually made some tests measuring field strength or the equivalent -- not quite the equivalent -- but actually inputs to receivers, side by side tests on 30 to 40 and 160 megacycles, and in all cases the measured signal to the 30 to 40 megacycle receiver with a comparable antenna height and comparable antenna power, it seems to be two to three times what you get with 160 megacycles. However, that doesn't necessarily give you the answer on communications. That is only measured signals, and in many cases and especially in noisy areas, the 160 is better than the 30 to 40 even when the 30 to 40 has four times the signal strength of the 160. I don't know of any new information we have that hasn't already been covered by some of these other examples. Thank you.

MR. AUDRITSH: General Electric, Mr. Heiden, would you care to add anything?

MR. HEIDEN: There isn't a great deal that I can add to what the other gentlemen have said. I would like to confirm what Mr. Budelman or one of the other gentlemen mentioned in reference to the shadowing effects. This past week we have had some boys making some tests, and it was a test of a very temporary nature. They didn't have any particular equipment so they put the antenna on the fire escape of the building. The building is approximately 60 feet tall. The fire escape with the antenna tacked on would be approximately 30 feet. In one direction, the direction off the building where it wasn't being shadowed, they got good communications with approximately 35 watts into the station antenna and 15 watts into the mobile antenna, up to about 20 miles -- not quite 20 miles, 15 to 20 miles. It was somewhat spotty in the last 5 miles because of some sharp hills that were giving a reflection and causing these real sharp dead spots. The other direction is towards downtown and the grade is upward in direction, not too rapid, but over a period of four miles. It does definitely give a shadow beyond this hill. It drops off very sharply. They have very excellent communication to the top of the hill and just over the brow, and from there on in it is pretty bad. In other words, it is much shorter in one direction, approximately four miles, because of the hill and because of the building; whereas in the other direction they get out 15 miles very nicely.

Other than that I would say that I think the foregone conclusions of all the tests we have run, in most instances, for municipal use, the 150 megacycle band is going to be the answer.

MR. AUDRITSH: Frank.

INSPECTOR BURNS: Gentlemen, I have heard a lot of reports and remarks about the 160 megacycle equipment and what it will do in New York City. I must agree with the gentleman that made the remark and the engineers that they are true in so far as height is concerned. Unfortunately, in New York City -- or rather, fortunately -- we are serving eight million people scattered over wide areas, and they are all types of nationalities. The men in the Telegraph Bureau, I think, in order to serve the people right should be able to speak about twelve different languages. We have an efficient communication system in that city. However, we all get on very well and we have our city divided up into five burroughs or rather five counties of New York State; and since I have been connected with the communications system in the department, we have had five separate communication systems in the City of New York, one in each burrough. If you dial the operator and ask for the police in New York City - if you happen to be in Brooklyn, you will be connected with our Brooklyn office; if you are in the Bronx, you will be connected with the Bronx office. If you require the services of a radio car or any part of our radio service in either of those burroughs--that call, at the present time -- has to be copied by that operator and re-transmitted to the radio, which in some instances results in delay. You know the main purpose of a radio system is time. Time is the big element. With that in view we are trying to plan our radio system to save time, to serve the people who we are serving with the utmost of haste, and I think that about the main purpose of all of us here today is to find some means of serving the public that we are serving as efficiently as possible. Unfortunately, in these burroughs where we have our offices, we don't have very high buildings. I may say that of the entire public. We don't have very high buildings in the entire burrough. Now, we are fortunate to have emergency car equipment in these offices; and as a result of that, we would like to keep our transmitters in these offices. I don't think that a city like New York -- in fact, I don't think any city -- should be compelled to go into a 42-story building with their transmitter or with their antenna if they can operate their equipment on frequencies that can be operated from that building that they are in. So I just wanted to leave that message with you. I have heard quite a lot about New York City and what we do. On the 160 megacycle I agree with you, gentlemen. If I could get up on the top floor of the Empire State Building, I can cover the City of New York with 25 watts; but it is not our building. I just wanted to leave that little message with you, gentlemen; and I also want to make an apology for some remarks I made yesterday. I think some of you went out and were misled into thinking that I had passed some remarks about certain manufacturers. I didn't mention the manufacturer at yesterday's conference at all, and that is what we have found in New York City; and I just wanted to leave that message with you.

MR. AUDRITSH: Thanks, Frank. I think when you mention New York City, you always talk about New York buildings.

I see we are running into the next program, Ray; and as I told you in the beginning, we have had a most general discussion more or less to find out some things that some of us may not have had experience with ourselves; and as a matter of fact, we are killing time because as I told you, we are still in committee on this whole situation. We do hope to have some more information for you, so we would like to wind this up at the present and remind all the people of the Police Committee to please be in Parlor A on the mezzanine at 7:30 tonight. I don't want to stress this too strongly, but we don't really have a lot of time, and we call it 7:30 and you don't get there until 10:30. We really lose, so I would urge that you come; and when I say "Police Committee", by the way, I don't intend to restrict that. We aren't going to lock the door, but we want the Police Committee to be there particularly and others that are interested, we would like to have you too. So with that, I would like to turn the meeting back to President Groenier.

PRESIDENT GROENIER: Thank you, Mr. Audritsh. (applause) And as Zellon told you, you will hear more from his Committee before the conference is over. I want to keep up to date on the announcements. The wives of the conference guests will not return to the Hotel until after 7:00 P.M., and they will have eaten dinner. (laughter) So we don't have to worry about that.

Now, I am going to do something which is rather dangerous. At the request of our next speaker, I am going to call a five-minute recess. I say that is dangerous because it always takes us half an hour to convene again; so let's guard against that. They want to get the equipment ready; so let's be back here in five minutes. I know we are going to find this real interesting. If you were in Madison in 1943, we put on a microwave demonstration very guardedly, because it smacked that secret radar; and now that it has been released, I think we can get some information here that is not so guarded, and it will be more informative. So let's be back here in five minutes.

(Short recess taken.)

PRESIDENT GROENIER: Come to order again, please. As I said before I know we are going to enjoy this. It is one of those post war things we have been hearing about. All during the war we have been told that we are going to be able to cook a steak in two minutes They didn't tell us that it would take us two years to find a steak. (laughter) Now, without anymore fanfare I am going to introduce Mr. Fancher from the General Electric Company who will carry on with his talk and illustrations. Mr. Fancher.

MR. FANCHER: Thank you, Mr. President. (applause) The title of this talk is given as "New Developments in Microwave Relay Equipment". That title perhaps should be simplified a little bit. I am going to talk about microwave relay equipment but after talking the subject over with quite a few of our fellows who knew just what you people were interested in, I decided to cover not only microwave equipment, but to talk about the general philosophy of relaying versus frequency in a general sort of way; not as particularly applied to police communications but just as a general discussion of it, and then to cover some of our experiences at various frequencies. So to get started, we might as well go way back, if we can think back that far, way back in 1916 when the Alexanderson alternator was in full swing. We had to start off with relay or point-to-point communications. Trans-oceanic circuits were started then and since that time and up to the present time, we have been actively engaged in all forms of relaying and point-to-point communication. Starting from the practical audio frequencies at which communication was done then, the trend has been to go to higher and higher frequencies for relaying. If we examined the characteristics of these frequencies, we see why that is so. When we were first pushing a couple of megacycles, we found that as we went up in frequency, we could get higher antenna directivity and for point-to-point work that meant that we would get better signal strength at our receiver, and we could effectively screen out noise. With the higher frequencies we found that this higher antenna directivity was possible with smaller physical antennas; in other words, we didn't need to have a few acres of ground and a force of poles in order to obtain this directivity. We began to find that we could put our antennas on one pole or two or three and get good signals at the other end. The other reason for going to higher frequencies was that the equipment got simpler. It was not necessary to have kilowatts in our transmitter, but because of our higher antenna directivity, we could use small low powered transmitters, which as we all know it is much cheaper to obtain a frequentative beam power in the antenna than it is boring into the tubes. All of this has been true and still is true to a certain extent, but now we have gotten up to the frequencies where we need to re-examine some of these considerations that I have just mentioned since we are up around one, two, three, up even to 10,000 megacycles. That is, we can build equipment there. Admitted that some of the higher frequencies are a little difficult to put intelligence over; that is, to modulate them efficiently; still it seems that it is a good time to take stock and see what the other considerations are that confront us when we come to a microwave region. In the first place, as we go up in frequency we find that pretty soon we need line of sight between our transmitter and our receiver. Radio waves act like light waves; and that takes place, oh, somewhere between 200 or 300 megacycles; perhaps lower for a direct object in front of the antenna.

Listening to some of your experiences at 150, and it is certainly true there; you can't expect a signal to go through a steel building when it is right in front of the antenna; but where in that region do we have to begin to worry about line of sight. As we go further up into the microwave region and are able to obtain narrow beams with reasonable sized antennas, the stability of our antenna and our antenna tower becomes a problem. In other words, if we have an antenna, a beam that is only a couple of degrees wide, it is obvious that our supporting structure and the antenna elements themselves cannot twist in the wind more than a fraction of a degree or we will lose the signal at the other end because it is no good to obtain such sharp beams unless we can hang on to them. Another disturbing problem is that of frequency stability, and that applies to the receiver as well as to the transmitter. For circuits which are designed to carry a nice modulation, we know there that the band width required for this is relatively narrow; in other words, three or four thousand cycles for the modulation; but if we go up a couple of those megacycles, we will find that our frequency stability will run up into the megacycles. In other words, it may be within two megacycles, within which we can control the transmitter frequency; so that we have to take stock there again to make sure that we are operating efficiently because if we are not operating efficiently, why pretty soon there will be some rules clamped down to see that we are, and it is only right and fair that there should be.

A second portion of the stability problem resides in the receiver. It is much harder to make sure that the receiver eye of frequency and the receiver local oscillator stays within its stability region without losing a lot of gain by having excess band width. Again, at the receiver we find that up above 1500 megacycles or so it is no longer possible to use RF amplifiers in the receiver, and our signal-to-noise ratio departs from the theoretical about as much as 15 to 20 db and that means that our signals available at the receiver terminals have to be 15 to 20 db greater than they do at lower frequencies where we can approach theoretical noise. Again, the receiver up above the point where RF amplifiers are feasible has poorer image rejection characteristics in general. At this point the receiver is usually feeding directly into a converter, a crystal converter in general; and in order to obtain image rejection, it is necessary to put filters ahead of that. As there are no tune circuits and vacuum tubes to reject our image, that may be an important consideration. Another factor is the variation of the propagational effects which in general increase with frequency. That increases the amount of excess gain that has to be built into the system in order to assure reliability. We all know that our systems are subject to signal variations, and as we go up into the microwave region, those variations become more violent, and in order to design a proper system it may be necessary to put 30 to 50 db of excess gain to insure, shall we say, 95 per cent reliability. That means that the signal at the receiver may vary that much.

Another consideration is that characteristic of the microwave frequencies which no longer permit us to put our transmitting and receiving equipment on the ground and our antennas two or three hundred feet in the air or even one hundred feet. There are two reasons for this: In the first place, the attenuation of the coaxial line becomes prohibited; and in the second place, certain types of transmitting tubes will not permit a long length of line between their output and the antenna without experiencing what we call frequency pulling. In other words, if, as we usually do, we connect an oscillator tube directly to the antenna, we find that due to standing waves on the antenna transmission line, due to ice on the antenna, rain or what have you, that the length of line between that oscillator and the antenna itself must be kept as short as possible. This means for all practical cases, transmitter location directly behind the antenna with probably only a couple of feet of line involved.

Well, those are the things that we need to consider when we talk about microwaves. Perhaps I have sounded a little discouraging. I hadn't intended to because I have done quite a lot of work on microwaves, and I think they have a big future; but we do have to consider just how we should use them. From some of the things I have said before, it should be evident that the microwaves frequencies adapt themselves to services which require wide transmission bands. For wide transmission bands, the first thing that comes to mind, perhaps, is television. That is one of them. For a narrow band service, it seems reasonable that multiplexing should be employed to artificially cause a wide transmission band. Another thing that becomes evident is that with all these requirements of equipment, high towers, equipment up in the air and so on, it is advantageous to have a pretty high utility factor on the equipment. In other words, common carrier systems seem to be in the wind for microwaves, a system which would be able to afford the large investment required and would be utilized efficiently. Another possible use for them would be for ST, Studio transmitter links, or for remoting a transmitter, for example. In lots of cases there, you find the transmitter is advantageously located on a high hill and the control point to studio or what have you is in the sea. Now, there you may eliminate the need for towers due to the physical location and it is again possible to utilize some of this microwave technique, for intermittent operation. However, -- and for longer relay hops -- it seems that it is desirable to go to a perhaps lower frequency where longer hops are permitted and where in general the antenna structure is required to be put up on top of existing towers and the equipment down in the transmitter room. With those thoughts in mind, I have assembled a group of slides here, the first of which covers our experimental work, some of the profiles and pictures of the equipment for a 2,000 megacycle relay.

First, however, I want to be a little more specific and cover this in sections. I will start out with 2,000 megacycles. Now, I picked 2,000 because we have equipment operating on that frequency now. The things I am about to say apply equally well to frequencies up to 10,000 with certain changes, and also probably down to 1,000 megacycles. At these microwaves, as I have said, the uses appear to be for studio transmitter links, intercity relays, which would carry television program circuits for broadcast transmitters, multiplex, teletype, and so forth; and it seems logical that a lot of this service is of a common carrier nature. At 2,000 megacycles -- to get into the equipment design a little bit -- we have a choice there of three different types of modulation. We can use AM; we can use FM; or we can use pulse modulation. As a result of our preliminary work we chose FM for several reasons. As a matter of fact, we started out early in the game to build an AM transmitter, but somehow it turned out to be an FM transmitter. The amount of frequency modulation we got out of this tube -- by trying to amplitude modulate this tube -- we obtained so much FM, it looked like a pretty good FM transmitter. That is due to the fact that at these high frequencies, the transit time inside the vacuum tube becomes important, and even if you have crystal control and try to plate modulate a tube, for example, you find that the amount of frequency modulation gets to be several megacycles by the time you have 50 per cent amplitude modulation. That was one of our findings on this.

Another reason for using FM is the ability of the receiver to tolerate wide signal variations. Such things as airplanes flying through the beam will produce violent and rapid signal variations. Frequentative limiters are necessary to combat this type of multipath. Pulse modulation is another possibility, and it blends itself to multiplexing very well. In other words, we can set up a synchronizing pulse in a whole group of channel pulses to multiplex voice communication or radio type, teletype or what have you. However, the interference spectrum of such a signal is rather severe, and in order to obtain close channel spacings, we found that it is desirable even with pulse modulation to take this synchronizing pulse and group of channel pulses as a composite signal and frequency modulate it on the microwave carrier. That seems to give us a better signal to noise ratio at the receiver and to require less complicated equipment design. As far as the antennas are concerned, we have been experimenting with parabolas and horns. Both give approximately the same field gain in the beam for the same diameter antenna. The horns are perhaps slightly less pronounced in spurious lobes. That is, more of the energy goes into the main beam so that the physical spacing and location of the antennas at a given station is less critical. However, we find that by proper design of the antenna and proper location of them that the parabola is quite frequentative.

Just to give you an idea what sizes are involved and what power gains are involved: By using a 6 foot diameter parabola at 2,000 megacycles which has an effective power gain of approximately 1400, we have 10-watts in the transmitter, so that the effective power gain is 14,000 watts in the beam; but don't forget that I said we would have to allow an excess of 30 to 40 db for signal variations and our receiver also lacks some 20 db from its theoretical value; so it is easy to see where all the watts go. As far as propagation is concerned, these signal variations which I have mentioned are due to two causes: One, as I have mentioned, airplanes flying through the beam. That gives us a rapid signal variation. Another cause of this is atmospheric conditions; that is, we may find that over a long path -- that is, 25 or 30 miles -- the atmospheric temperature and the index of refraction over the path - well, this has the effect of tilting or moving sideways this sharp beam which we have attained. So that it may be that the beam misses the receiver antenna completely and our signal drops off 30, 40, or 50 db.

The Army has made a lot of tests on this type of propagation variation and came up with a method of combatting the..., they called it diversity reception. You are all familiar with diversity reception on lower frequencies where all of the trans-Atlantic services have several large rhombic antennas connected to receivers where they pick out the best ones and keep switching back and forth. Well, this is somewhat similar to that, in that we vary the position of the receiver antenna in height on a tower and by that means can receive two signals and mix them after the second detector. Again we pick the signal which is strongest, and it is found that if the receiver antennas are located properly that a large amount of this atmospheric variation is cancelled. Up in the microwaves, our noise problems are thermal ones. As I have indicated, there is a rather substantial amount of it; that is, the frequentative noise at the receiver terminals is large. We are not troubled by ignition noise except as it may get into the I.F. stages of an improperly designed receiver, so that the worries for automobile ignition and so on are negligible. As far as frequency control is concerned, it is attained by temperature control of our transmitter oscillator by means of -- well, we use two means: one is to control the whole transmitter temperature by means of a thermostat or a fan; another method is to use an automatic frequency control system tied to a standard cavity which sets your carrier frequency and applies an electronic correcting voltage back to the transmitter. By these means we can obtain about .05 per cent. Now, if we can have the lights off, I will show you some slides indicating some of this equipment.

(The lights were turned off and slides projected on a screen.)

First slide: This is a 2,000 megacycle relay. It was set up to go between New York City and Schenectady, and it has several purposes. It is an experimental circuit and is designed to feed a television signal from New York City as well as to make tests of the multiplex system for communication. This same transmitter which will transmit a television signal will also transmit 100 radio type signals at the same time. That is on a single carrier, but multiplex. It is also designed to carry eight high quality voice channels; that is, eight 15-kilocycle voice channels for FM transmitter programs. Just to go back onto history a little bit -- originally, when we set up in Schenectady for FM and television broadcasting, we picked up our signals in the Helderbergh mountains where we have an elevation of 1800 feet and where our direct line of sight from the Empire State Building in New York is now 6700 feet below the horizon. For FM we picked up Major Armstrong's station which is down at Alpine right down in here (indicating) and the line of sight is somewhere nearly the same. May we have the next slide please?

This is a view of our relay receiver station in the Heldenberghs where we have a rhombic antenna, as you can see, supported from these four towers. These are 125-foot towers and our rhombic antenna has a gain of about 10 db. This was for FM and television frequencies; that is, the old frequencies around 50 to -- or 40 to 50 megacycles. Next slide.

About a mile and a half away from this relay station is our main transmitting station for television and FM; and the purpose of this relay was to program this station.

This is a view showing the capitol district, Albany, Troy, and Schenectady, where we have an effective antenna height of approximately 1,000 feet. Next slide.

This is a little artist's schematic view of the things which shows our relay station, the main transmitting station in the broadcast area. Next.

To jump from that, we go to some of our field tests which were made during 1945. For the microwave length between New York and Schenectady. This particular set-up was made at Mt. Beacon. This is a CAA tower here, and we are making microwave tests between there and New York City and between there and Round Top Mountain up the river further. As you see, we use some good police equipment for communication, and we have our transmitter boxed up in one of these steel boxes here operating on 2,000 megacycles. Next slide.

This is a picture of this CAA tower and we raised a 100-foot mast here with a 30-inch parabolic antenna at the top of it to determine our line of sight. As I have noticed before, we do have to have line of sight, and the only way to tell how tall a tower to build is to hoist one up there by one means or another or check the signal strength. As a matter of interest here, we started out with this tower at 75 feet, and the signal which we received was practically invisible in New York, so we raised it 25 feet more and the signal came up to its calculated free space value. Next.

This is a little better view of that antenna. This is the receiving end of the circuit which was in New York on top of the G.E. Building. This is a 30-inch antenna and this was our receiver that we were using. It has a 50-megacycle I.F. I will get into that a little bit later. Next slide.

Just to show you the type of country we got into with this relay, I have the profiles drawn from the Helderberghs where we started out with 100 foot tower and went some 25 to 26 miles to Round Top Mountain which is down the river, an elevation of 1400 feet. The terrain is quite rough, so that we have obtained approximately the free space field strength. Next.

Going on from Round Top, our next hop is a longer one -- some 54 miles to Beacon where I showed you the field strength set-ups. Next.

From Beacon to New York City is another 52 miles where again we have pretty fair line of sight. On top of all these peaks which were picked off a topographic map, we have to allow for trees, of course. Trees may sometimes stick up 50 to 75 feet, so that we found it was necessary to make actual field checks of these relay paths; that is, it is not reasonable to depend upon topographic surveys and profiles. You are too likely to find that maybe the survey made an error of a few feet in the height of some trees which are a little tall or something was a little bit misplaced; so we found some paths which looked good on the map that turned out to be pretty bad. Next.

This gives us a picture of our first test transmitter, a blocked diagram of it. It is a pretty simple affair. We have a modulator which takes in signals at about a 1 volt level and raises that to about 20 volts where it is used to frequency modulate a reflection oscillator. This is at 2,000 megacycles and gives us about two-tenths of a watt. From there we go through two power amplifiers, using "lighthouse" tubes and end up with ten watts in the antenna. Next.

This is the corresponding receiver which is or which goes directly to a crystal mixer fed from its local oscillator; a 50 megacycle I.F. which is 15 megacycles wide in this case to take care of our multiplex and television circuits; double limiters which were a considerable problem; a discriminator which turned out to be even more of a problem; and finally our out-put circuit which comes out again with a 1 volt level. Next.

This is a picture of our experimental transmitter. This is all put inside of the insulating box and the whole unit is temperature controlled by relays. The modulator section is here (indicating). This is the oscillator, and the feeder to the two amplifiers which have external cavities. Here is the tube in the back; the plate cavity; the grid cavity coming between them and the output stage is identical. This is a 10-watt 15-megacycle wide transmitter. Next.

This shows the installation made at Schenectady to run field tests between here and the Helderberghs, twelve and a half miles. The transmitter is in this box directly behind the antenna, you see. This is the six foot antenna; the antenna dish and the antenna itself. This installation ran to the transmitter building which I showed you before in the Helderberghs where we had an antenna on its roof that was good line of sight, and we ran that for almost a year over that circuit to determine propagational effects and also equipment reliability. We found that even in the twelve and a half mile hop, there was considerable propagation variation; that is, we ran recorders on the signal strength and found quite large variations -- 20 and 30 db at times. Next slide.

This gives you a slight picture of the complexity of the microwave system.

Our initial experiments were set up to cover a complete system which we envisioned as a six channel system; that is, three transmitters in each direction at each point. Each one of these transmitters was to carry either television signals or the multiplex types of narrow band signals. At each relay point we would come in at one frequency here on the receiver and feed the out-put through a transmitter which shifted the frequency. Then, at the next station we would jump right back up again so that a single channel would utilize two frequencies in succession, two pairs of frequencies. With this system the number of frequencies required is the same as if you went straight through a repeater station, but it makes the equipment design somewhat simpler; that is, the feed-back is a little less than if you tried to receive on 1900 megacycles, and come right across and transmit on 1900 too. Next slide.

This is a picture of our experimental relay tower in the Helderberghs. This is at the site of the relay station which I showed you earlier. This tower is 125 feet to the base of the platform here, and I will have a picture of the inside of this top on the next slide. This is 26 foot square on top, so we have quite a skating rink up there. Next slide.

This is a picture looking down through from the top of the tower showing the stairway going up around and down here. These are the feeders for power and controls for the individual transmitters. This was set up for this six channel system which I showed you. Next.

This is a picture of a second model of our equipment which has been considerably simplified from the earlier one. Here is our antenna dish. This is up on top of this tower. Directly behind it we have a box containing a transmitter modulator which swings out for accessibility and we have a Klystron oscillator which feeds directly into the antenna. There are no power amplifiers in this system here. We find it necessary to keep the transmitter directly behind its antenna, but we have simplified the equipment. In doing so we cut down its size, and we have reduced the maintenance to a very considerable extent. This cover is an insulating cover which goes over this box, and the whole affair then becomes a weather-proof unit which is automatically temperature controlled. Next slide.

This is a view of the power equipment it takes, rectifiers, and control and so on, to run one transmitter. This is also up on top of our tower. Next slide.

Now, this is a general view of the top tower room. Here is a unit we had a close-up of; another antenna comes next to it. These are six-foot antennas, and some more of the control and power equipment. Next slide.

(The next slide to appear contained the photograph of a very attractive unclad female.)

Gee, where did that come from. (laughter) I was going to show you some curves but we seem to have gotten them in upside down. (laughter) Yes, curves.

Now, we are back in the groove again. This is a slide showing the spacings and antenna heights required for line of sight. Down here -- I hope you can see it -- we have a logarithmic scale of miles starting at one mile, ten, twenty, thirty to 100 miles spacing; and on this we have the tower height in feet required; so that, for example, with 100-foot tower we can space them about 28 miles apart on a smooth earth; that is, for minimum line of sight. And we have two other curves here. You know that on a smooth reflecting earth we have two signals: that is, a direct signal and the reflected signal; so that the antenna itself produces a pattern of vertical lobes, where the lobes are calculated from the net signal, which occurs from the direct and reflected signal considering the phase variations; so that at certain frequencies the direct and the reflected signal will add giving a signal maximum. At other heights, the direct signal and the reflected signal will cancel, and if the reflected signal is reflected efficiently, that will give a null point. I mean, it is the same thing as taking a mobile unit and running it through a standard wave pattern on the ground; you get maximum and minimum. Now, with a smooth reflecting earth, you get the same sort of thing, and on some relay hops over a smooth country, you may run into that, particularly if there is water in between your points. You undoubtedly will run into it, so that in order to obtain higher than minimum line of sight, we find that, for example, if we want a 25 or 28 mile relay hop, it is 100 feet for minimum line of sight; but it is about 180 feet for this equivalent free space, which is the point where our signals are 120 degrees out of phase, giving us a net of free space. Or if you want to go up higher, you find it takes about 250 feet to give you the maximum signal; that is, where the reflected and direct signals add, so that there is a little more to it than just the simple line of sight calculation.

That is for both antennas. That assumes an antenna at a height equal at both ends of the circuit. As I have said, all of the foregoing has been based on our 2,000 megacycle system; but most of this applies equally well to 1,000 megacycles; that is, at 1,000 megacycles we are still at the point where we can't tolerate any large amount of line between the transmitter and the antenna. In fact, we want to get it as short as we can or at a point where line of sight is imperative and where reflections and multipath phenomena has to be considered. At 1,000 megacycles, however, we can use RF amplifiers in our receiver. That means that the effective signal-to-noise ratio of the receiver is better, and some image rejection is possible; that is, it is possible to obtain a better image rejection ratio. We find that more power is available at a 1,000 mc. Probably we can get 50 to 100 watts of power; but on the other hand, if we keep the same physical antenna size that we had at 2,000, we will need four times four in order to realize the same antenna beam power. So that all in all, there is very little difference in the characteristics at these two frequencies. At 1,000 megacycles we are doing some work -- at this time I unfortunately haven't been able to obtain any slides of it for this talk -- but we have equipment being tested now for FM ST links which utilizes the multiplex system for cue circuits and for the high quality studio transmitter location. This 1,000 megacycle setup, as I have said, was used for FM ST links; and uses a 6-foot antenna; uses frequency modulation which is crystal controlled employing the Phasitron modulator. Again its characteristics are pretty much like those we have been discussing.

To drop down again in frequency, the next set of slides I have covers equipment which is designed to operate from 260 to 350 megacycles. It is equipment we built before the war and is used for FM ST service. A little bit about the general characteristics: Conventional tubes are used in this system, but they are fairly inefficient, so that just before the war this particular equipment was utilized, the very first of the "lighthouse" tubes which have become so familiar to us now. At this frequency transmission line loss is not excessive and our antennas become more conventional. The equipment itself becomes more conventional and it is possible to place it in the transmitter building and run a long line to our antenna towers. Either FM or AM modulation can be used, with FM probably preferred. With this transmitter the frequency stability is good. It is crystal controlled and again it bears out all the aspects of a lower frequency equipment. The antennas that can be used with this cover a wide variety of types, depending on the structure desired to mount them. They run from rhombic antennas, dipole array, mattress antennas or corner reflectors. The receivers for this frequency approach the theoretical value much more closely, and we find that the propagation is not very reliable beyond the line of sight; however, our man-made noise is negligible here; so that we have gained quite a bit in the required beam power of such a system. May I have the next slide, please.

This is a picture of our 25-watt transmitter for 350 megacycles used for FM ST. Next slide.

This next slide shows the front door of this equipment open, showing a very typical construction similar to the lower frequency transmitters. The power supply is in the bottom; frequency units in the middle; RF power amplifiers at the top.

The rear view of the same unit shows the same equipment here. Here is our power amplifier section up here requiring forced air cooling from motors over here. Next.

This is the view of the PA system. These are the early "lighthouse" tubes I told you about. This is the oscillator unit and the power amplifier here using open wire line circuits and coaxial coming between them. Next.

Another view of the same unit which shows a little more close-up of it. On all of these control sliding shorts, it is brought out of the panel by means of shafts and gears so the unit can be controlled from the front. Next slide.

This is a picture of the tube itself. This is actually the GL 522 whose predecessor was the 8010 AR. It is a fairly similar tube. Next slide.

This is a blocked diagram of our transmitter which is pretty much conventional. This uses the Ray Atkins tube modulators which was employed in our pre-war FM equipment, now replaced by the Phasitron modulator. Next slide.

This is the receiver which goes with that transmitter showing the front panel. Next.

The front door. Dropped down over here are the RF stages, operated converter. The next slide will show us the rear view which gives a little more. Over here is this RF section again, here showing the transmission lines with adjustable shorts, and the 955-956 tubes used in the front end.

This is a blocked diagram of this receiver. It is a double conversion unit using a crystal controlled oscillator with multipliers to give us both a first and second conversion. With this screen we found that it was easier to obtain the gain required for the sensitivity desired for such a unit; limiters; two limiters; the detector. This is a carrier. This is the ST antenna for 350 megacycles enclosed in a weather-proof tube and designed to be mounted off a mast at the center. Next slide will show us a little bit more how that works. This is a series of feed dipoles to give the required directivity for an ST system. That directivity is specified by FCC and covers a power gain of 10 in the beam; 10 over a dipole and must be down to a power of 1/4 that of a dipole at plus or minus thirty degrees from the main signal. This antenna fulfills these characteristics. Next slide.

Here is a picture of this antenna installed on top of a building so that you get some idea of its size with relation to the building itself. Next slide.

That is the transmitter antenna. This is the receiver antenna located at the Helderbergh Mountains at the site of our FM station; slightly different mounting here. It is mounted off a wooden pole but it is the same antenna used for the receiver. This system has been in operation since about 1940 and is still being used to program the FM transmitter. It has operated very well, and we have found that natural variations have been quite negligible over this point-to-point circuit. We do have good line of sight, and we have had no difficulty whatever with the equipment. Another installation of this. This is Major Gordon Gray's FM transmitter on Mt. Mitchell. There the equipment was used to program an FM transmitter about 125 miles from its studio with a grading line of sight. With such a long path and with grading line of sight, they found variations in the signal to be considerable, but it still programs the transmitter. Next slide, please.

This is dropping down again in frequencies to 156 megacycles and shows a 50-watt FM transmitter. The exterior looks like that of a 350-megacycle unit, and it is used between Schenectady and our Helderbergh station for a television service. This is the transmitter that sends the sound from the studio to the television transmitter. Here we use conventional tubes and there is no trouble of line loss between the antenna and the transmitter, so our antennas can be moved wherever desirable. The transmitters can be located in the building. We find in similar experiments with this unit that the signal is very solid, but the absolute value of the signal is very dependent upon the antenna location. This particular installation was for a twelve-and a half mile jump and some experiments with the receiver antenna at the mountain indicated that movements of a few feet on the antenna resulted in a variation of output signal or input signal to the receiver terminals of approximately two to one. We checked this pretty carfully over a very long period of time and found for any given antenna location the variation in signal was negligible; in other words, we were getting a direct and a reflected signal, There is a standing wave pattern at the receiving antenna, but it doesn't appear to vary either seasonally or with atmospheric conditions. May we have the next slide?

This is the rear of the transmitter showing more or less a conventional construction. The output circuits employ 829 tubes. The tubes are up here. I have a close-up of that on the next slide. This is the power amplifier. There are no tubes in this, but it has 829 tubes in this socket and the PA stage here with its output transmission line and coupling loop shown down below. Next slide.

This transmitter is the television visual transmitter for the same frequency; that is, it goes from 162 to 168 megacycles. It is a low level modulator, class B transmitter. Power supplies, control equipment, and the amplifier stage is here above. These are 834 tubes, triodes, which require neutralization, a cascade here; one stage here, push-pull; second stage push-pull and the final stage here. Next slide.

This is a close-up of the RF section, and the next slide shows us more details of the output circuit where the 834 tubes, neutralizing condensers here and the output circuit with output tank and coupling loop. There is just one more frequency to talk about just a little bit. At 72 megacycles we had some experience with our television broadcast transmitter, the aural transmitter. This isn't relaying, but it tells a little bit about what is required there. We find at 72, of course, that we can attain all the power we need. The antennas get to be a little bit unwieldy for reasonable antenna gain. The signal extends beyond the line of sight, a considerable factor, but automobile ignition noise is quite serious. A lot of these observations are the result of our television service, but the same thing applies to other types of communication. I think we can have another slide. I am sorry I get a little bit ahead.

This is a picture of an antenna that goes with that transmitter Just to retrace a little bit, this is a four stacked array of dipoles. These fat tubes here are the dipoles, and they have a driven element, both the driver here and the driven element behind, so that there are actually eight sets of dipoles in this antenna. Up on top we have a coaxial antenna for the aural signal. Next slide.

At the other end of this circuit, we are using a rhombic antenna for receiving and another coaxial for the sound, and up in this box we have a single set of those dipoles which I showed you on the previous slide; that is, there is a dipole director and its driven element boxed up to make sure that the matching sections stay tuned. Actually, this antenna has about half the gain of this rhombic. Next slide.

This is the one I thought I was going to get before. This shows the 72-megacycle broadcast antenna, two phases of it, giving you a little picture of relative sizes involved. They are just twice as much as for the 150. Of course, I think that all of you are familiar with the experience again on 30 to 40 and I am not going to go into this, and as far as going down the range is concerned, this concludes the talk.

If there are any questions, why the meeting is open at this point. (applause)

(The lights were turned on.)

PRESIDENT GROENIER: Has anyone any questions for Mr. Fancher?

MR. CASTENHOLTZ: What development is there in the future for Phasitron modulation.

MR. FANCHER: The question was: What is in the wind as far as Phasitron modulator is concerned for police communication? As I started out to say, when I began this talk, I have been working on relays: and the talk was going to be about relays and it was going to tie directly to police equipment. I think I would like to ask Mr. Heiden, who is in our police group, to answer that question if he can and to tell us perhaps a little bit more about the direct application. I think this: that something has been considered about it.

MR. HEIDEN: When the Phasitron first became known throughout the field, (in other words, when our broadcast boys started to use it), of course the pressure was immediately put on me by management: "Why the hell aren't I using this tube?" We looked into it pretty thoroughly, and we found two things that discouraged its use - or, actually, three things. Number one was the amount of multiplex necessary to use the tube. In other words, we are interested in fairly narrow range swing, whereas in broadcast they aremuch wider; but even at that our multiplex had to be much more than we normally use in our equipment, which meant added tubes. It is a little harder to reject our spurious radiation from our transmitters. The second thing was the size of our type of equipment against broadcasting equipment. All you gentlemen are worried about the space our present equipment is taking. You would like to have a little more room for the police and utilities and various groups to be able to throw in their tools and things in the back end of their car; and for 160 megacycle application where we have got transmitters and receivers, a combination of power supplies, we would have to have much more space for our transmitter alone since the present tube is somewhere around that high and it needs an oiler on it about that big. In other words, it takes up as much space as we normally employ for maybe one oscillator and maybe one multiplying section. The third thing is cost. We can build a lot of equipment, but if the cost isn't right, we can't sell it. The Phasitron is still just a little outside the realm of this type of operation at the moment. Maybe when production builds up in the tube, and they are producing them much more rapidly than they are now; if they find ways and means of really going into high production on the tube such as we normally think of for our receiver and small transmitter tubes, and the cost gets down -- then we may be able to use it even with the other disadvantages I spoke of a moment ago. That is the story. We have looked into it. We can't tell when we will be using it. We are still hoping we can if we bring it into the reach of the users of our equipment.

MR. FANCHER: Any more questions?

PRESIDENT GROENIER: Does anyone else have any more questions? I am sure these gentlemen will be around and will be able to answer them if they come to your minds later. Let's give Mr. Fancher and his associates a hand. (Applause)

A few announcements: Captain Batts and his Committee want to meet immediately after adjournment; that is, Captain Batts, Maurice O'Neil, Herb Wareing, Ed Denstaedt, James Teeter. I also want to announce the evening program. Zelon has already told you the Police Committee will meet in Parlor A, and the program calls for Chapter meetings. We have parlors B, C, D, G, and the Grover Cleveland Room at our disposal, so we can gather around down there in groups and have our Chapter meetings tonight if we care to.

So we will adjourn now at this time, and meet again tomorrow morning.

(At 4:40 P.M. the meeting was adjourned to 9:30 A.M., Tuesday morning, Oct. 29, 1946.)

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TUESDAY MORNING
October 29, 1946

PRESIDENT GROENIER: We will come to order this morning. If there had been any more manufacturers' rooms to make the rounds of last night, your President wouldn't be here this morning. On your program, it calls for a discussion of FCC Order 133 by Captain Batts. Captain Batts has asked to be excused from this, but I feel it is too important a subject to pass up. Therefore, I am going to try and open it up -- at least for discussion. Most of you know Order 133 is the Order that states the necessity for radio-telephone operators' permits is not required in the mobile services. Now, all of us are well aware of the fact that in the past seven, eight years, that it has been required to have a permit. We heard an awful lot of criticism about that. Steps were taken at Madison and Toledo to have that corrected. Apparently there was some misinterpretation of our attitude when we said we wanted to take steps to have it corrected. Wo didn't moan wo wanted the necessity for having the permit abolished. Our criticism was largely that the questions did not pertain to our type of operation. They were very general in nature and heavily burdened with operation of a radio on shipboard. By nature of the Elements system I suppose that was deemed advisable by the Commission. We did feel that we wanted a separate type of permit for police operations. It is not necessary to enumerate any of the questions as to how they did not pertain to our operations because we are all familiar with it. Therefore, as I said, it started at Madison and continued at Toledo. This body made suggestions for having a different class of permit for the police services. Now, suddenly this year, May 10th, Order 133 by the Commission was issued which just simply abolished it. The reaction to that was met with mixed feelings. I know in the case of our own department, when I told the Chief about it, he just said, "Why that is swell. Now we are getting somewhere. We have gotten out of some red tape." The Inspector of the Police Department, who is possibly a little closer in contact with the men than the Chief, said, "Why, I don't consider that so very good. It has been part of our police training and part of our schooling, and a requirement we considered that added to our standards of our policemen." So I think throughout the entire field there was some mixed reaction.

In June -- I think it was the first part of June, I have forgotten the correct date -- a Mr. Percy came out from the Commission to Indianapolis, and he wanted to discuss -- not only Order 133 -- but some of the other proposed corrections or revisions which the Commission might intend to make in the licensing system. So, in order that he may have a good audience rather than one or two individuals, there were a few of us went to Indianapolis and met with him for a day. Ero Erickson, myself, Captain Batts, Zellon Audritsh, and a few of the Indiana boys -- I have forgotten who all were there -- Warren Lane and Al Shirk from Columbus, we got Captain Leonard on the phone and talked to him with a three-way telephone conversation what our views were, and we also expressed them to this Mr. Percy.

Following that, the Indiana Chapter led by having a resolution passed asking that the Order be rescinded. Then, the Illinois Chapter followed it up by actually making a survey of all of the departments in the state. I read the questions and I can assure you they weren't worded in a biased manner at all; and the result of the survey was overwhelmingly in favor of having some type of a permit. Now, there are a lot of reasons why the Commission abolished it. I would say Number One, and by far the largest reason with them, was economic. With the entering into the field of the many new services -- to mention a few: the railroads, taxicabs, busses, etc. -- would require an immense amount of personnel on the part of the Commission to process all of the applicants. I think that probably was their main reason. Now, we took the stand at Indianapolis that we didn't care what the taxicabs or the busses or the railroads required; that we felt that where you are interested as directly and vitally as we are in the public safety feature of radio, it is very necessary that this equipment be operated by men who have been examined in some form or another and found capable of operating the equipment.

Well now, that was followed by other Chapters taking similar action; namely, Wisconsin; and as I said in the first part of my discussion, I thought it was too important a matter to let pass in view of the fact that all of the resolutions requested that the matter be brought on the floor at the Buffalo conference. So that is what we are doing at this time, and I would like to throw this open for discussion at this time.

MR. CROWDER: Mr. Chairman: We discussed the same problem at the last meeting of the California Police Radio Association, and it was the consensus of opinion of the majority of members there that this was also desirable; that some sort of licensed examination be reinstated by the Commission. We felt too that previously the examinations for the radio-telephone license covered a variety of things and served only to confuse the officers; but we do think a knowledge of the basic laws and possibly the simple operating procedures and something like that pertaining directly to police radio would be beneficial. One of the reasons that the membership thought this would be beneficial was to allow them to have some control over personnel operating the radio, and in some departments about the only way that you can enforce proper operating procedure is by bringing it to the attention of superiors in the department that certain things must be done by rules. Now, the purpose of all that boils down primarily to -- not only departmental supervision -- but sometime having these restricted permits aid you in obtaining cooperation from the supervisory officers in the department. It was felt it would be very desirable to have some type of restricted telephone permit that could be applied particularly to police radio operation, and questions that would be based on fundamental laws and operating conditions found in police radio.

PRESIDENT GROENIER: Let me ask you: Is that the opinion of the Southern California Chapter?

MR. CROWDER: That is correct, the Southern California Association.

PRESIDENT GROENIER: Did they get an expression of opinion from the chiefs of the departments in that area?

MR. CROWDER: No, they did not. That was merely the opinion of the communication officers. We heard about this proposal to bring this on the floor at Buffalo too late to allow us to contact all of our chiefs, and our last special meeting was held just four days before I left for Buffalo. We did not have time to make a thorough survey, but that was the consensus of the majority of the police communication officers present.

PRESIDENT GROENIER: Thank you. Does anyone else have any comments on this?

MR. WHITING: It was brought out at this meeting in Los Angeles by the members of the association that individually they had taken it up with their chiefs, and in fact most of them are continuing to give examinations as they now stand because the chiefs desire those examinations to remain there. As you know, under the new rules it is still permissible for the department to continue giving examinations; so I don't know of any department down there that has thrown out the licensing situation at all.

PRESIDENT GROENIER: Thank you. That clears that up.

MR. FRANKLIN: I had a question. If the examinations are reinstated, will it affect the departments that have never been affected by it before? In other words, where you have your own operating procedure, it will remain as it was in the past?

PRESIDENT GROENIER: Well, I would imagine ....

MR. FRANKLIN: Where you are not required to have it if you have a licensed man on duty?

PRESIDENT GROENIER: Putting that as a question of course I can't answer that.

MR. FRANKLIN: Well, I thought possibly to clear it up.....

PRESIDENT GROENIER: I would rather you put it in the form of an expression. Would you desire it that way?

MR. FRANKLIN: That is the way I would desire it to continue; the way we have in the past, of course.

PRESIDENT GROENIER: Thank you.

MR. CROWDER: I wonder if the gentleman means where the transmissions are continuously monitored by a licensed operator holding a second class radio-telephone rating, the officers are excused from having the permit. I would like to see that continued myself and a permit made compulsory, with only a dispatcher of a lower grade holding the restricted permit; and if the department can afford it -- which the larger departments can -- to have a licensed operator monitoring and in control of the system at all times.

I think they should be permitted to continue such operations.

PRESIDENT GROENIER: Thank you. That expresses your opinion; doesn't it?

MR. FRANKLIN: That is what I was speaking of.

PRESIDENT GROENIER: I know as far as I am concerned that feature will be very desirable to have.

MR. WALKER: Somebody has to protect the Commission here. I don't know what experience you fellows have had on this thing, but I was kind of glad to see that Order. In the first place, a policeman is a policeman wherever he is - Los Angeles or no matter where he is at. You work hard with these men; you try to get them in shape to go and take the third class examination even though it is simple. I just wonder what percentage of you fellows could take those men back and give them their examination six weeks later - and how many could pass it again. It is just something at the moment they figure they have to have. From then on the majority of them forget it; not all of them; the majority forget it. It is just something you have to have to be on the job; and you take in a department of 100 or 200 men, those men are all going to have to have licenses. You are going to have to get them for them somehow or other, whether it does them any good or not; but it is just an instrument they feel as though they have to have. Is the education lasting? Is it of any use to them after they get on the job and start working for a few months? It has been my general opinion that it isn't, and I get around to quite a few police departments. Just for the fun of it, once in a while I pop one or two of those questions that they had a while back at them and they don't know anything about it from then on. In a little department like mine, I have one hundred and some odd licenses to keep leafing through all the time to keep them in shape and so forth, and see that they are in order and they are renewed properly and so on and so forth. I don't know; they might have good merits, but if you are going to have second or first class men on the control points, which is a good thing; but there are a lot of police departments that won't even rate a second or first class man on the control point. If he was sitting there, the policeman would still do about the same thing he wanted to in the car anyway. The operation is pretty general on mobile units in any department you go into. If you require good conduct of your men in the operation of the equipment, I can't see any reason for a license.

PRESIDENT GROENIER: I am sure there are quite a few men who would like to answer you. Personally, I cant. I can't help but agree with you, and I think that is the sentiment of the entire body with the permit in the form in which it was. Remember, we are thinking now of a different type of permit.

MR. METTIE: I am with the Michigan Department of Conservation, representing forestry. We have discussed this subject quite a lot also, and we have come to the conclusion that we believe that the operator should have some sense of responsibility in operating this radio equipment. We did welcome the FCC directive cancelling the present license for mobile operation. However, we also believe that no license should be necessary for fixed station operations under certain stipulations. We are going to suggest to the FCC that the state, municipal and county governments charged legally with the problem of forestry protection and conservation laws be permitted to issue the licenses themselves after the Commission would supply us with the necessary forms and possibly operating cards. Now, all that would be necessary would be that the applicant would read these laws and understand them, of course, and sign this form. We would forward one copy to the Commission and that would be a record for them; and then we would in turn keep one copy and issue the card. By doing it that way, our men would be responsible to some agency and also it would permit our seasonal employees to operate a radio station immediately upon employment, such as our fire tower operators. As it is now, or has been in the past, before this order came out, the fire season was practically over with before men would receive their licenses; and that was the big objection. I would like to see the police reaction to this form of licensing the operators.

PRESIDENT GROENIER: Thank you. I might mention that that has been discussed. I think Mr. Percy at the Indianapolis meeting asked that question and we did at least discuss it. It certainly has a lot of merit.

MR. WALKER: I don't want you to get the idea I am in favor of letting down the bars as far as rules and regulations are concerned; but the rules and regulations which govern the operation of the policemen in our department, as far as the use of radio is concerned, are based upon good rules and regulations of the Commission. Of course, it is up to the commanding officer to see that those rules are enforced; so therefore I don't see any necessity, if you have good rules and regulations in governing the operation of your radio equipment within the department itself, why there should be any need for licensing of the men.

MR. BECK: I have had a little experience in both cases; one department whom I know of licenses, and another department does not. It has been my experience that the department that has these radio-telephone permits seems to run with better and smoother operation and with more sense of responsibility as far as radio is concerned. Speaking not as a department head but as a radio operator, I think that for the good of the department the license should be retained, perhaps in a different form because I really believe that the licensing system as far as radio operators are concerned and the care and protection of the police equipment and good service depend to a great extent on the radio operator license.

PRESIDENT GROENIER: Thank you. I think most of you men know how I feel about good operation. As a Chairman of the State Standards Committee back in 1943, we went possibly out of the realm of our supposed activity and caused to be published the now known radio-telephone operating procedure for police which we still publish and try to distribute as freely as possible; so you know how I feel about good operation.

MR. CROWDER: Mr. Chairman, I agree with Mr. Walker in regards to the memory of the police officers, but I think that is due to the fact that most of the things that they have to learn in connection with their former restricted radio-telephone permits did not pertain directly to his work. It is like learning a foreign language and then never speaking it or never using it. I think that if the examination pertained more directly to problems and experiences that he would encounter in police work, he would remember more.

MR. WALKER: I would like to answer that. I think this whole thing now is not a matter of a license. I think it is a matter of procedure. If you establish the proper procedure in your department and see that it is upheld and worked that way, I still can't see where your license helps you any because you could have a stack of licenses and if you didn't have the right kind of procedure, you wouldn't have a smooth operating outfit; so it is a matter of getting down to proper procedure and use of your equipment rather than the license.

PRESIDENT GROENIER: Does anyone else have anything further?

MR. WAREING: I happened to be in Milwaukee about a week after that new resolution went into effect, and in the middle of the night one of our frequencies opened up and some drunk started to talk on one of our cars about the fact that the officers were in some night spot and were drinking liquor after closing hours and one thing and another; so we got another squad car over and picked these fellows up. The front office called me the next morning and wanted to know all about this federal regulation on radio, and I had to tell them there was no federal regulation anymore because the law specifically stated that any person could operate a police radio mobile unit without any restriction whatsoever.

PRESIDENT GROENIER: Thank you, Mr. Wareing.

MR. WALKER: I would like to answer that again. Now, we have laws in this country that say you can't go out and murder men too, but they still go out and murder them. Wouldn't that same thing have happened whether they had to have a license or not?

MR. WAREING: I suppose it would have.

MR. WALKER: Well, then, it could have happened where you had the license. They still go out and shoot people. It is just a matter of whether the man is properly trained and does the job the way he should.

MR. FRANKLIN: Has any work been done or suggestions made to the FCC as to what requirements should be made?

PRESIDENT GROENIER: Yes, a suggestion was made that it be non-technical and that the questions pertain to these police operations.

MR. FRANKLIN: The reason I asked that question is that the APCO manual on operating procedure is a very good book and practically all of it I used, but there are some things I can't use in our department. So if the FCC would set out a bunch of rules without anyone being considered, I would be against it.

PRESIDENT GROENIER: Is there anyone else? Captain Batts, do you have anything to add to what has been said? I know you haven't been here and I know you don't feel too well this morning. I wondered if you wanted to add anything?

CAPTAIN BATTS: I don't know what has been said and therefore I don't know what is due that I might want to say. Did you want my opinion on this Rule 133? Is that what you wanted?

PRESIDENT GROENIER: Yes. I'll tell you what we didn't fight, Bob, was the objection that hasn't been brought up and I was waiting for it to be brought up ---

CAPTAIN BATTS: Is that the one I have?

PRESIDENT GROENIER: Yes.

CAPTAIN BATTS: Here is the way I look at the whole thing: I don't like it at all. I think it will definitely do damage to our position, to our service throughout the country. Here is the way I look at it: In the past, when the FCC had this requirement on restricted operator permits, after changes of administration, for example, like all of you had happen to you, these various city officials, politicians, will come to you and say, "Now, I've got John Doe out here. He is my cousin or nephew, or he lives in my precinct or my ward, and he is a darn good radio man." Maybe he's not a radio man at all; maybe he just told the man he was or he changed a tube in his radio set and made it work, and he thinks he is a good radio man. Well, under the present setup there is nothing I can do to stop that. On the other hand, here is the situation or here is the position we were in previously: This politician comes to me and tells me that; and the first thing I say is, "Has that man got a license? Has he got a license?" - not "a permit"; and we require a first class telephone and a second class telegraph or better, and we have several of that type men. In other words, I always have felt that we have got to have on duty good technical men. You can't make progress if you can't do a good job. I don't believe you can have a good radio station unless you have good technical men on duty -- not on call, but on duty. We always have two licensed operators on duty 24 hours a day. I won't go into detail as to why it is desirable; but one thing, for example: In the first place, you are operating an emergency system, any part of which can go bad, and that equipment is very expensive. The main point is that a good man can get this back in service. For example, one time a little thing at the tower did a lot of damage in our coaxial line. If we had had men with permits there who weren't good technical men, we would have been off the air for an unknown length of time. Actually, the two men on duty got it back in service in seven minutes. Frankly, I don't see how they did it. I think I could have done it in eight, but I don't see how they done it in seven. (Laughter) But in the past, this requirement of operative permits was in effect and it gave us some protection indirectly. I want to say that we never had and don't intend to have any permit men anywhere, not in the cars or anywhere. But here is where I had the edge on this politician who was trying to force one man in. If it starts with one, it will soon be several, until after a while you are not going to have anything but inexperienced men and invaluable men operating your system. Here is where I have the edge. I had asked him if that man had a license, and he said, "No". I said, "We can't use him because if we don't keep these high class men on duty at the radio station, then we've got to license all these 600 policemen, every one of them." Well, the politician shies completely away from that. He wants no part of that because he knows that that policeman is going to call him and what he is going to say to him and they don't want any prejudice. Under the present setup I have no protection whatsoever; I mean, nothing but pure logic and the presentation of a good business standpoint. As you all know, or many of you know I am sure, that very often doesn't mean a thing in the eyes of the politician who is trying to put someone to work. Under the present setup, there is no reason that this nephew or cousin or someone - some friend of the politician to whom he feels obligated - can't come in with a change of administration; we'll say, can't come to the new mayor, and he may say, "Here, I've got a license, see" -- second class telephone, let's say, nothing else -- "I've got a license. Let me take charge of your radio station. That guy Batts isn't so good and never did do a good job and here is why...." and he will give him a lot of reasons. Furthermore, he can say, "I can save you a lot of money which will give you more policemen." "I can take women out there, put them in that radio station, and after ten days or a week they can pass an operator's permit examination;" or, "I can take kids just out of high school with no radio training whatsoever and put them in that radio station and operate them and pay them a salary to operate it -- pay them a salary of $1500 a year a-piece. Take Batts and those other men you've got out there and put them in uniform and let them do police work like they are supposed to do." We are all policemen and that has a lot of appeal. Saving money and putting people to work that they want to put to work. Under the present setup of FCC Rule 133, I have no protection whatsoever. I don't think it should have ever been changed. I think something should be done about it.

PRESIDENT GROENIER: Anyone else?

MR. WALKER: I would like to answer the Captain if you don't mind. I think our discussion primarily was in the interest of the policemen operating the mobile unit and for the purpose of the record I am not in favor of relaxation of the rules whatsoever which will relieve the technical responsibility of the operation of equipment. I have seen this political business too come and go, and I can agree with the Captain on that part of it. I might just state you one little incident which I happened to notice take place at the present time in the form of a taxicab company that had a small installation. They got a hold of an operator to hang his ticket over there on the wall, but at the same time another fellow who was supposed to have been a sound engineer and so forth was actually taking care of the equipment. I talked to the company who sold that equipment and they told me that for the past three months now that equipment had been neglected and it was going to require them to bring in a factory man to get two or three units and a transmitter back in shape so they can operate it. I am not in favor of lifting any of the technical requirements and care and so forth of the equipment. I merely state that I think the operators' permit, used by the man in the mobile unit or on foot or whatever kind he usually has, really shouldn't be required if you have good operating procedure from headquarters, good supervision.

PRESIDENT GROENIER: Are there any more comments? (No response.) I want to make this comment: That primarily is what Mr. Percy, I believe, came to Indianapolis for, was to get our opinion on what was to be done relative to the other types of license. I believe the Commission has had it in mind to revise either their method of examining the applicants for the higher grade license; and also it was in their mind as to what the scope of their authority should be; and again we agree with you, Mr. Walker, that we didn't think there should be any relaxation on the part of the technical man whatsoever. We would submit, I believe, to probably a little tightening up in the case of the first class operators ---

MR. WALKER: I would be very much in favor of the Commission making a law requiring a second or a first class man on the control point at all times.

PRESIDENT GROENIER: ---- and furthermore, I think we suggested that the application be more practical in nature. I would like to comment on that. Ero suggested here to me that I tell you something about an ordinance we have in Madison, which I will state briefly is this: It is an ordinance requiring the licensing of anyone engaged in servicing of home radios. Now, that ordinance was originally set up and adopted in 1939, I believe. The ordinance provides for an examining board and gives them quite broad powers. It states that the board should consist, at that time, of two members who are licensed servicemen, and two dealers who sell radios, one distributor, and a radio technician for the city (which happened to be me), and the electrical inspector. It is provided that we hold an examination every six months. Of course, in order to be constitutional, it had to have a grandfather's clause in there that bracketed every serviceman in because it would be against the constitution of the State of Wisconsin to pass an ordinance that would throw a man out of his opportunity to earn a livelihood; so the old servicemen were all in favor of it because they didn't have to take an examination. Well, we started out. We set up a written examination of the old form and found that wasn't so practical. The next thing we did was to set up a bench test, and we found that that bench test abolished a lot of arguments on the other examination because we gave thirty-five points to a man's progress on a bench test. We told the applicant when he sat down to fix a radio that it wasn't absolutely necessary that he repair it, but it was more important the way he progressed, the methods that he used in determining the trouble. Incidentally, we ran into a little difficulty after the war. Maybe some of you know, in Madison we had several radio schools. The Navy conducted a large one; so did Truax Field. A lot of the students saw fit to marry some of our girls and come back and want to go into radio service business. In December of 1945 we had 14 applicants for a license and 12 of them failed. That certainly made beautiful newspaper copy as to how we were discriminating against the veterans, and it blossomed out in the papers in all its glory; so something had to be done to make the newspapers feel they accomplished something. So the ordinance was revised. The big objection that the newspapers brought out was this: That they had to wait six months before they could take an examination. Now, we revised that so that we hold our examination every thirty days instead of every six months, which is more or less minor. We also revised the examining board, that instead of having so many servicemen on it, it now consists of only one serviceman, the electrical inspector, myself, a professor from the University, and one dealer, making a smaller board. We also have changed our type of written examination from the old longhand form to one of multiple choice. We can ask them more questions. And then, to prove our good faith, we set up a course in the University which pertained to servicing of home receivers. It was a night course, and well, it happened that during the war I did some instructing at the University myself and although I wasn't able to take this course on at that time, I assisted the man who did, and we saw to it that the course was what we wanted. I just wanted to bring that out at Ero's suggestion as to what we have done. The ordinance has received quite a little publicity in some of the trade journals. Radio Servicing wrote it up and I spent a couple of days answering letters on the darn thing after it came out. They solicited me for another article, and I told them that after I had time to write one and send it in to APCO Bulletin they could have one; but I wasn't going to let them scoop our own magazine. So that brings up this thought: that it might be a good idea to have an examination for your first and second class men which is more practical. We think each examining point should have some apparatus that can be thrown out of tune and the applicant has to adjust it so that the examiner can actually see with his own eyes how efficient that man is. That was one suggestion that was made. Are there any more comments now? I saw somebody else. Mr. Crowder again.

MR. CROWDER: Mr. Chairman, I thought that this discussion was primarily on restricted permits for operating in cars. I certainly would be against any relaxation of technical requirements, although I am not opposed to the change in the examining procedure, if deemed necessary. I would be very much opposed to any relaxation of technical requirements for a person who was in charge or actually did the service maintenance and adjustment of these radio systems. I do believe it would work a hardship on many of the smaller communities if they were forced to keep an operator, a first or second class operator, on duty at all times; but I do think very strongly that they should be compelled to sustain a just operator and provide for actual service adjustments to be made.

MR. WALKER: There are several things which I think I forgot to say. (Laughter) One of them is this: That at home in our department, the Captains have receivers at home and the Chief has a receiver at home and I have a receiver at home; and we more or less monitor the operation of the equipment. The minute I hear or find something that is not right that the men have done, especially in the use of their equipment -- and that can probably be the language that they use or something like that -- why they are called on the carpet for it. We really police the thing. But not so many miles away from us is another system that doesn't do that. The man who has charge of the equipment lives quite a distance away from the other city. The Chief doesn't monitor it. There is just a system going along just sort of the way they want to operate it. There is no second or first class man around to check on the operation according to the rules and regulations set up by the Commission. In that particular case you might get away from good procedure, but if you monitor your outfit and find out what fellows are not doing what they should do and more or less living up to the rules and regulations the way they should, I think you will find out you just don't need licenses for men in mobile units. Of course, we tried to drive home certain things to them. They get a certain amount of training in our regular police school in the operation of equipment, what they can do and what they can't do; but none of them touch anything. The equipment is locked up in the back end of the car, and all they really do is to answer and transmit from the car any reply to their calls. As long as that is done along good line of operating procedure, I still can't see the reason for that permit in the car.

MR. WHITING: There are one or two points I can bring out that I don't think we have developed. Some of them we may have, but one of them is: It seems to me just a short time ago we were asking to have this rule taken out, and they took it out for us very nicely and now we are asking them to put it back in. That is one of the inconsistencies of human beings. Another thing is: Mr. Walker over here speaks of administration. I don't believe he has a man driving one of his automobiles without a driver's license. It has never been questioned that a man does not drive a vehicle without a driver's license issued by the state in which he lives. Why should there be any question in licensing a man to operate a piece of radio equipment in that vehicle when all he has to know is the rules and regulations for using that piece of equipment. We all admit he should know it, and in most of our departments, it has been brought out here, it is already a part of our education to a new man. One other point: I think all of us have given a good many examinations or have trained men to take the examinations. The personal feeling of the man after he passed it and brings his license down and says, "Here she is; I got it; put her up on the wall." He has a certain pride in something he has done. I think that goes a long ways in our departments. And finally -- I think most of you run into the same thing every once in a while -- some of them tell me what a good identification card that little card they carry in their wallet is because it is issued by a governmental agency and not some local agency, for identification. I think those are some points that are well worth thinking about.

PRESIDENT GROENIER: Mr. Mulnane, do you have something further?

MR. MULNANE: I disagree absolutely with a statement made several minutes ago that every fixed station should have a first class operator. We have five first class operators operating 28 or 29 stations, and that certainly is sufficient. We are not in a position to put a first class operator in 28 or 29 stations. Most State Police Departments are not. The primary job that a state trooper is doing is a police job. The communications job, while it is important, is secondary to the police job. We cannot afford to hire 27 first class operators or 20 first class operators to operate stations. I think a proportion of the amount is sufficient.

PRESIDENT GROENIER: I think maybe there is a little misunderstanding. I don't believe it was the intent of the person who made that suggestion -- if I am wrong, you may correct me -- that in those cases that the actual operations should be in charge of the man, but the station is in charge somewhere along the line. You have a man who is in authority who does have a license and who has control over the station. It doesn't mean he is always at the microphone.

MR. MULNANE: No, not necessarily even at the microphone; even within a 5-mile radius of the microphone I don't see the need for it.

PRESIDENT GROENIER: I think that is also true.

MR. CROWDER: I don't know if the gentleman is referring to my statement or not. If so, I certainly didn't intend to imply that a first class operator had to be on duty at all times. I merely wanted to imply that all adjustments on the transmitter and all servicing which might affect this operation should be made by a first class man. I naturally realize that the state systems and also the case of small municipalities would be financially unable to support a man on duty at all times. However, I do think the radio is very important for police work and not secondary. It is no more secondary than a police officer's gun might be.

MR. MULNANE: FCC rules and regulations cover that point.

MR. WALKER: Mr. Chairman, I have to answer the man from Los Angeles. On this driver's license or permits or whatever they might be, that is very true; but at the same time, we always have a court full of men who violate the rules and regulations of driving. If a man wants to go out and violate the rules and regulations of the Commission, he will do it whether he has a license or not. The driver's licenses are violated all the time. As far as that driver is concerned, there aren't any laws that aren't violated; but I like to drive home the idea of policing your own outfit and keeping it operating according to the rules and regulations of the Commission. You can do more about those men yourself by seeing that they abide by it than if they had that license. I said that in our police school our men got the proper training necessary in order to operate the radio whether it was secrecy or whatever was necessary to do it. If your department doesn't give them that training, that is something I can't help, but we do that in our department. The regulations are laid down in their police manual as to how they can use that radio equipment, and it is drawn up along the same lines which conform with those rules and regulations of the Commission itself. So, getting back to the fact of whether it is going to be licensed or not, if it is going to be used wrong, they will use it wrong sometime. I don't care. Even a marriage license is used wrong sometimes. (Laughter) But if you on your own initiative watch your outfit and see that it is doing all right, I still can't see any reason for making the men get their license; because after they have it for a while, if you don't keep after them they violate it anyway. You have to keep checking on your men to see that they abide by the regulations.

MR. WHITING: I would like to answer that, too. After you have trained all of these men, do you ever catch any of them violating the regulations?

MR. WALKER: There isn't anybody who doesn't violate some law at some time.

MR. WHITING: That is fine; that is my argument, pure and simple. If the Commission holds a licensee of the station responsible, and as being responsible to the licensee I have to answer those citations that you say are violations; the same is true with your men. You will have to answer their citation for them because most of them couldn't answer them anyway; and therefore if you have them licensed you have a better control in that case than if they are not licensed. Maybe you have an ideal department. I hope you have; but I have never seen one because I haven't been very far and I haven't been around much. You are setting up an ideal situation, but that doesn't exist in your department or anybody else's.

MR. WALKER: I am not setting up the ideal situation. I am merely telling you if you will give them this license and let them go ahead and run it the way they want to, they will violate the regulations anyway; and the Commission can't be sitting on your doorstep every day to see that they operate according to regulations. They give you that license and expect you to live up to it. How many of your men can turn around and answer those questions that they did answer a while back and pass the examination now.

MR. WHITING: About the same number who could answer them after they had been to your school. (Laughter)

MR. WALKER: That is right; but still at the same time they have all got to have a license if they are going to be policemen, or they are no good in our department.

MR. WHITING: That is right.

MR. WALKER: We've got to have men in our department who can use the equipment, and our men are all over.

MR. WATSON: All I want to say is this: That I believe that you have a beautiful picture from Captain Batts in regard, not only to the operation, but from the political aspect of this thing. I can speak from my own experience. We employ civilian operators only at Oak Park because we found over a period of time that the results we get from those fellows is far superior to any policemen you could ever put in there. We give -- we gave -- both of them chances. We tried policemen for about three years, and we found out it didn't work out. Again, in regards to this license situation: If these fellows know they have to have a license they are not going to take as many chances as they are at the present time. We have tried them both ways for a period of time. Now, our Chief of Police is going to require that these fellows have some kind of a license because we found if they do not, it is not conducive to good operation. If they are required to have these licenses, they can't cuss over the radio and they can't tamper with the equipment, and they can't go on with a lot of promiscuous transmissions. Since the relaxation of that license requirement, some of the newer men (even though we have given them what we think is a fair schooling) they figure even if we do do it, there is nothing they can do about it anyhow. They might bawl us out, but that is the end of that; and that is why I believe licensing should be kept in effect.

MR. WALKER: Can't you suspend them for a period of time? We have done that.

MR. WATSON: Yes, but they will repeat. Another thing that looks a little confusing to me on this licensing situation is the fact that under the old basic regulations it states that a person must be licensed in order to operate the equipment, and now it looks to me as though the thing has backfired. Maybe I don't have the thing quite clear, but I wish somebody from the FCC would straighten that out for me.

PRESIDENT GROENIER: Mr. Watson, I might answer that in this way: They explain in their order their authority to do that. Maybe our next speaker will clear that up. If you have noticed the absence of any FCC representation in this discussion it is because the next speaker will be Mr. Wofford, and I know he is sitting back there with a lot of food for his next discussion. So that is the reason I haven't called on him. I think Mr. Lathrop is next.

MR. LATHROP: I think this: From what I have noticed around different departments, every police department is anxious to exert as many forms of control over its police officers as possible. In other words, our friend over here says you can suspend them for so many days and so forth and so on, but if you have an undesirable man who is trying to get into the department, especially under political pressure, lots of times the more forms of check and control you have over that man, the better. It so happens -- I hate to admit it -- but in our department we have one man who has flunked his radio-telephone license for three times. Unfortunately he is going up before the Police Board and he is going to be informed that he is no longer going to be a police officer. Now, here is the thing: you write up all these examinations and so forth; some of the men who formulate these examinations perhaps are politicians and some of our men aren't of the mental caliber that all of us would like our police officers to be, and I have to say that any man who cannot get a restricted radio-telephone license by fair means has no business walking the streets as a police officer. Furthermore, you may tell a man that it is this or that, and he will say, "Well, I didn't hear that police rule; nobody ever told me that." You can say, "But you wrote it in a federal exam; you passed the exam." It is there and you can always cite that back, such as erasures in log books and so forth. We always keep our log books in ink; and one day I came in and one of the boys that had one of these fountain pens that flows a little too continuously was working on the page with ink eradicator and rewriting it instead of blotting it and letting it go as it was. It was an accident, and I said to him, "Well, you know you musn't do that." Oh, gosh, he had forgotten it for the moment. He will never forget it again and I didn't have to haul him up before the Police Chief and make a horrible example about it either. Now, I think these exams are for the good of police radio. Some of you boys who are operating large departments and can have first and second class men at the control point and have men out in the cars, that is all very well and good if your police chiefs will back up your authority to control the men as far as radio is concerned. But I am saying this: For every one big station like that, there is a couple hundred small ones which have at the most 5 or 7 men in the department and they have radio and they are gumming up their transmissions as much as the next fellow. I think that at least a license does afford a means of having a good operation. At least we have the assurance of knowing that men know right from wrong. You talk about your police schools and so forth. When you get in a small town of five or eight thousand, and there isn't any police school, a radio license still acts as a uniform means of controlling radio communication; and I, for one, am willing to fight to the last to have that order rescinded. I do agree that the license itself should remain, and we have proposed in the past that the FCC alter the form of the restricted radio license. We have pled with them to issue a restricted radio license with an aeronautical endorsement, a marine endorsement, a police endorsement, and keep their Element One exam but streamline it so that if somobody comes up and wants a license for police use he gets a set of questions that are applicable to police. If he wants it for aeronautical use, his license should be applicable to aeronautical procedure. The same way for a marine license. And then they will have something. But I am not in favor of pulling out these restricted radio-telephone permits at all. If they do that, they might just as well pull out all your drivers' licenses and half a hundred other licenses. We have to have licenses as a system of control and certainly radio communication needs control, not only for police, but other types of service. Now, the railroads came in with a very logical proposition. Each one of these railroad men go through an exam and they are checked for safety in the railroads, and the railroads said, "Well, examinations are for the main part more rigid than your examinations that you are requiring." Why can't we encompass the same thing in our examination and include in it the fact that this man is licensed for railroad work or mobile work or what have you? It will be automatic and we won't have so much trouble with it. That was a good idea. Unfortunately, I can't see where it is going to pertain to taxicab drivers and so forth -- not that I am trying to make any degrading remarks about cab drivers, but the proposition comes up that we must have a measure of control. It seems that the measure of control is slipping out from under us on this thing. I have been in APCO for a good many years, and I have never heard any statements in the past that it was desirable to withdraw restricted radio-telephone operator permits. I don't think that APCO was ever guilty of formally making such a statement. We have always worked towards having those licenses made more applicable to police work. In other words, we didn't figure that the average "copper" had to know anything about an auto alarm or something like that, or some of these maritime rules.

PRESIDENT GROENIER: Thank you, Mr. Lathrop. Time is running out on us and unless there is something really important, I would like to ask that this discussion be closed. I would like to know now whether somebody wants to bring this to a vote at this time, or whether we want to hear from Mr. Wofford, and then vote on it after his talk. What is your opinion on that?

I am going to ask that we have a vote on it either now or after Mr. Wofford gets through.

MR. BRANDENBURG: Let's hear Mr. Wofford first.

PRESIDENT GROENIER: Is that agreeable?

MR. CROWDER: Just one short thing I would like to say: It has been brought out here that supervision in the department is a very desirable thing and the requirement for a license enables you to bring to your supervisory officers' attention the fact that certain rules or certain provisions must be used. At many times it might swing the balance of his thinking in your favor so that you can enable that supervisory officer to give his cooperation; whereas, otherwise he might say, "Oh, well, what is the difference? It is just a little thing." The other thing which I was thinking: I actually believe it is a violation of international treaty not to license operators. To the best of my belief, the United States is signatory to a treaty which provides for the licensing of operators in all countries.

PRESIDENT GROENIER: I wouldn't want to comment on the questioning of FCC's authority myself, so we will close this discussion now and without any more fanfare I want to introduce our next speaker. I know he will have some comments on this, and then we will ask for a vote on it. Mr. Wofford from the Federal Communications Commission. (Applause.)

MR. J. H. WOFFORD (Federal Communications Commission): Mr. President, gentlemen: All I want to say is I am glad to be here and see a lot of you fellows again. Also, I have met a lot of new ones who have common interests in this matter of police radio communications with me. I have enjoyed the discussions here at this session this morning and at the others here in the past two days. I also want to say for Mr. Nielsen, he regrets he was unable to be here; also for Commissioner Jett who was invited. It is unfortunate he cannot be with us at this occasion.

I suppose one of the biggest problems that groups like this are confronted with at the present time is the matter of frequency allocation. I know it is one of the big problems that I have. I have been very interested in the initiation of the allocations here in 1944, and it seems about 60 to 75 per cent of the work on these services has some relation to frequency allocation. The discussion just concluded here this morning on operating matters is also another subject receiving a lot of attention. I don't handle operating matters in the Commission. I am concerned primarily with the emergency radio servicing. It seems I have to handle everything else but operating matters. So I can't speak with any authority on operating matters.

However, I would like to leave with you some of the thoughts of the Commission in adopting this Order 133 which is the point of discussion. It seems to me that after due consideration, the Commission determined it could legally do that. I don't think that has been questioned; at least I am not going to question it. I haven't heard anyone else question it, so the Commission determined it may be desirable at this time to adopt this Order 133 for several reasons: (1) It decreases the federal regulation on this widespread use of two-way radio communication on frequencies above 25 megacycles; and (2) -- which is a major point -- the burden of issuing these restricted radio-telephone permits on the Commission is tremendous, and it is necessary that the Commission try to eliminate some of the work. We know the proposition is inadequate; we would like to do a bigger job and a better job. So, in order to do a better job on what absolutely must be done, we are trying to eliminate some of the things that possibly could be eliminated without any injury to the radio communication service. I think that was probably the primary consideration. Also, like most government agencies supposed to be accused of having a lot of unnecessary red tape, we are certainly trying to eliminate as much of it as possible.

There is another point as far as operators are concerned: If your department wants patrolmen who operate the radios in the police patrol cars licensed, all they have to do is get a license. If you want it a requirement of your department, okay; adopt it as a requirement. Why should you lean on the FCC to make it a requirement in your department? I think that is a thought that is worth considering. It is not the intention of any other organization to try to dictate to you how you have to operate in your department, so any requirements that you care to adopt in your own department, I would suggest you go ahead and adopt them. And if you want a first class man in every patrol car, well and good. That is up to you. There is an examination procedure set up by the Commission to issue the first class license; so if any of you want men in the department to have them, the licenses are there for you. (Applause) I think that is probably enough about the operating matter.

I have a few statements which I have taken from allocation reports and other allocation material which I would like to present to you gentlemen this morning. Some of this material has been presented before. However, I think that we should all be thoroughly familiar with some of the basic principles in frequency allocations. I have some statements here which I would like to read to you. Some of them have been taken from allocation portions I mentioned and some other sources; but I think they outline some of the basic principles on frequency allocations. In connection with allocations, I would like to repeat an explanation that I heard regarding a good allocation job. "It is recognized that everyone can't be satisfied with any one allocation plan. Therefore, a good allocation plan is one which has been defined as one which displeases everyone to the same degree." (Laughter) Well, on August 15th, 1944, the Federal Communications Commission issued an order scheduling a general frequency allocation hearing to start on September 28, 1944. The purpose of the hearing is outlined in the order as follows:

(1) Determine the present and future needs of various classes of non-governmental services for frequencies in the radio spectrum from 10 kilocycles to 30,000,000 kilocycles with the view of ultimately assigning bands of frequencies to such services.

(2) Secure for the public and the Commission a clear understanding of the conflicting problems which confront the industry and the regulatory body in the application of frequencies to the service of the public.

(3) Encourage experimentation along such lines as may be justified from the evidence presented at the hearing.

(4) Consider the allocation of frequencies to be proposed by the Radio Technical Planning Board.

(5) Consider the proposed allocation of the Inter-Department Radio Advisory Committee insofar as it pertains to allocations to non-governmental services; and to obtain full information as to what recommendations the Commission should make to the I.R.A.C. with respect to possible conflicts between the requirements of the non-governmental radio services and the proposed I.R.A.C. allocations to the Government radio services;

(6) Assist the Government in its preparation for future international conferences.

(7) Determine what recommendations, if any, the Commission should make to the Congress for the enactment of additional legislation on the matters covered by this order.

At the initial frequency allocation hearing which lasted from September 28 through November 2, 1944, 231 witnesses testified. A total of 4,559 pages of testimony was taken and 543 exhibits were received. Additional hearings and oral arguments on specific services or on specified portions of the spectrum have been scheduled since the initial hearing. The demand for frequency assignments in the radio spectrum far exceeded the supply. For example, in the 30 to 40 mc. band there are but 10 mc. of space. The various non-governmental radio services have indicated a requirement of 4.94 or a total of 16.7 mc. In general, the same situation of the demand exceeding the supply prevailed throughout the spectrum. Obviously, it was impossible for the Commission to grant all of the requests which were made. Adjustments were required, not only by the non-governmental services among themselves, but also between the non-governmental services and the governmental services. In some instances these adjustments involved allocating less space than was requested. In other instances, they involved assigning the service to a different portion of the spectrum from that requested. The general principles upon which the Commission based its solution of these problems are as follows:

In the first place, the Commission examined each request to determine whether wire lines were a practical substitute or if the service in question really required the use of radio. Obviously, with the severe shortage of frequencies, it would not be in the public interest to assign a portion of the spectrum to a service which could utilize wire lines instead. The Commission's determination was not limited to technical considerations of national policy. For example, while fixed point-to-point service between countries could be carried on by cable as well as by radio, the great disparity in costs between the two types of service and considerations of national policy clearly required the assignment at least at this time of frequencies for such fixed point-to-point service.

As a second principle, the Commission determined that not all radio services should be evaluated alike. Radio services which are necessary for safety of life and property obviously deserved more consideration than those services which are more in the nature of conveniences or luxuries.

Thirdly, the Commission was concerned with the total number of people who would probably receive benefits from the particular service. Where other factors were equal, the Commission attempted to meet the requests of those services which proposed to render benefits to large groups of the population rather than of those services which aid relatively small groups.

Fourth, and this applied particularly to proposed new services, the Commission undertook to determine whether such newer services met a substantial public need and what the likelihood was, if frequencies were granted, that the service could be established on a practical working basis. With the shortage of frequencies available, the Commission did not believe that it would be in the public interest to assign frequencies to a new service unless it could be shown that there would be public acceptability and use of the service.

The fifth principle related principally to consideration of the proper place in the spectrum for the service in question. There was much evidence introduced in the record -- some of it available for the first time -- concerning the radio wave propagation characteristics of the various portions of the spectrum. This evidence showed that operation on frequencies within certain regions of the radio spectrum was more suitable for some types of service than others. Certain frequencies should be more effectively used by those services where long range communication was necessary. Other frequencies were better suited for short range communication. In the case of some frequencies, the principal source of interference to a station on these frequencies would be caused by distant stations. All of these factors had to be evaluated so that the service could be assigned to that portion of the spectrum where it could render its best service.

The sixth principle also pertained to assignment of each service to the proper place in the spectrum. In determining the competing requests of two or more services for the same portion of the spectrum, when one or more of the services was already operating in that portion of the spectrum, the Commission gave careful consideration to the number of transmitters and receivers already in use, the investment of the industry and the public in equipment, and the cost and feasibility of converting the equipment for operation on different frequencies, as well as to the time required for an orderly change to the new frequencies.

The limited available spectrum space makes it mandatory that many services prepare to employ much stricter engineering standards in future operations, such as improved frequency stability, reduced harmonic and other spurious emissions, the use of directional antennas, where possible, etc. Most efficient use of the available spectrum space can be realized only by each station in all services employing the most improved techniques for the conservation of frequency space and by complete cooperation among various services. Improvement in transmitter and receiver performance is particularly important. For example, if the advantages of frequency modulation are to be obtained such as to warrant the required broader channels, it is essential that well-designed transmitters and receivers with the smallest amount of spurious emissions and a minimum of spurious responses be used by the licensees.

In the Commission's report of Allocations from 25,000 kilocycles to 30,000 megacycles, dated May 25, 1945, a total of 132 channels was allocated for use by police radio stations. These channels are intended for use primarily for communication to and from mobile police units. In addition, the 940 to 960 mc. band was allocated for Fixed and Experimental Broadcast Services. Frequencies in this band are intended to be used on a shared basis by broadcasting and low power fixed services such as police facsimile, control circuits, public service, automatic relays or repeaters, relay broadcast and broadcast studio-to-transmitter links.

Since the announcement of these allocations, a lot of attention has been focused on the 132 channels referred to. These police channels are placed in the bands in the spectrum as follows:

36 channels in the 30 to 40 megacycle band
24 channels in the 42 to 44 megacycle band
36 channels in the 72 to 76 megacycle band
36 channels in the 152 to 162 megacycle band.

In the Commission's proposed report dated January 15, 1945, and in the final report for the frequencies above 25 megacycles, dated May 25, 1945, it is indicated that the channels in the 30 to 40 megacycle region are intended to be used primarily by police stations operated by state and large county police departments, while the channels in the 75 and 156 megacycle bands are intended to be used only by municipal police departments covering the more limited areas. In this connection here is quoted a pertinent paragraph from the police radio service section of the final allocation report:

"A question was raised concerning a statement made in the Commission's proposed report to the effect that the expansion on the channels in the 25-44 megacycle region made available to the police would be limited to state and county police use. It was suggested that the Commission should not prevent the joint use of such channels by municipalities operating in the coordinated state police or county communication system. While the Commission is of the opinion that the expansion of these channels should be primarily for state and county police use, municipalities operating in the coordinated state police or county communication system may also use such frequencies." That is the end of the quoted paragraph.

The proposed plan for the use of the additional frequencies does not provide for an arbitrary shift of many stations; instead it is a long range plan based on a careful study of the most advanced technical information and radio wave propagation data.

Furthermore, you may be assured that this planning was done by engineers who are not only familiar with modern radio communication systems but who are also familiar with police radio systems and the manner in which they operate.

The crowded condition in the present 30 to 40 megacycle band is, of course, a matter of record. It is to be expected that with the rapid increase in the use of radio by other services that the interference will be extremely severe in the future. We know that the use of frequencies in this band at the present time exceeds by far the wildest dreams of those engineers who first planned assignments in this part of the spectrum. However, it is extremely important at this time that we look into the future and consider the additional services which have been allocated frequencies in the 30 to 40 megacycle band. It has been possible for a large number of stations to operate on the police channels in this band without serious interference in the past only because of the careful planning of the frequency allocation committees of the various police organizations such as the APCO Chapters, the E.S.P.R.L., M.M.P.R.A., Phila Met. Police Radio Lic. Assoc., and others, and because in many areas other services such as marine, relay press, aeronautical, motion picture, geological, provisional, experimental, and, in some areas forestry, stations have not been active. Let us add to this group the new general mobile service which includes trucks, busses, taxicabs, delivery vehicles and others, and considering the potentially large numbers of stations in some of these groups, try to determine how the police would get along attempting to operate on channels interspersed with, and adjacent to, those on which these "neighbors" operate. We must realize that the other licensees will in general operate in the same congested areas where we have one or more police departments.

From an engineering standpoint, it does not appear desirable to have the channels on which our police stations operate interspersed with other classes of stations operated by organizations who are not familiar with police operations and are not sympathetic to the problems that confront the police departments.

With some of the manufacturers producing equipment which will operate on adjacent channels in the 30 to 40 mc. band, it appears that there may be several advantages to a modified group arrangement for the police frequencies.

In general, with present availability of channels in the 156 megacycle band, the police frequency situation looks very encouraging. Operation of police radio stations on frequencies in this new band is not a forecast for the future. We have heard a lot of discussion which illustrates that in the last few days here. Operation of police stations on frequencies near 156 megacycles on a regular basis in the regular emergency service is an actual fact today; and applications for additional authorizations for stations on 156 megacycles are being received, and granted, daily by the Federal Communications Commission.

In recognition of this situation, consideration is being given to a more general grouping or block arrangement for the channels allocated to the various radio services. This principle has been carried out in recent proposals, publicly announced by the Commission. Reference is made specifically to the Public Notices issued on October 1, 1946, (98709), and October 21, 1946, (99168), which set forth the specific channels in the 30 to 40 mc. and 152 to 162 mc. bands allocated for police stations in blocks of frequencies.

Attention is invited to the provision for oral argument made in these notices. The oral argument is scheduled for December 16 and 17, at which time anyone having a direct interest in these matters will be afforded an opportunity to appear before the Commission and present testimony in support of, or in opposition to, the proposed channeling system. After the decision on the oral argument, it looks like the police and other services will have a definite allocation plan for their channels. It has been a long, rough road since the beginning of the allocation hearing in 1944, but now we can visualize a better, more reasonable and logical arrangement for frequency assignments for the postwar era.

I hope with that we can avoid some of the long drawn out discussions which we have on frequency allocation. Briefly, we have provided oral argument on the two days mentioned -- December 16th and December 17th. December 16th is set aside for the 30 to 40 megacycle band proposals; December 17th is set aside for the 152 megacycle. I hope that the police group can come to Washington and present a unified proposal for this service.

If we can, it will make the oral argument simpler and we can get it over with much quicker. The determination of the findings will be much simpler and we can put into effect much quicker the final allocations for these services. We have been trying to do this for months. It is very unfortunate, I think, that the hotel strike in Washington caused a postponement of the hearings scheduled on October 16th, but we are going to have them now. I hope the situation will be cleared up by December 16th. If it isn't, I am not sure that oral argument will not be posponed again. That is the only reason it was postponed, and it was regretted very much. I hoped that the oral argument and the finding would be over before I had to appear here in Buffalo before this group. It would have certainly made the questions which you are asking a lot easier to answer, and I could give you a much more definite and concrete answer on frequencies available.

There are a few other matters I think you fellows would be interested in. One of them is the new licensing procedures which the Commission has recently established. As you probably know, we have a new form -- Number 401-B -- which is used only by police, fire, and forestry radio station applicants. This form is designed specifically for police, fire, and forestry organizations who are interested in using radio communications. It is not used for any other purpose, and in designing this form we eliminated many of the questions which were not pertinent to this service, which had no bearing on the service, and which formerly didn't require answers. I have a few of those forms with me and I would like to lay them on the table here. I don't have enough to pass one around to each individual, but if you would like to see them I will have them all ready on the table at the end of this discussion and will be glad to answer any questions concerning the use of these new forms. Unfortunately, the printing job on this form was not too good. The print is a little bit fine. We tried to make the form as simple, as brief and as straight-forward as possible, and we did succeed in getting all the questions and items on one side of the sheet; but maybe we squeezed it a little bit too much and the printing is very fine, so we can put on our horn-rimmed spectacles and dig in.

Then, there is another little matter of the terminology used for these mobile units. As you probably know, for the past year we have been using the term "portable mobile" as a description of the type of station that you put in police patrol cars. We are changing that now to simply "mobile". I think "mobile" is descriptive and indicative of what the type of station is. Previously, the words "portable mobile" meant a station that could be installed in any vehicle and taken out of one vehicle and installed and operated in another. As long as the vehicle was owned or controlled by the licensee of the station, they would put it in any vehicle. The police department could put one in a patrol car, the police chief's car, the technician's car, the garbage wagon, wheelbarrow, or water truck, or anything. It can still be afforded the same opportunity of freedom of installation. These mobile units may be placed in any vehicle which is owned or controlled by the licensee, which it is in the case of a municipal police station. It is the city; not the police department. If you will read your licenses, you will find it is the city.

Another word about the applications. As I tried to indicate, that we have eliminated all questions which are not necessary, which are not pertinent to the service, so in preparing applications in the future and using this new form, I would like to urge that you study each question and give it consideration. Be sure that you can jot down the correct answer. There is not much space for the answer. We don't want much of an answer, but we want a few words to indicate exactly what type of station you want; how you are going to use the frequency, and other details which are necessary. We have eliminated everything that is not necessary, so we would like to have a complete answer, and I think those answers can be completed in the space provided on the form. This form provides for applications for a land station as well as the associated mobile unit, on one form. Previously, we have been using two forms for this purpose: the old 401 form, the 8-page yellow form which I am sure you are all familiar with; and, previously, we required two applications in duplicate -- one for the land station and one for the group mobile units. This new form provides for space to insert the land station description, equipment, and so forth, as well as mobile unit description and equipment and other details; so it requires only one application form. They still have to be in duplicate, however. I hope my term "land station" doesn't confuse you fellows. I know in discussing these matters, we used the term "fixed station". By international definition, a fixed station is one that communicates with other stations also permanently located at a fixed point. The stations operated in mobile services and installed at a permanent location at a fixed point are properly called land stations. A land station is one that carries only mobile communication service: that is a police station; and probably it is no handicap, but if we can all get together and use the terminology which is accepted and generally used, it will make all of our discussions a little bit easier, I think.

I have a note here on special temporary authorizations. I would bet that at some time in the past months large departments have come upon the occasion when they wanted an authorization to operate some unlicensed transmitter in a hurry. Well, such occasions I suppose cannot be avoided, but we continually get telegrams, telephone calls, and airmail letters from all over the country. "I want authorization to operate a transmitter at a certain location or at an unspecified location on a new Bell unit or something." We have a heck of a time determining what the applicant wants, the type of equipment, the frequency, the power, and all other details that must be put in an authorization for a station. If it is necessary -- if it is absolutely necessary -- that you request special temporary authorization, I would suggest you do so; but let's be sure it is absolutely necessary. In many occasions we have granted special temporary authorization for a period of 30 to 60 days and later found out that they needed an extension because they didn't have the equipment; and in granting STA, as we call them in the office, it requires about three or four times as much work as granting a routine application. We have to call a messenger or carry the thing around from department to department within the Commission to be sure that it gets through that day, and it is not as simple as someone in the office taking a form and putting it in the typewriter and filling out the details, and mailing it back to you immediately. Unfortunately, it is much more complicated than that. It has to go through the various departments of the Commission. Each representative of the department has to study it and understand it and know that it is right; so it is not too simple to grant an authorization in a hurry or otherwise. But we have a procedure set up for handling the routine applications, and when we get something special like this, it must be rushed through. It takes time and effort equivalent to acting on several of the routine applications, and many times we grant those STA's and find out later that nothing was accomplished by it. In other words, as I indicated, we get a request for an extension 30 or 60 days later stating that they were unable to get the equipment, which proved to us that they didn't use the STA. They did not use the authorization we broke our necks to grant, practically; and while we were acting on that one urgent request we could have granted a lot of other applications which would be beneficial to other licensees.

So let's hold to a minimum such requests for special licenses for special authorizations. We have the forms. I would suggest you apply to the FCC Inspection Office or at the Washington office and ask for a supply of these 401-B forms, and also the 403 forms which are used for following up the extension. You keep a supply on hand; and when you need an authorization, complete the form and send it in. You should know a few days in advance when you are going to need something special. The rules require that these applications for construction permits be filed 60 days before the contemplated construction. That gives us plenty of time to take proper action. In many cases they have to be referred to the Civil Aeronautics Administration for a study of the tower situation and I think you all appreciate the necessity for that. We refer these to the CAA because they are experts in the matter of air navigation, and we usually go along with their recommendation for a certain obstruction markings; and that is another point -- while we are on obstruction markings.

The FCC has its own specifications. Now, in order to make it more straight and simple, we drew up a set of obstruction marking specifications, and we made those a requirement with the authorization. That is, a description of the obstruction marking required; and those forms are issued as a part of the authorization. It is a condition of the authorization, and if the requirements are not fulfilled -- that is, in the construction permit stage, if the requirements of the obstruction markings of the tower are not fulfilled -- you haven't completed all the terms of your contract, and you are not eligible for a license. Furthermore, you have to swear to the application form for a license following construction, and I think we should observe that the form calls for a statement indicating that all the terms of the contract have been fulfilled. We find occasionally that someone overlooks some of the details. In getting the station authorizations, I think we should give consideration to each one of these little details and it will save a lot of trouble in the future.

There is one other subject -- the final thing -- the matter of call letter announcement. That has been a tough nut for us to crack. We have a requirement we have had for years of stations identifying themselves. It is necessary that stations identify themselves. The field division of the Commission requires it in their monitoring activities. If we are to prevent a state of chaos in the frequency allocation for the various services, we must have identification. That is the only procedure that we can use in enforcement. If the station does something wrong, we would like to know who it is, so we can call it to the attention of the licensee and get the matter corrected before it becomes a general practice. You fellows are interested in enforcement problems, or your departments are, in the same way we are. You require a license on an automobile and we require a license for a station. That station is used on the air and we would like to know which station operated on which frequency, and all the other matters of operating that can be determined only by knowing who the station is -- who operates it. It seems to me it is a simple matter of the announcement of your call letters at the end of a transmission or at the end of a series of transmissions. That is not unreasonable. You can put it in. The monitoring operators in the FCC monitoring stations are quick on the draw. They will recognize it. But let's put those call letters in at the end of these transmissions that you spread out more than ten minutes; in other words, if you have a transmission that is the only one during a 15 or 30 minute period, let's swing the call letters in there at the end of the transmission. That is the only time it is required. If it is a mobile unit, the same requirement exists. That may be unreasonable on the first thought; but if you give it full consideration, I think you will agree that a mobile unit is a complete radio station and, as such, must be identified. The announcement of those four little letters at the end of the transmission, when it is the only one for a period exceeding 15 minutes, I don't think is unreasonable. If you fellows do, I would like to discuss it with you. When a station is busy during the peak periods of traffic, then it is not necessary to announce call letters at the end of each transmission; instead, you announce them one each 15 minutes. I don't think it is unreasonable. The same course applies to the mobile unit: If you are having several transmissions to and from your mobile unit, when the transmissions are completed just give the call letters. It is not necessary to give them after each transmission during a series of transmissions. That will help us a lot and I am sure will help the police service a lot if we can observe these minor regulations.

We have a few proposals that we are working on that I hope will simplify matters in the police radio service. We hope to eliminate some of the paper work that is required to get these systems into operation, and it will be announced in the future some of the plans that we have. There is nothing drastic that is proposed, but we are trying to simplify everything and to eliminate all the unnecessary details of placing these stations in operation so far as getting all kinds of authorizations. If we announce something that doesn't seem quite reasonable or something which you think is too drastic, let's study it over; let's study all of the angles, all of the points; and if you are determined it is still wrong, we would like to hear from you. Get together on these points. That is one reason why they sent me out here to discuss these matters with you. I can take the comments back and we know how you feel. We would rather try to explain to you fellows.

I think that is all the information I have. Thank you very much.

PRESIDENT GROENIER: We certainly want to thank you, Mr. Wofford. I know time is running along, but I will explain a little later why we shouldn't be worried. I promised that we would bring this matter of Order 133 to a vote. Now, I want to keep that promise, and let's put it this way: Let's somebody move that our Resolutions Committee presents this body a resolution asking the Federal Communications Commission to rescind or modify Order 133, and then if it requires more discussion, we can have it at the time the resolution is presented.

MR. WALKER: Do we have to have a motion on that? Can't anybody bring that before the Resolutions Committee and have it brought up at the regular meeting?

PRESIDENT GROENIER: I would say, yes.

MR. WHITING: I will make that motion.

MR. CROWDER: I will second the motion.

PRESIDENT GROENIER: I can see no harm in having this vote now, and then if it is voted down, of course the Resolutions Committee won't act upon it.

MR. WALKER: I am going to table it for a year, anyway.

PRESIDENT GROENIER: If it is voted down, the Resolutions Committee just simply won't present it.

MR. WATSON: I would like to ask Mr. Wofford one question to clarify, as far as myself is concerned at least, and that is in regards to announcing the call letters of mobile units. What mobile units have call letters? Ninety-five per cent of the police cars in the country have a number.

PRESIDENT GROENIER: Do you want to answer that briefly, Mr. Wofford?

MR. WOFFORD: Well, your mobile units are authorized for operation. There must be a license or an authorization someplace in the license, an authorization which lists those mobile units, and you will find the call letter in there. I think in the case of most municipal police stations, it will be the same as the land station. That is authorized for your convenience. The call letters which are used at your land station are the same ones used for your mobile units.

MR. WATSON: Most of them as a general practice just give the car number.

MR. WOFFORD: You can add the car letter to the call letters. We find car No. 39 all over the country.

MR. LATHROP: Am I to understand, Mr. Wofford, that simply the statement "WPDQ 13" will be recognized with the Commission as identifying unit 13 licensed to station WPDQ?

MR. WOFFORD: Yes, sir.

MR. LATHROP: That will be recognized?

MR. WOFFORD: Yes, sir. "WPDQ" is all we require.

MR. LATHROP: I mean, if the car announces "WPDQ 13", it will be accepted as not mutilating the call letter or something like that?

MR. WOFFORD: That is perfectly all right. We would like to have it.

PRESIDENT GROENIER: I think that discussion is a little foreign to the motion before the house.

MR. WALKER: The motion has so been stated. Inasmuch as the department can so regulate the licensing of men if they so desire, and due to the fact that the FCC would still issue to any person a radio-telephone permit for any class of license upon passing their requirements for said class license, and as their Order 133 has so recently been enacted into law and has not been given a good chance to get into operation, as the FCC has seen fit on their own action to put into effect Rule 133, I hereby move to table the matter until the next annual convention of the APCO; also, that a national committee be so appointed from the APCO group to make a complete and thorough study as to the effect on police departments of Rule 133 for the following year; make a thorough and complete report at the next annual meeting of the national APCO with recommendations and actions taken by the national group at that time.

PRESIDENT GROENIER: Now we have a motion to table our previous motion.

MR. KOCH: I second the motion.

PRESIDENT GROENIER: I think that is in order. Are you ready for the question? Get this straight. All those in favor of tabling Mr. Whiting's motion -- now, do you all know what you are voting on?

(The group indicated they did not.)

PRESIDENT GROENIER: The other motion has been seconded, but we have a motion to table that motion and I believe that is in order. I will so rule until it is proven otherwise. All those in favor of ....

MR. WHITING: I would like to hear that first motion, so they have that in mind too.

MR. KADOW: The first motion must be acted upon. I don't believe you can table the first motion, if I am correct as to parliamentary procedure.

PRESIDENT GROENIER: I think it is rather immaterial here. The essence of the thing is do we or do we not want to request the Commission to rescind or modify Order 133. I don't think it is really necessary to get into a legal difficulty, and I think it would be much simpler and I think you would gain the same number of votes, Mr. Walker, if you would withdraw your motion at this time. Not being a lawyer, I am not going into the technicalities of parliamentary procedure.

MR. WALKER: Let's vote on it according to the gentlemen's interpretation of the rules of procedure back here. Vote on the original motion. He says it is so, so it is all right with me.

PRESIDENT GROENIER: Thank you.

MR. WALKER: I am not withdrawing my motion, but I am going according to what he says.

PRESIDENT GROENIER: That is right.

MR. WALKER: I am not acquainted with legal procedure.

PRESIDENT GROENIER: I am not either. You've got me on the spot. I am hired as a radio engineer and not a lawyer. So then we have a motion as to whether or not we should ask the Resolutions Committee to present a resolution asking the Federal Communications Commission to rescind or modify Order 133. All those in favor of that motion signify by saying "Aye". All those opposed, "No".

(An equal number of votes were cast for both sides.)

MR. WALKER: Let's have a standing vote.

PRESIDENT GROENIER: We will have to. All those in favor just raise your hands. To the contrary. All right. Practically fifty-fifty. I give up. Let's see how we can get out of this. I am afraid it is going to require a ballot. I didn't feel that was so close. I don't feel in a position to rule on it. We will either have to count them or have a ballot. I would rather not take the time at this time to have a ballot if we could find another way out of it.

MR. WALKER: I think if we can stand we can count them.

PRESIDENT GROENIER: All right, let's rise. The question is: "Do you or do you not want to ask FCC to rescind or modify their Order 133"? At this time that is briefly what it is, so all those...

MR. WHITING: That wasn't the motion. The motion was that we request the Resolutions Committee to make a resolution on that. They are to decide on it. It is up to them as to what kind of a resolution they bring in.

PRESIDENT GROENIER: The motion is: "Whether or not we want the Resolutions Committee to bring in that resolution." All those in favor of this please rise and I will try and count them.

If you vote "Yes" then you are in favor of asking the Commission to withdraw their order. That is what you are voting on. Is that clearer?

MR. McLAUGHLIN: I don't see where this organization can go and ask the FCC to legislate against a policeman riding in a squad car and letting a taxicab driver and a truck driver operate his without any permit. You are asking the FCC to legislate against the policemen; and as Mr. Wofford said, if the police departments wish to carry on this licensing procedure they will furnish them with the permit. So I don't see where this should be voted on at all.

PRESIDENT GROENIER: Well, I think we have a right to vote, Mr. McLaughlin. That is my opinion. All those in favor of this motion please rise and I will try to count them. All right. Many of you have changed your mind; so the motion has failed to carry; and that, as far as I am concerned and unless somebody else brings it up, will close the discussion for this conference on Order 133.

MR. WALKER: I would like to make a motion now. I withdraw my tabling of the thing; but if you will notice the motion, I left the matter open so that the national committee could appoint a group of men to study the effects of Order 133 on police departments and make a report at the next annual convention.

PRESIDENT GROENIER: I would like to ask you to bring that up at the next afternoon's meeting which called for the order of new business. I think we can call that new business. We are running a little behind our schedule, which isn't unusual, and in this case it is not harmful to our program because we have a little change, and that is for the afternoon program.

As you all know, Captain Leonard will not be able to be with us; but we are having the complete House of Magic show. Now, this House of Magic show will require considerably more time than has been allocated to it on the program. The General Electric Company has brought their complete House of Magic show here, the one that has toured the country. There is over a million dollars worth of equipment involved, and to those of us that don't live in Washington, a million dollars is still a hell of a lot of money. (Laughter) So we are going on now and complete our morning program.

MR. WHITING: Where is that to be held?

PRESIDENT GROENIER: Right here; and it is going to take considerable time to set it up, so it is fortunate that we are not having the speaker before the House of Magic show goes on.

MR. WALKER: That does -- does that include the ladies, too?

PRESIDENT GROENIER: Yes, I was going to bring that out. It is very important that the ladies be here. I have heard from those who have seen the show that it is very interesting to the ladies; so I don't know, maybe there are times when the curtains will be drawn and we will be glad the ladies are here.

I just wanted to make that complete so you wouldn't be looking at your watches and feel uneasy as to why we are running behind schedule. I want to go on now at this time and introduce a man whom we have all been very anxious to hear from, and that is Mr. Ryan, representing the American Telephone and Telegraph Company. Mr. Ryan. (Applause)

MR. RYAN: Mr. Chairman and gentlemen: I have really been enjoying this meeting. This discussion of the operator problem took me back to a day I had really forgotten and that was when I issued operators' permits and licenses. For a very short time in about the beginning of World War I, I was a radio inspector in the old Department of Commerce in the Seattle district. I recall an incident when there was some mention here of the licensing problem this morning and I am just going to take a minute and tell you about it.

In those days, in addition to the present categories of licenses there was a thing known as a cargo grade license, and it was for use on shipboard and on freighters for such situations where a member of the crew that wasn't strictly a radio man was required to stand a radio trick. It was principally used -- perhaps entirely -- by foreign ships. In those days foreign people (people other than United States citizens) could hold United States' licenses. In Seattle we had many applicants of the Japanese race. Of course a great many Japanese ships were operating there and it was quite usual to have Japanese come in. We always knew of course what they wanted and handed them one of these cargo grade blanks. I guess their country didn't have that grade of license, and for some reason we issued those things to the Japanese.

My clerk, a man with years of experience in Washington of course, assisted in handling the applications for this grade of license. He would hand the blank out and send the Jap down, and he would fill out the answers to the questions, and there was also a code test. I think they only had to pass ten words a minute, or maybe it was something below that; I don't really recall. Well, on one occasion I was out inspecting equipment on board a ship. I came back, and there was a Jap seated at the table and he seemed not to be doing too well, and Mr. Moyer, the clerk, said, "Matsui, here, is having some difficulty but I think he is going to get along all right now. I helped him a little with the questions." (Laughter) And there was one question which I understood bothered him a good deal which was the question, "What ship are you on", and they had an awful time getting an answer to that. But some way or other they got one, and about the time I got there it was time for the code test; so we handed the phones to the applicant and we had an omnigraph transmitter and we gave him the works. Well, the perspiration burst out on the man. He was in an awful state and finally gave it up. I thought there must be something unusual here so I questioned him a little. Of course we had a good deal of language difficulty. Well, it turned out - to make matters short - he wanted a marriage license. (Laughter)

So when somebody this morning mentioned "marriage license", that just clicked and I remembered it.

Well, gentlemen, in talks like this I think it is now rather fashionable to tell about how during the war there was developed new techniques and how those are beginning to be applicable in peace time and so on and so forth. I think, though, when we are talking about communications in moving vehicles, we have got to go back a good deal further than that. After all, I think police departments of this country have done more to develop communications with moving vehicles, mobile communication, than any other group. Certainly, there are men in this group who possibly have contributed more to the solution of that problem and getting other people working on it too than anybody else, and when World War II came along, the result was that from the foundation of the work that had been done -- the pioneering that you had done -- why, two-way radio-telephone communication was an available technique. Before the novelty was off of broadcasting, you were using 2 megacycles for one-way transmission to vehicles; and that was followed up not much later with the use of 30 to 40 megacycle range, or in that general range of frequencies, for two-way; and then that was with amplitude modulation. You were early to recognize the value of FM in this service. I think probably you were the first to recognize it for other than broadcasting purposes and to apply it and you moved up in frequency and the work goes on. Everybody that is using two-way radio or using mobile communications I think is indebted to the police and to you men here for that pioneering work and the continuing work that is being done in the field.

Now, in the telephone business, while you were applying these things so rapidly to your job, of course we were looking to what we could use these various techniques for to expand the scope and improve telephone service. In the 2 megacycle field, when you were developing it for police purposes, we were looking to it ourselves for its place in the telephone business, and it found a place in providing two-way communication, mobile communication, with ships, and we have developed that as rapidly as possible; and there are now, I think, approximately 15 locations around the seaboard, the Atlantic Coast, the Gulf, and the Pacific Coast, where the Bell System of the telephone companies have the facilities for two-way coastal harbor telephone service. That service is partly used. It is used by, oh, between three and four thousand vessels. There are all kinds of vessels. There are pilot boats, there are tugs and tankers and yachts and launches, and there are ferries and just every imaginable type of watern-borne craft. In 1945 those stations and two others that Bell System had on the lakes handled a total of 160,000 telephone messages. Of course, those messages went into the general telephone network, and the people on the vessels that operated (I don't mean radio operators) but those who used the service on the vessels, talked to telephone subscribers anywhere they needed to and could be reached by the land network of telephone facilities. This year the traffic is even heavier. In the first eight months there were about 134,000 messages handled. There is another application of 2 megacycle technique in the Bell System, and there that is in connection with portable equipment for use in repairing telephone service during emergencies. During disaster or floods or any other kind of disaster that may interrupt the wire facilities, there are out in the hands of the operating companies some 100 portable 50-watt two-way, 2 megacycle equipment which have been very effectively used in a great many cases to provide telephone service temporarily where otherwise it would have been interrupted. That is, of course, one form of emergency communication.

The Bell System has had experience too with mobile emergency communication, and the New York Company established (I think about six years ago) the mobile service in New York City for reaching the vehicles in the cities employing frequencies in the 30 to 40 megacycle range. A similar service was established a little later in Boston by the New England Telephone Company employing FM. Now, those facilities of course were subject to the emergency limitations or limitations of special emergency service, limitations as to the nature of the messages that were permitted. They had to be genuine emergency messages and limitations as to those that could use the service - only people that were qualified to establish those types of facilities themselves if they care to, were permitted to use this type of service. Now, of course under such limitations the telephone service could not generally be extended to mobile units. Well, as you know, one of the outcomes of the hearings that Mr. Wofford has told you about, the assignment of a small number of allocations, a small number of frequencies, for the development of general mobile telephone service and which the availability of those frequencies the telephone companies have been engaged in actively developing their possibilities for the extension of telephone services, as you generally know it, to mobile units; so that the people in motor vehicles, small water craft, or what not, could communicate with other telephone subscribers.

At your meeting in Toledo two years ago, I think Dr. Austin Bailey told you something of our plans as they had been developed and worked over with many of you in RTPP, as they have been presented to the Commission, and all I want to do today is just very briefly give you a progress report of where we stand in the job of making those facilities available.

The facilities are of two types in a way: the urban facilities operating in the 152 to 162 megacycle range, and the highway facilities operating in the 30 to 40 megacycle range. In progress on urban, we stand something like this: there are facilities now completed in 22 cities in the country, and 9 of those are already in the experimental service and under commercial conditions; that is, while they are experimental stations, the Commission has recognized the need of making the experiment a broad scale one to determine the public need in use of this type of service, and they permitted it to be offered on a commercial basis; that is, for regular charges. There are similar facilities being established, currently under construction, in 24 more cities. In many other cities they are under various stages of planning. The cities where these facilities are located or being located are across the length and breadth of the land from Boston to Los Angeles, Miami to Seattle. The introduction of this urban mobile service in metropolitan areas has been very well received. It immediately finds a great public demand and it is used by a large number of different types of organizations. Among those organizations, the different business activities, there are ambulance operators, burglar alarm companies, contractors, refrigeration service, bus companies, newspapers, electric, gas and water utilities, fuel oil distributors, and so on. The police also have made some limited use of this service, this type of facility. Technically, I won't go into great detail. It is a familiar pattern to most of you, I think. Generally, the 250-watt radio transmitting station, FM, as I said, located with its transmitting antenna on a high building, or rather on a high point, so we get substantially line of sight transmission over the area to be served, and then a number of receivers located in such locations that the cars will not have to talk back necessarily the whole distance to the land station. These receiver sites are selected to be in as quiet locations as possible, and they, with the transmitter, are connected together with the traffic telephone switchboard through a terminal arrangement which makes available to the traffic operator the usual type of telephone facilities. In other words, the mobile service operator can handle this service just about the same as any other telephone operator handles a circuit.

Highway facilities differ principally from the urban in the frequency employed. They are in the 30 to 44 megacycle range. Where the Commission made the allocation for that type of use, as the name indicates, they are primarily for use in inter-city routes for communicating with vehicles along those routes. In some cases they also will serve boats along the waterways that are near the routes; in addition, in smaller communities along the routes where the establishment of urban facilities is not justified but by the amount of traffic available, they will be served, and it is planned to serve them through the highway facilities. The establishment of highway type of service is going forward. More than 100 stations are definitely scheduled. Among the first routes to be served is the Chicago-St. Louis route; the New York-Boston route; and the California route from San Diego to Los Angeles; and from Cincinnati to Cleveland by way of Columbus. Another route is reaching Buffalo here from New York by way of Albany. The equipments employed in the highway service are transmitting equipments; some of them 250-watt power, others only 50-watt, depending on the terrain and the general situation. The spacing of the stations varies somewhat. In extreme cases there are stations over 100 miles apart, and it is planned -- and in other cases they are close together as 25 miles. Now, it is planned initially to permit the users of the service to get the greatest mobility and the greatest use out of it with the presently available single frequency mobile equipment. All of these stations are being placed on the same pair of frequencies, both in the urban and the highway. It is duplex with transmission on one frequency and reception on another; and the same pair of transmitting-receiving frequencies in the highway are initially being employed throughout the Country.

Now, of course, you men know and your experience will show the magnitude of the long range interference that is experienced and that is present; and it may be that it will be necessary to zone those frequencies to minimize that and also to minimize inter-station, adjacent station, and occurrence stations. Some changes in the assignment plan may very well be necessary. Only one of the highway stations is at present in regular operation under commercial conditions. That is one at Green Bay, Wisconsin. A considerable number are under test at the present time in the Chicago-St. Louis route and in other locations. With the increasing use of radio in the Bell System for various purposes, there were a great many experienced in that sort of thing among the operating companies; nevertheless, in going into the mobile communications on the scale that we are, training schools were held. Selected groups of engineers were brought to New York, and there were three groups of them in all. They were given a special course which would enable them to go ahead with the establishment of these facilities most effectively; likewise, of course, a course was run for plant men of the associated companies. Now, not all mobile service needs can be filled by common carrier type of telephone service. I mean by that that not all the needs can be met by the message type of common carrier type of service; that is, the ordinary kind of service which serves a variety of subscribers or customers where you connect them through the message telephone network, switching them, as we do, to ordinary telephone calls. There are people that have specialized needs and have enough of it to make it desirable to have facilities set aside for their purposes alone -- and certainly the police generally fall in that category. I think, in fact, there has already been some use of the message type facility by police. I think, generally speaking, it is not the candidate for the major job of the police. I think it will meet certain odd jobs in certain marginal situations and what not in your work; but generally the police require certain facilities of their own; that is, facilities that are available for their exclusive use and not shared with anyone else.

The Bell Company, having the trained personnel around the country where they can, generally will make facilities of that sort available to organization's that have need for them. We don't want to try and "sell" (if you say that) somebody a message service that doesn't want it. They ought to have the kind of service they need, having available the trained personnel, and sometimes in being able to locate the plant for a private type of service (to carry over our wire terminology)...being able to locate the radio plant for exclusive service for some organization along with the highway or urban facilities in the same buildings, and the same group of people taking care of them, may effect substantial economies. I might just say that any private line type of radio facilities, as we call them, would be on the frequencies allocated for the type of user.

For instance, if a pipe line company or power company or police organization wanted to have the telephone company provide facilities for their use exclusively, why I would expect they would be the licensees and they would be on the frequencies allocated for that type user for their specific use and not on the general mobile frequencies available for miscellaneous use. Most of what I have had to say has had to do with mobile communication. Of course, we we have used radio for many years for other things. I don't know just how far back our experimental work goes; certainly over 30 years in the field of radio. But our actual commercial day-in and day-out use dated back to 1920 when the first direct telephone service was provided to Catalina Island off the California Coast, and they are employing frequencies in what is now the standard broadcast band. Of course, our overseas field for service to connect telephones in this country with people of other nations of the world is largely radio. In fact, entirely so except for Canada and Cuba which are reached by wire facilities. The development of these point-to-point facilities has been as some of the speakers have indicated before about radio: right along in upward movement in frequency.

The first overseas service started around 60 kilocycles, and frequencies over 20 megacycles are now used. The first point-to-point domestic service to serve islands, as I say, was in the broadcast bands, maybe 800 kilocycles, and now facilities of that sort which are used in several places to serve islands are moved up -- some of them have had a range of 152-162; others to the microwave range in the neighborhood of 5,000 megacycles.

The Bell System has systems of the pulse time modulation type operating to serve Catalina Island. Now, in addition to wire facilities there are capable of reaching the island, there is an 8-channel multiplex type of radio operating at approximately 5,000 megacycles. Similar facilities operate to reach Nantucket Island from Cape Cod. We are using microwave equipment, the 4,000 megacycle range for telephone and for television transmission purposes for transmission of programs with television, programs for broadcast. A recent example, or present example, is the picking up of the football games at West Point and transmitting them down to New York. The New York Telephone Company does that with a microwave system with one relay, and they deliver the program that NBC gives them at

West Point back to NBC in New York for broadcasts. There is just almost limitless fascinating development going on of these uses. The development of broadband relay systems for inter-city purposes are the first general trials of what is to be the New York-Boston route, and the equipment for that is undergoing a test. Now, the facilities will be in operation early next year on an experimental basis, but I think you can say this: that coming back to mobile type of communication, that in a way in no other field are the horizons lifted as much by the use of radio. After all, only radio can be used to communicate with moving vehicles or ships and airplanes too, and there it is being used to extend the scope of telephone service, as you know, to vehicles. (Applause)

PRESIDENT GROENIER: Thank you, Mr. Ryan. I know there are a lot of questions that we would like to ask Mr. Ryan. If there are any questions that are worthwhile and you want to take the time for them, we would be glad to hear them.

MR. WALKER: I would just like to ask Mr. Ryan one question: To what extent does the AT&T or the Associated Bell Companies expect to go into competition with the police radio system? (Laughter) In other words, what I mean is, we have a system which is already established and has been in use for some time. Do you expect to come in and offer the city your Bell facilities on that basis or are you going to limit your operations to small departments? I think we would all be interested in that.

MR. RYAN: To be perfectly frank, we are not in the habit of limiting our business to small customers. In fact, we have to serve everybody on the same basis; but I haven't thought as what the Bell Company is doing as being competitive with anybody. The situation regarding radio communication seems to me is just about the same as the wire situation. After all, we in the telephone business regard radio as just another tool, another type of transmission, one that we use for these jobs where it fits the best. About all I can say is that if we are able to do a job, have the facilities and know how and the personnel, and the customers want it, why the Bell Companies will furnish it. Now, it is available to them and it is the choice of the customers as always, what he used.

PRESIDENT GROENIER: Thank you, Mr. Ryan.

MR. SHIRK: Mr. Ryan, I would like to know if you could tell us something about the cost to, say, the single unit subscriber and to the non-shared subscribers.

MR. RYAN: I don't know as I understand your question.

MR. SHIRK: How much is it going to cost to send a message to inter-urban mobile users? How much is it going to cost the small non-shared user, the small police department and the large police department, the state police organizations?

MR. RYAN: Well, answering the second question first, I don't think that any figures could be given on a police or individual job for any organization, power or what not, without making a detailed study of the requirements. They vary so much that anything else would be meaningless. Now, answering the first part of the question as to the cost of it, of a service to the individual user. With equipment in his car, the message rate varies for local service from 30 to 40 cents in the city for an individual 3-minute message. Now, in addition to that there is a rental charge which is for the equipment, if there is a rental charge; and also there is a guarantee for so much a month. The guarantee is $7 a month per vehicle for the general service. In addition, there is a dispatch rate for fleet users, and the entire rate schedule is rather complicated thing to discuss, but does that give you a general idea of what you wanted?

MR. SHIRK: Thank you.

MR. McFARLANE: Mr. Ryan, did I understand you to say that when the telephone company takes over a police department, they take over the frequency of that police department for their use? Is that right?

MR. RYAN: I did not have the intention of conveying the impression that the telephone company will take over any police department. What I think you are asking is: If the Bell System furnishes what we call private line type of service for the police department, what frequency will it be on? Will it be on the police frequency? And I say, yes. In other words, all there is to that is that if the police department or any other department wanted to obtain the services of the Bell System, they would rent the equipment from the Bell System and employ the Bell System to maintain it rather than buy it and set up their own organization to maintain it. And I think it is just a question of whether you rent or whether you own. Now, you have complete control of it and you will be the licensee with the FCC, and we would be responsible for the operation of it.

MR. McFARLANE: Who would be responsible? The chief of police, you mean, in some small, say city or town that had no radio men that hired your service?

MR. RYAN: The responsibility of the police organization would in no way differ insofar as the operations are concerned, whether they got it from the telephone company or they owned it. Your responsibility, the municipality or whatever it is, his responsibility is as of the licensee to the FCC, and I think you would have exactly the same responsibility. It would just be a question of whether you in applying the principle of whether you said you owned the equipment, or you said, "No, I don't; the equipment is owned by so and so" and extended the control of his equipment to us under contract.

MR. McFARLANE: But the fact would remain that any -- not arguments -- but any questions to be settled on interference with that particular department in that respect would not be settled with the chief of police; it would be settled by a member of the telephone company as the engineers of that particular department.

MR. RYAN: No, you would have to settle your own problems that come up. Now, you would be able to call on the telephone company for any assistance that you wanted; just like you own your own station, you can employ a consulting engineer or anybody you care to for advice and technical assistance, but the responsibility as I see it is not one that would be changed by employing the telephone company. Now, of course you do get their skill and any help that they can give you, but the responsibility would still be yours. I don't think that is something you can delegate. Mr. Wofford would better be able to answer that.

MR. WALKER: Mr. Ryan, the General Electric Company, or Link, or anybody else would also lease that equipment the same as you would. If the city saw fit to lease it from them as well as from the telephone company, would that work the same way within a private company?

MR. RYAN: I think the situation now is, several of the companies are leasing equipment; and so far, while some of the Bell companies have agreed to leases, we haven't yet put any system in operation. It is not a new thought at all in the marine field, for example, where telegraph companies lease equipment for shipboard use from time immemorial, where the operator might have been one of theirs or he might have been one of the ship's. There have been all sorts of arrangements, but the licensee has to be responsible for it. I think in some cases where the radio company were the licensees but not all cases; the ship owners were in some cases.

MR. MULNANE: If a state were to use the telephone company's radio facilities exclusively, would they be charged on a message basis or on a monthly rental plan?

MR. RYAN: Well, it would be on a rental plan.

MR. MULNANE: Without any message basis?

MR. RYAN: Without any message basis, if the facilities are exclusively available.

MR. MULNANE: And in addition --

MR. RYAN: ---to the police.

MR. MULNANE: In addition to that service, would they be connected with your wire facilities?

MR. RYAN: No, not with the general message telephone work. That hasn't ordinarily been a thing needed. I think it is done for emergency purposes in some cases, but the circuit would terminate just where you had terminated if the equipment was operated by the police, and of course, wire facilities of the telephone company would be employed, to extend, for entrance circuits to transmitters and receivers.

MR. MULNANE: Not to talk with the system itself.

MR. RYAN: No. You couldn't go on the air and pick up a phone and call a car in the police system. I don't think that is something that you generally need.

MR. EMMONS: There have been times in the past when telephone operators and the maintenance men in the telephone offices have had labor disputes and have, shall I say, walked out.

MR. RYAN: "Work stoppages" is what they talk about. (Laughter)

MR. EMMONS: "Work stoppages" is a good term, I believe, because that would indicate to me it would be a complete stop, and that would tie up the police department. As the picture appears to me now, I don't see that very much provision can be made to protect the emergency user, a police department, under circumstances like that.

MR. RYAN: The thing that you are concerned with no doubt is the maintenance personnel who would keep equipment in order.

MR. EMMONS: That is right. I don't refer to the operating personnel because they are in the police department and it is very unusual for a police department to strike. (Laughter).

MR. RYAN: I would say, first, on that: Of course, in any difficulty of that sort the telephone companies do their utmost to keep the necessary emergency type of facilities operating; and, second, that a great many of you men have had considerable experience with the use of telephone facilities, teletype facilities, furnished by the telephone companies, and telephone facilities, and you can judge for yourself the greater liability and dependability from that score.

MR. EMMONS: I can draw from that one little experience that we had in Ohio. A telephone company in one of the cities of Ohio (I should say "town". It wasn't a very large place as the people in Buffalo understand it) they struck, and it was necessary to make several calls concerning the installation of our own owned radio station in this town. We were unable to get the calls through, even though it was an emergency service. Now, under those circumstances I question just how well the emergency services would be protected in case of labor stoppages on the telephone company's part.

MR. RYAN: All I will say is they will do their best. It may not always be good enough, but that is the answer. That is one of the factors which you will have to consider when you are deciding whether you want to use the service. We think our record is pretty good, and we certainly think you know the Bell System policy which is widely advertised, a policy of doing what is right for the employee and what is right for the user and what is right to the stockholders; and we think our policy in the long run will give us about a minimum amount of difficulty.

MR. SEARLE: I don't want to ask any questions. I just want to say that I will be happy to answer any if anybody wants to know the thing in detail because the State of New York has just entered into a contract with the New York Telephone Company to do a lot of these things. If anybody is interested, it would be my very great pleasure to tell them why we did it and the details concerning all particular contracts.

PRESIDENT GROENIER: Thank you, Mr. Searle, and I would like to make arrangements to schedule a little explanation from you on tomorrow's program, with your permission.

MR. SEARLE: Well, I don't know that it will be necessary to discuss it that way. If you feel that way about it, I would be very glad to do it. It is something that somebody or other is connecting a lot of mystery to, and really there isn't any at all because we have leased equipment from the General Electric Company since 1931, and our experience was so satisfactory we thought it might be a good thing to do that sort of thing again; because as my friend John Mulnane pointed out very ably, we are primarily engaged in doing police work. Many other things come into it, such as fingerprinting and ballistics; but primarily the job is police work, and radio and communications are all things which go to help us do that job better; and as I say, our experience has been so well and so good with the teletype and all these other things that that is about the reason. That is about all I would have to say tomorrow. Many of these people are thinking about details which are pretty hard to discuss in open meetings. I would be glad to talk to them personally. However, I will do it if you so desire.

PRESIDENT GROENIER: Thank you, and I would rather you be here and lead a little discussion on the matter, a short one, because we are going to be crowded tomorrow also. Mr. Wagner.

MR. WAGNER: We just entered into a contract with the Bell Company of Pennsylvania, and I will second what Mr. Searle said.

PRESIDENT GROENIER: Thank you. We may invite you up here also. I think the reason that---- I know you fellows know that I am going to have something to say about it myself tomorrow. It is a very, very vital issue; the most vital issue that has ever confronted us and I do want that brought out tomorrow when we are going to have some time to do it.

Our time has run along. It is 1:15 and I am going to ask all of you to be very prompt by returning to this room at 2:30 with the ladies. Now, one more announcement, and that is: our official photographer has requested that all Chapter presidents come up here to have their picture taken right now; so we will recess until 2:30 sharp.

(At 1:15 meeting adjourned until 2:30 for House of Magic show.)

WEDNESDAY MORNING
October 30, 1946

PRESIDENT GROENIER: The first report we will have which is required by our Constitution, and furthermore I know we are all going to want to hear, and that is from our Bulletin Editor, Neal Jackson. (Applause)

MR. JACKSON: Thank you. Mr. President, members of APCO:

Just about a year ago I was called upon to take over the job of Bulletin Editor. Our friend Captain Wherritt had made his final resignation. He left our group to go into another field. It was rather sudden; and I was asked to carry on the job rather as a surprise and I accepted, and I hope that what has been done meets with your approval. I realize now the job that Captain Wherritt had. I thought a great deal of Cap, and I appreciate what he did do, but now I know why he resigned every year. If it wasn't for our secretary here, I don't know what I would do. He is my backbone and kind of keeps things moving along.

With the transfer of the Bulletin to Detroit, our expenses mounted more than double; and although Cap Wherritt was able to not only meet the expenses - he made a profit (I shouldn't say a profit --but he had a fund for keeping things moving)....that was not the case in Detroit. I have gone through two thousand dollars of your money. I am not going to make any excuses. I made my report to the Executive Committee, and they gave me a vote of confidence; and if you so choose, if I continue with this job I will work in accordance with their recommendations and will keep the Bulletin alive, provided that you gentlemen give some assistance. I don't want to go into too many details here, and there is a lot of work. I think for the purpose of being official, I will present the actual deficit as of September 30, 1946, as being....excuse me just a minute. My, I had a deficit figure here. (Examining file) Well, I am sorry, gentlemen. I don't have the actual dollars and cents deficit; but as I said, it is roughly $2,000.00, and for the main, the report here is complete. Mr. Secretary. (Report handed to Mr. Erickson)

I need assistance, gentlemen. We have a very important job to do. The Bulletin is the vehicle that keeps the organization together from one conference to another. The fact that there is widespread interest in the Bulletin is shown by the fact that we have had a number of reprints, a number of compliments, and things of that nature, and if you gentlemen will furnish some live articles --first a technical article, maybe, so we can have one technical article in our paper each month, and then some articles about each chapter meeting; not the minutes of the meeting. No, not the minutes, but the meeting outlined as you would tell John about the week after the meeting. "This happened; that happened," so that it is interesting. And not "We move this" and "We move that". There are a hundred and one subjects that could be put into the Bulletin from our systems, from our meetings. There is only one thing that stands between the lack of material and abundant material, and that is the fact that we humans think that because we know it, everyone else knows it. If you will just expel that thought, I will have so much material, I will have a problem trying to figure out how to use it.

One other thing. My time is very short and letter-writing is difficult; not only that, but a letter is difficult to be convincing when it comes to a matter of advertising. Now, you gentlemen are all in locations where there are manufacturers of equipment for our service. I just wish that you would go down and show them our Bulletin, explain to them what it is, and make an effort to get a bit of advertising for us. You can do it. You have nothing to be ashamed of. We have an exclusive field which to offer them, and we are going to make an effort to make our advertising space more valuable beginning the first of January. The Executive Committee has gone on record as approving a 20 per cent increase in our rates, and with that 20 per cent, we are going to distribute another 1500 copies, or, roughly, 3,000 copies of our Bulletin. Now, with that arrangement, we are actually offering the manufacturer an incentive to be within our pages, and if you gentlemen don't feel it necessary or have the necessary information to go before some of these manufacturers, please write to me, and I will give you the highlights. Don't go asking for charity. Please! Gentlemen! I don't want that. Go on a business basis and try to prove that we have something to offer there. Thanks a lot. (Applause)

PRESIDENT GROENIER: I notice there was one thing there that Neal forgot or didn't forget, but wasn't prepared to report. That will be reported later in this convention, and that is the announcement of the winners of the prize contest for the articles, which Captain Wherritt started. That will come later in the Conference. We are still debating on which is the best non-technical article.

Now, there is one thing I would like to do which I shouldn't take very much time with before we go on to the election of officers, and that is to decide on the next convention city. We used to do that before the war, and I would like to return to that as a post-war custom. As you know, during the war it was so hard to find a convention city that it was left up to the President and Executive Board to determine where our National Conference would be; but I believe now the war is sufficiently over that we can return to that custom. Do we have anyone here who would like to invite us to their city next year?

MR. WHITING: Southern California would like to be your host next year with the assistance of the Northern California Police Association. I think we can give you a very, very good convention. We would like to have all of you out there, and I assure you that the Chamber of Commerce at California, which you have all heard of, will make it a point to entertain you while you are there. We will have some trips; you can stay as long as you like after the convention. In fact, I think most of you will come back to stay. Southern California would like to have you. (Laughter and applause)

MR. ELLISON: We have four representatives here from California, so I know it is possible that most of you delegates can come to California if you start planning early enough. We started planning on this trip along last winter. So, in seconding Bill Whiting's request for the California conference, I wish to say that if you do come to Los Angeles, we will go out of our way to try to provide some entertainment for you, and I think we have some novel forms of entertainment. I will state one that I know most of you delegates haven't had the opportunity of visiting an industry like that, and also going through some of the moving picture studios. I know I have some connections. I know Los Angeles Police Association has some connections, and I will promise you if you do come to California, a trip through one of the major studios, that you will get up on some of the sound stages and see some pictures made. There isn't one visitor out of 100,000 who comes to California who gets that privilege. I will promise you that myself. In addition, we can probably promise you a trip to Catalina Islands. There are many tours that I know you could be kept busy with for two weeks after the convention. We also have an ideal place for a meeting. I am not going to speak on that. I am going to ask another gentleman to tell you about that -- where we held the Northern and Southern California meetings this year. We had a wonderful time. We had more delegates - a much larger attendance - at that State meeting than you have here at the National Conference; and they all had a good time. We have an invitation from the Mayor and the Chairman of the Board of Supervisors inviting you to California, and if you do come, we will promise you a good time. Thank you. (Applause)

PRESIDENT GROENIER: Mr. Crowder, can you make it real short?

MR. CROWDER: I will make it real short, fellows. The meeting place is Captain Ellison's Los Angeles Police Academy, and that will be used for many of our operations. I think it is unique among police academies in the country. I have never seen another one like it. Now, you have heard so many statements like that from California that you probably won't believe it, but it is just like a country home. We have a swimming pool and palm trees growing around there and fountains with goldfish, and we have a restaurant cafe right there in the building. We have a gymnasium and an auditorium. We have everything you could want to make your convention a success. That is where the joint meeting was held to which Captain Ellison referred. You also saw a picture of our auditorium on the cover of the Bulletin. Thank you. (Applause)

PRESIDENT GROENIER: Mr. Sowle from Nevada.

MR. SOWLE: Mr. President, I would like to say "Amen" to that, being from the State of Nevada where the good weather they have in California comes from.

PRESIDENT GROENIER: I think most of us would want to stop at Reno on our way back. (Applause and laughter.) We have a letter here which is typical Los Angeles Chamber of Commerce type, but the paragraph that appeals to me is this: "When your group meets in Los Angeles, the convention bureau will cooperate in every way possible. Our service includes the following: standard blanks, typists for registration, standard type program which contains no advertising, promotional mailing to members of the organization, cuts, pictures, and other publicity materials." The help we will get from this bureau will be very valuable to those putting on the convention. Do we have any other invitations?

MR. WAREING: Mr. Chairman, I have asked for the convention a number of times before, and I will keep on asking for it until I get it. I haven't got my best selling pants on this morning. I have letters from the Governor of Wisconsin, the Mayor, Chief of Police, and so on, inviting us to Milwaukee; and if you ever check with your Chiefs, you will find we do a pretty good job up there. Thank you. (Applause.)

PRESIDENT GROENIER: That puts me on the spot. My home state wanting us to come back. (Laughter) I will say this, though: Milwaukee certainly is a great convention city, and I know they will do a bang-up job. Herb says they have asked for it before; that is correct. The only thing of course was that during the war they weren't able to handle us because they couldn't, and they didn't ask for those years, but prior to that he tried hard.

MR. BURNS: It is requested by the New York State Chamber of Commerce that the Convention Committee invites the APCO Association to New York City in 1947 or 1948. They would like to have you there next year, 1947, but I suggested to them to put it off until 1948, due to the fact that you are in Buffalo this year, in New York State, and I thought you would like to give the boys from the West Coast an opportunity to entertain the members of APCO out there. So, therefore, I would like to at this time submit their invitation to you. I have the papers downstairs to come to New York City. We have a little rain there -- a little more than you have in California. We haven't any Yankees there, but I assure you that you can do anything you like at any time you like, providing you are never willing to pay for it. (Laughter and applause.)

PRESIDENT GROENIER: Thank you. Anyone else?

MR. BLACK: I am not going to say too much because I don't have on my selling pants this morning. I am in about the same position as Wareing is. On the other hand, I would like to go to California next year myself, personally. However, should the Association decide that California is not the place to go next year, we would like to extend the invitation to come to Mobile, Alabama, and enjoy a little bit of our southern hospitality.

PRESIDENT GROENIER: Thank you, Mr. Black. (Applause.)

MR. VICKERSON: Gentlemen: I, myself, personally would like to go to California next year. I think it would be a wonderful thing to do, but in the interests of securing the maximum attendance at our next APCO conference, I cannot help feeling that it should be held in a most accessible place for the majority of the members of the organization, and that would be in the interests of the manufacturers and exhibitors, and all those who do so much to make these possible. We should have a large attendance to see their wares as distributed and exhibited.

PRESIDENT GROENIER: Does anyone else have anything to say? (No response) If there are no more invitations, I want to add that I think that is a very healthy condition for us in the country to have so many invitations. I am glad to have them. Can we vote this by acclamation or do we need ballots? Let's try raising hands and taking them in the order in which they were presented on the floor, if you think that is fair. If I think it is a bit close, I assure you we will have a ballot, but is that all right with you men? Will you do it by raising hands? It will save a lot of time if we can do it. Let's try it. All those in favor of going to Los Angeles -- what city was that? (Laughter) Oh, Los Angeles, oh, yes. Without counting them now, the next I believe was Milwaukee. All those in favor of going to Milwaukee. All those in favor of going to New York.

MR. WHITING: Burns, put your hand up.

PRESIDENT GROENIER: I think he voted on Los Angeles. You don't want to work; you are just being loyal to your city. Well, fellows, if you think that vote is fair enough, we will declare ---- oh, my good friend, Mr. Black, we forgot him. All those who want to go to Mobile.

Well, you have a lot of support there, but not quite enough to beat Los Angeles, and I will say this: that ever since I have been a member of APCO, I wanted to go South. Those of us who live in Wisconsin don't want to leave there in the summer time and go anywhere else on a vacation. What we like is a ---- what we like for a vacation is to go South in the winter time, but we have never been able to sell Preston on the idea; so Preston, from now on you are going to have us on your neck for one of those southern vacations.

MR. BLACK: We will follow Wareing's policy there and ask for it until we get it.

PRESIDENT GROENIER: That is a good one.

MR. BURNS: I would like to have you come to New York before the Irish lose control. (Laughter)

PRESIDENT GROENIER: Well, Los Angeles was decidedly chosen as our next convention city, so it will be held sometime in September or October, the dates to be set by our host. Our host will be the Southern California Police Officers Association. We will permit them to name their own chairman if that is agreeable to you men. (Applause)

MR. WHITING: Mr. Chairman, I want to take this opportunity to thank the members of this organization for choosing Los Angeles as their next conference place, and I want to assure you again that we will go all-out not only to entertain you, but to put you up a conference that you will come back and talk about. Thanks very much. (Applause)

PRESIDENT GROENIER: We will now proceed with the election of officers, and as is the custom, I will turn the meeting over to the chairman of the Nominating Committee, Captain Batts.

CAPTAIN BATTS: Mr. President, and members of the Association: Your Nominating Committee is ready to report its selections for nominees for the six elective offices of the organization. This is a difficult problem, difficult job, this making selections for these offices; difficult, not because of shortage of good men, but because there are so many. It is really a tough job, and not one of us wanted to be on that committee, and we would all like to have gotten off it. It is also difficult because there are so many important considerations for the good of the organization that must be kept in mind.

Before announcing our nominees, the Committee's nominees, I think it would be wise to run over the rules of the game so that everyone will understand just what the Constitution requires and set up a clear-cut procedure for conducting the election, because I think we will save a lot of time. So, in running over the rules, they are:

No. 1 -- The Constitution requires a Nominating Committee consisting of 5 past presidents. Those on the Committee are: Herb Wareing from Milwaukee; Ed Denstaedt from Detroit; Maurice O'Neil from New Orleans; Jim Teeter from St. Louis; and myself. Now, anybody can be nominated from the floor. The suggestions by the Nominating Committee are only suggestions, and I presume it is based on the theory that the past presidents should be able to do a fairly good job of making some pretty good suggestions, so anyone can be nominated from the floor. I should have called that No. 2.

No. 3 -- Only active members are permitted by the Constitution to vote. Now, the Committee was approached with the thought that we should be divided up in some manner. Perhaps all the active members on one side of the room, and the associate members on the other side of the room, but the Committee decided that wasn't necessary at all, so we are going to leave you on your honor.

No. 4 -- The ballots will be passed out by the Sergeant-At-Arms, Sergeant Knudel; will you listen closely to this. The ballots will be passed out by the Sergeant-At-Arms, and by two men whom we would like for him to appoint to assist him. We will call that a Tellers Committee, to pass out the ballots and collect them and then tally them.

No. 5 -- We will vote for one office at a time; that is, we will complete the nominations for one office, vote on that office and tally the votes before going to the next. For example, if we don't do that, you are liable to lose a good man. For example, you might nominate a good man for president and in the voting, if he does not win or he gets beaten, then you couldn't consider your man on down, if you don't do it in that manner -- complete each office and then proceed to the next office.

No. 6 -- We will place the names of all nominees on one blackboard and tally the names on the other blackboard with the Sergeant-At-Arms and his Tellers Committee officiating in this tallying and checking and passing out of ballots, and so on.

I think that covers the rules of the game. Now, there are several important considerations which we should keep in mind and which the Committee did keep in mind in attempting to make good selections. (1) The good of the organization must come first. (2) We must select men who will work for the organization; and we mean work for the organization. One way we can know about any individual is by his past performance. I think that is probably the best way we can know. (3) All of your nominees must be good men. Now, in one year.....I will put it this way first: In past years, at least at times, there have been nominations made just to honor this man or that man because of some reason or other, and you can really go wrong that way. For example, in one year we lost a president, and we had about four presidents in that one year, and that can actually wreck an organization. So we should consider the man that we nominate for every position from that standpoint: that is, if we do lose a president, for example, they will be succeeded by the first vice-president and so on down the line. We have had it happen to us. (4) An officer must be able to get around; that is, he has got to get around the country and attend meetings. That involves a great deal; that is, he must be prepared to go into meetings, and to get there he has to have the money and the backing of his department, and it really involves a lot of things. All of us can't get around. On the other hand, there are, as we know, a lot of men here who have always gotten around a great deal in carrying on the work of the organization. We have a lot of work ahead of us this coming year, more than we thought a few months ago we would have in the next year. We have a very difficult problem of frequency allocations, and we have a new commercial organization in the field which could well revolutionize our whole organizational structure and aims and everything else; so the coming year is a very important one. (6) The man must have the backing of both his department and the APCO. He would have to have that to be elected, I presume. Are there any questions as to the rules of the game? (No response.) If not, we will proceed to the names which the Committee selected.

The officers for which we will vote are: President; First Vice-President; Second Vice-President; Secretary-Treasurer; the Bulletin Editor; and Sergeant-At-Arms. The Committee, in attempting to select a man for President, didn't have such a difficult job. We have selected a man who has never been elected President, whom you all know, who has all of these qualifications that we have mentioned, and a great many more. You all know him very well.

In view of the conditions that we realize are facing us during the next year, we unanimously and without hesitation selected our incumbent president, Mr. Ray Groenier. I wish I could make a better speech in doing this, but perhaps it is just as well, since we are in a hurry.

For First Vice-President, we selected a man who is also quite well known to you, a man who has been at lots of these meetings, a man whom we believe could be president if he had to be - and a very good president; a man who is in charge of a pretty large police communications system, who takes part in all of these California Association meetings and activities; a man who, though he doesn't live in the State of California, actually takes care of a part of California, believe it or not; that is Mr. Arthur Sowle of Reno, Nevada. Art, will you stand up? (Applause.)

For Second Vice-President, we have chosen a man from the Eastern part of the country who also has all these qualifications, who has attended many of these meetings, been active in APCO for many years, and whom we consider very level-headed, very capable; comes from the Eastern area over there, which we are assured by several, is the toughest allocation -- has the toughest allocations problem around New York City, New Jersey area, a man from a city that had the first two-way police radio system in the world, and that is Mr. Vince Doyle, Vincent Doyle from Bayonne, New Jersey. Vince, are you here? (Applause.)

Then we came down to Secretary-Treasurer. We had another tough job there. We tried hard, but we couldn't find but one man who could do the job. We have one recommendation to make in regard to assisting that man in that job, or assisting the Secretary-Treasurer, a recommendation to make to the new Executive Committee, the new President and Executive Committee, that something must be done to relieve our Secretary-Treasurer of some of the work because he has far more than any one man should be expected to do, even if he were on our payroll. He has no time left for himself, and I am sure -- I know that he has worked so hard on his job and on this job, that it is sort of wrecking his health. Needless to say, we could not select anyone but our present Secretary-Treasurer, Ero Erickson. (Applause.)

We are up against the same situation in the selection of a Bulletin Editor. There is a job that has been done very well for many years and it has been improved in the past year until it is really a magazine that is not duplicated in any field close to ours, which as was pointed out this morning really is an exclusive field in that it is a police communication field entirely. Take that Bulletin and thumb through it; think about it; you can realize how hard it is to find someone else who could do it. We have chosen Mr. Neal Jackson. Neal, will you stand up? (Applause.)

Then, we came down to Sergeant-At-Arms. For that job we have got to have a man who can really move things around when it is necessary at these National Conferences, a man who has been around a lot, been around the world in the past couple of years, been active in service; big enough and tough enough to make a good Sergeant-At-Arms; an old APCO member who we thought was about the best choice we could make, and that is Mr. Larry Geno. Larry, will you stand up? (Applause.)

Sergeant Knudel, will you take over and appoint your Tellers Committee. Come up here and get some ballots and pass them out.

SERGEANT KNUDEL: I would like to have just a couple of volunteers.

CAPTAIN BATTS: You will probably have to name them. I beg your pardon, gentlemen. I wasn't thinking. We will now accept any nominations from the floor. Perhaps, Sergeant, you had better get these names on the board first which were selected by the Nominating Committee.

(The names selected by the Nominating Committee were placed on the bulletin board.)

CAPTAIN BATTS: Mr. Secretary, will you come up here and keep this straight. First we will consider nominations for President. Mr. Vickerson.

MR. VICKERSON: I nominate Donald J. McFarlane, our present First Vice-President, for President.

CAPTAIN BATTS: Thank you, Mr. Vickerson. Is there a second to that nomination?

MR. FARMER: I second the motion.

CAPTAIN BATTS: All right. Any more nominations? (No response.) If not, we will entertain a motion that the nominations be closed.

MR. ELLISON: I move the nominations be closed.

(The motion was duly seconded.)

CAPTAIN BATTS: All those in favor, make known by the usual sign "Aye".

(The motion was unanimously carried.)

CAPTAIN BATTS: Sergeant, will you pass out the ballots?

(Ballot cast.)

CAPTAIN BATTS: Are all the ballots in? All right, Sergeant, you and your Committee start counting them and tallying them.

SERGEANT KNUDEL: Gentlemen, there were 79 votes cast. Groenier 59; McFarlane, 20. (Applause.)

CAPTAIN BATTS: All right. Now, for First Vice-President we have the Committee's nominee on the bulletin board, Mr. Arthur Sowle from Reno, Nevada. Have we any other nominations for First Vice-President?

MR. LATHROP: I move the nominations be closed.

MR. KOCH: I second the motion.

CAPTAIN BATTS: It has been moved and seconded that the nominations be closed. Are you ready for the question? All those in favor, make known by the usual sign. Contrary, no.

(The motion was unanimously carried.)

MR. LATHROP: I move the Secretary be instructed to cast a unanimous ballot for the candidate.

CAPTAIN BATTS: It has been moved that the Secretary be instructed to cast a unanimous ballot.

MR. WHITING: I second the motion.

CAPTAIN BATTS: Are you ready for the question? All those in favor, make known by the usual sign, "AYE"; contrary "NO".

MR. WHITING: Art says he will fix it if any of you happen to want a divorce when you come through Reno. You can file your papers on the way through and on the way back you will be a free man. (Laughter)

CAPTAIN BATTS: All right. Nominations for Second Vice-President. Vince Doyle was the Committee's nominee. Have you any other nominations?

MR. WAGNER: Mr. Chairman, I make a motion the nominations be closed.

MR. WHITING: I second the motion.

CAPTAIN BATTS: Are you ready for the question? All those in favor, make known by the usual sign. Contrary, "No." The Chair wants to entertain a motion that the Secretary cast a unanimous ballot.

MR. LATHROP: I so move that the Secretary be instructed to cast a unanimous ballot for the candidate.

MR. KADOW: I second the motion.

CAPTAIN BATTS: It has been moved and seconded that the Secretary be so instructed. All those in favor, make known by the usual sign, Aye; contrary, No. Vincent Doyle will be Second Vice-President. This is moving awfully fast here. I don't want anyone to think the Nominating Committee is trying to move it that fast.

For Secretary-Treasurer. Ero Erickson has been nominated by the Committee for Secretary-Treasurer.

MR. ELLISON: I move the nominations be closed and the Secretary instructed to cast a unanimous ballot. (Applause and laughter.)

MR. CROWDER: I second the motion.

CAPTAIN BATTS: It has been moved and seconded that the nominations be closed, and the Secretary be instructed to cast a unanimous ballot. All those in favor, make known by the usual sign, "Aye"; contrary, "No". (Applause.) Ero Erickson is elected as Secretary-Treasurer.

All right. Now, for Bulletin Editor, the only nominee is Neal Jackson. Are there any other nominations from the floor?

MR. ELLISON: I move the nominations be closed and the Secretary be instructed to cast a unanimous ballot.

MR. WHITING: I second the motion.

CAPTAIN BATTS: It has been moved and seconded that the nominations be closed, and the secretary be instructed to cast a unanimous ballot. Are you ready for the question? All those in favor, signify by the usual sign, "Aye"; contrary, "No." It is unanimous. (Applause.)

Sergeant-At-Arms. Larry Geno was the nominee. Are there any nominations from the floor?

MR. WHITING: I move the nominations be closed.

MR. FREE: I second the motion.

CAPTAIN BATTS: You have all heard that motion. Are you ready for the question? All those in favor, signify by the usual sign, "Aye"; contrary, "No". The motion is carried.

MR. ELLISON: I also move that the Secretary be instructed to cast a unanimous ballot.

CAPTAIN BATTS: Are you ready for the question? All those in favor, make known by the usual sign, "Aye"; contrary, "No." It is unanimous. (Applause.)

PRESIDENT GROENIER: Thank you, Captain Batts. I notice we are right on schedule, which we were supposed to be. I am going to defer any speech of acceptance and also defer the installation of the new officers until this afternoon's meeting, because we have just got to get down and get in the buses. The trip to Niagara Falls is supposed to take about three hours. We will eat when we return. Now, I want to warn you in touring the Falls, the time consumed will be largely determined by the time we take in observing the various points they take us to, so let's not make it too long so we can get back here and get into our afternoon's work. We have a lot to do. We have a lot more reports, and as I promised you, I am going to have something to say and I know others will on this vital issue that is facing us; namely, whether or not we shall continue to own and service our own equipment or whether it shall be placed in the hands of a corporation. I don't mind mentioning that I want that discussed this afternoon. I know you are all interested in it, and I am going to ask everybody to return here just as soon as possible after we return from our trip to the Falls.

One more announcement: The ladies will meet in Parlor G. We have more entertainment for them, in addition to our big wingding tonight, so the convention is a long ways from over. Larry is just getting up steam. (Laughter.) So we will now recess until after our trip to the Falls.

(WHEREUPON, at 10:40 A.M., the meeting was recessed until the afternoon session.)

WEDNESDAY AFTERNOON

October 30, 1946

PRESIDENT GROENIER: Now, we want to hurry through these reports as fast as we can. I want to ask, first of all, for any Chapter reports we might have. Do I have any hands on Chapters that want to report their activities?

MR. AUDRITSH: Harry Evans, I believe, was going to write one.

PRESIDENT GROENIER: The Indiana Chapter has a report, but apparently Mr. Evans isn't here to present it. Anyone else? How about our Wisconsin Chapter? Is Ray here? (No response.) Maybe we will pass up these Chapter reports. I just want to comment and welcome into our family of Chapters the Oklahoma Chapter which is our latest one. Have you anything to say on that, Mr. Hicks?

MR. HICKS: No, I believe not. We just had our first meeting, and we are in the act of writing up the by-laws now, and we will have something in a month or two. (Applause.)

PRESIDENT GROENIER: While we are commenting on Chapters, I might tell you that we had a plan in formation for a little while, and that is in this regard: I have appointed one of our members who just likes to write. Maybe a good many of you have observed his writings in the Bulletin, and that is Mr. Winkler from Omaha. Unfortunately, he wasn't able to be here, but he is in a good position to write letters, so I have appointed him to that committee on Chapter Development; and inasmuch as Roy DeShaffon wants to resign from that committee, we will appoint Mr. Winkler as chairman, and have him direct his efforts toward chapter development. The reason for doing that is to see if we can't relieve some of the burdens from our Secretary, who, as we all know, has been overworked. We think we can promote the forming of more chapters. I am well satisfied with the progress that we have made so far in their formation, but I do want to continue it. Well, let's pass on, then, to committee reports.

First of all, I will report that for the State Standards Committee of which I have been chairman and will appoint a new one under the circumstances, the report that we have to make for that committee is nil, because other than distributing the manual, which we considered our best and greatest accomplishment in the last few years. It was the publication of our Operating Procedure Manual. In commenting on that, I want again to remind you that we always welcome suggestions in revision of operating procedure. The lack of criticism to me indicates lack of interest more than lack of perfection in the publication. However, I do think it has been a great aid in improving the operation of a good many stations. We have tried to get the manual into the hands of the stations before they come on the air, so they start operating promptly. I think the procedure has been adopted by, oh, 90 per cent of the stations in the country. We have some friends in California who would be a little different, and they haven't adopted it; but generally throughout the country they use the same procedure. We have had requests from various other services to adopt our signals and methods and procedure, and we have granted that permission to other services that are allied to ours in the safety section. We haven't extended it to taxicabs or railroads, but we have to forestry and utilities. Now, so much for the report on the State Standards Committee.

Ken Conroy isn't here for the operating procedure. Is there anyone here who can report for the Operating Procedure Committee? (No response.) I believe not. Inter-City Relations Committee, of course, is Ero Erickson. He is the Chairman, and I will consider his report of his past activities as a report of that committee work also, because they certainly have been interlocked. Mr. Audritsh, have you anything to report on Engineering and Research? You haven't had anything else to do the last year.

MR. AUDRITSH: No, I think that is all combined in the work of the Police Committee.

PRESIDENT GROENIER: That is what I would assume.

Well, that will constitute the committee reports, unless we have some others. How about the Resolutions Committee? Have we some resolutions?

MR. LATHROP: Yes, we have. We have two resolutions submitted by the Indiana Chapter:

"WHEREAS, the National Constitution of the Associated Police Communications Officers, Inc., provides for the issuance from the National Chapter of an honorary membership to those Chiefs of Police who have sent their communication officers to three or more National Conferences; and

"WHEREAS, there will be no National Conference during the year of 1945, due to conditions beyond our control; and

"WHEREAS, our Chiefs of Police are supporting APCO by sending us to this Conference in lieu of a National Conference;

"THEREFORE BE IT RESOLVED, by the Five Chapter Conference that the National Chapter shall consider this Five Chapter Conference in the same status as a National Conference, insofar as issuing honorary memberships is concerned."

That, you recall, was a Five Chapter meeting which was held last year at Chicago. Do I hear a motion from the floor that these be granted?

MR. McFARLANE: I move they be granted.

MR. BRANDENBURG: I second the motion.

MR. LATHROP: All in favor, signify by saying "Aye". Those opposed. I guess that Resolution No. 1 is carried, then; and we have another resolution. This also came up at the Five Chapter Conference.

"WHEREAS, it is a regular practice for the National Chapter to issue honorary memberships; and

"WHEREAS, some of our members retire from active duty with their department after long and faithful membership in and service to the Associated Police Communication Officers; and

"WHEREAS, we do not like to lose contact with them; and

"WHEREAS, we feel that they would like to stay in contact with us and receive the APCO Bulletin during retirement;

"THEREFORE, BE IT RESOLVED, that the National Chapter issue honorary life memberships to APCO members in good standing at the time of retirement from their department, provided such retirement is by virtue of years of service or physical disability."

Somebody make a motion.

MR. FRANKLIN: I make the motion.

MR. WEINZEL: I second the motion.

MR. LATHROP: All in favor, signify by saying "Aye". Those opposed.

(Motion duly carried.)

MR. LATHROP: Resolution No. 3. We have here a resolution which perhaps will bring up some discussion again. It is the draft of a resolution recommending the improvement of FCC Radio-Telephone Operator Permit examination questions. Now, this does not pertain to 133. This pertains to the set of questions that go with Element One.

"WHEREAS, the current Radio-Telephone Operator Permit examination questions required by the Federal Communications Commission for the issuance of Restricted Radio-Telephone Operator Permits generally required by all police personnel who operate two-way radio units are not applicable in their entirety to police radio-telephone communications; and

"WHEREAS, it would be desirable to include only questions required for the practical knowledge of routine police radio communications and applicable general regulations of the Commission; and

"WHEREAS, police radio dispatching and communication has become a vocation requiring special operating skill and knowledge inherent to the police radio-telephone services, due to the need for minimizing interference on shared channels and required for efficient dispatching procedures which will tend to eliminate superfluous and time-consuming practices; so it is hereby, "RESOLVED, that the Federal Communications Commission be petitioned to modify the present scope of the examinations to include only police communication procedures, related regulations, and the Associated Police Communication Officers' sponsored method of operation, or an equally efficient operating procedure system, as the preferred operating procedure system to be required in the rules and regulations for police radio services."

MR. McLAUGHLIN: I move that that resolution be adopted.

MR. LATHROP: Is there a second?

MR. HULL: I second the motion.

MR. LATHROP: All those in favor signify by saying "Aye". Those opposed. Motion carried.

MR. McFARLANE: I would like to explain this. I think this is only a safety clause. I am going to read it slowly so you will get it.

"RESOLVED, that the FCC be asked to withdraw their plan to force municipalities out of the 30 to 40 megacycle bands until such time as a plan has been worked out to the satisfaction of all police services.

"ALSO RESOLVED, that any time limit as to equipment renewals or replacement of existing systems shall be extended to such time as shall be decided to the satisfaction of all police services."

MR. LATHROP: You have heard the resolution, gentlemen. Do I hear a motion for its acceptance?

MR. KRON: I move the resolution be adopted.

MR. CLARK: I will second it.

MR. LATHROP: All in favor, signify by the usual sign "Aye". Those opposed. Motion carried.

(Motion duly carried.)

We have a letter from the Michigan Chapter of the APCO to the Secretary, and I suggest that you read it, Ero.

MR. ERICKSON: You read it.

MR. LATHROP: All right. (Reading) "Mr. Ero Erickson, Secretary, Associated Police Communication Officers, Inc.
Dear Ero: At our Chapter meeting of June 6, 1946, the membership voted that we take up with the National Chapter the possibility of appointing Bernard Fitzgerald and William P. Rutledge as honorary life members of APCO. The reason for conferring this honor to them is well taken care of in the recent editions of the Bulletin. Since this is an action that will require the action of your group,

we request that you keep this communication and present same at the National Convention in October for confirmation." Signed, "Harold E. Campau, Secretary of Michigan Chapter."

Now, this is not presented in the form of a resolution, but undoubtedly most of you know these men, and there is a feeling on the floor that these men are deserving of a life honorary membership in APCO by their work that they have done for APCO. I think it would be well to entertain a motion that this membership be advanced to them. The Constitution states clearly that all life memberships must be elected from the floor of the convention, and will somebody propose that these men be given life memberships?

MR. NEVINS: I make a motion they be taken in as honorary life members.

MR. CASTENHOLZ: I second the motion.

MR. LATHROP: All in favor signify by the usual sign. Those opposed.

(Motion duly carried.)

MR. LATHROP: At the Wisconsin Chapter meeting that was held at LaCrosse on the 9th of September, there was a resolution passed there requesting that the Federal Communications Commission rescind Order No. 133 as applied to the police services only, and there was considerable discussion here at this time. Now, we have not brought this up as a resolution before the National Conference, because we deemed yesterday that it was something not to be taken up under new business. I would like to have an expression from the floor if it should be entertained at this time or whether it should be deferred and brought up at a later date. There seems to be a strong suggestion that we ought to coast along with the FCC for a year to find out, and I personally am very much opposed to passing a lot of resolutions which will more or less turn out to be somewhat meaningless after a period of time. This thing was discussed here considerably today, and it was left hanging up in the air at that time, if I remember right. That is true, is it not?

PRESIDENT GROENIER: Yes.

MR. LATHROP: Is anybody interested in this?

MR. SHIRK: Mr. Chairman, I would like to repeat what Mr. Wofford said the other day in connection with that. I thought it was very well said. "If you want to put licensed men in your cars, you can. We will issue the license for them. If you don't want them, you don't have to." I believe that pretty well took care of it.

MR. LATHROP: Thank you, Mr. Shirk.

MR. McLAUGHLIN: Wasn't this voted on at the meeting yesterday?

PRESIDENT GROENIER: It was voted on. The vote really in essence was that we would not ask FCC to rescind or modify 133; but I did rule, if I remember right, that any other action that wanted to be taken on that could be taken up as new business at this afternoon's meeting. The reason for that, Mac, was because Walker who led the opposition, wasn't really in favor of rescinding that for all time. He wanted to give it a trial, as I understand it, so discussion on this is in order as to whether or not we want to modify or ask FCC to modify it.

MR. McLAUGHLIN: That was the proposition yesterday, Ray. That was the proposition that was voted on yesterday.

PRESIDENT GROENIER: I agree there is some conflict there, but that is what I ruled yesterday.

MR. FRANKLIN: I would like to make a motion that this be tabled until some later date until the other resolutions have been satisfactorily settled.

MR. CROWDER: I second the motion.

MR. LATHROP: All in favor of tabling the motion, signify by the usual sign, "Aye". Those opposed. Carried.

(Motion duly carried.)

MR. LATHROP: Well, that concludes the resolutions.

MR. WHITING: We have one up there from Southern California.

MR. CROWDER: Do you mean this one (indicating paper)? That is under the heading of New Business, I believe.

MR. HULL: Mr. President, I believe this should be brought up next, before we leave this subject: That is, an Indiana resolution that originated regarding the life membership or honorary life membership to members who retired through regular retirement or physical disability. We have two Indiana members whom I would like to move be given a life honorary membership. They are Sergeant Charles E. Olson of LaPorte, Indiana, who retired due to physical disability, and Assistant Chief of Police Earl E. Frees of Shelbyville. Now, Chief Frees retired due to physical disability, and Sergeant Olson retired after 25 years of service. Both of these men were members from the start of APCO. Both have been active Indiana Chapter members, and I would like to make a motion that they be extended this honorary life membership.

MR. CROWDER: I second that motion.

PRESIDENT GROENIER: I believe that motion is in order and has been seconded. It appears to conform with the new resolutions just adopted. Is there any question? All those in favor, signify by saying "Aye". Those opposed. It is carried.

(Motion duly carried.)

MR. SOWLE: I believe it is customary for us to form a resolution thanking the host and host city for their very gracious service or reception to us while we are here in convention for the record and for the Secretary's instruction.

MR. SILVA: I second the motion.

PRESIDENT GROENIER: It has been moved and seconded that we extend a vote of thanks to our Conference host. All those in favor, signify by saying "Aye". Those opposed. Motion carried.

(Motion duly carried.)

PRESIDENT GROENIER: I wonder where Larry is. We would like to give Larry a hand in connection with this, but really, fellows, he has had his troubles. Does anyone else have anything to add?

MR. VICKERSON: Since our last convention, Jack Wilt has passed away, and I wondered if you would like to have the members stand for a minute's silence, or something?

PRESIDENT GROENIER: Maybe you missed that. We did that the first morning, Art.

If it is agreeable to the body, we will have our Secretary make this a record. We will instruct our Secretary to advise Mrs. Wilt of the action we took. I know we all feel very deeply saddened by Jack's absence. This is the first Conference I have ever been to that he hasn't been here.

Does anyone else have anything? As long as we are so closely connected with that, does anyone have anything now in connection with the order of new business?

MR. CROWDER: Gentlemen, we have been talking quite a lot in California of proposing the use of microwave links between hearts of cities and political subdivisions. I have a little paper here that was prepared by Mr. Keeley of our Southern California group, and I would like to read it to you for your consideration. It concerns municipal and state use of microwaves.

"Successful development is now under way for the production of radio apparatus operating on frequencies above 3000 megacycles. Judging from the existing information, communications at this frequency will be largely confined to aircraft and short distance point-to-point communications.

"Undoubtedly, as improvements are made, considerable selectivity will be possible at these frequencies. Considering the number of frequencies which will be made available and the number of areas between which the use of all frequencies can be duplicated without interference, and the fact that any one frequency can be used in several systems in any one area through the use of sharply directed antennas, the total number of possible systems becomes enormous.

"Based on common knowledge of construction costs of wired communications and on the fact that certain public carriers in the communication field have already established systems involving radio rather than the use of wires, it is a certainty that the cost of such radio systems in the future will be considerably less than that of wired systems, providing equal services.

"In view of the above facts, it is my belief that State and Municipal communications men should immediately commence formulating a request for the use of a number of these frequencies with the thought in mind that they be used for short distance communications within various divisions of the same city, county, or state, and between cities and counties. Practically every municipality of sufficient area to have straight line distances of 5 miles or more within its boundaries, and every state, has need for communications between two or more points for use in the conducting of its business.

"As stated before, use of these frequencies will be restricted mostly to short distance point-to-point service and will therefore necessarily be exploited either commercially or by municipalities and states, or both. Most certainly, the use of these extremely high radio frequencies for establishing communications as needed to conduct various state and municipal health, welfare, safety and other business functions is sufficient justification for the assignment of such frequencies to state and municipal use. There is no reason why governmental services should pay commercial organizations for short haul radio-telephone facilities when it would be possible for the states and municipalities to more economically establish and own for themselves the same facilities.

"It is suggested, therefore, that in the formulation of plans for requested governmental use of these frequencies that a service be established under the name of "Point to Point, Public Welfare". It is also believed that it is not unreasonable to request for state and municipalities use, an allocation of sufficient total band width, such that any one area 25 miles square could, by using beam antennas, provide between 500 and 1000 individual point to point voice channels.

"Based on a rather scant knowledge of the present methods of transmitting microwaves, the above requirements could eventually be met through a single block allocation of 500 megacycles band width. The ultimate usefulness of such a channel is not now predicted, but it is a certainty that developments in selectivity will come about in somewhat the same degree as does the increase in demand for channels in this band.

"Such a block channel should later be divided into smaller blocks for various types of usage, such as simple point to point with beam antennas, general broadcast in all directions, and specialty uses, (police and fire box communications, etc.).

"A single block channel is chosen since, from a standpoint of adjacent channel and equal channel interference, proper elimination could best result within a single organized service, than between many varied services." Signed K. V. Keeley, Chief, Fire & Police Signal Division, Los Angeles, California.

PRESIDENT GROENIER: Do we have any comments on that?

MR. LATHROP: Mr. Chairman, I move that the contents of that be turned over to the proper committee for action, and that APCO as a body do everything that we can possibly do to get suitable frequencies to carry out a plan like that in the near future.

PRESIDENT GROENIER: I might add that is the very same thing I had in mind, only I had the committee in mind which would be Committee No. 1 of Panel 13, as long as it is in existence and working with frequencies, that that just be one of their other little minor problems. Mr. Lathrop made that in the form of a motion.

MR. WHITING: I second the motion.

PRESIDENT GROENIER: Are you ready for the question? All those in favor, signify by saying "Aye". Those opposed. Motion carried.

(Motion duly carried.)

PRESIDENT GROENIER: Is there any more new business?

MR. AUDRITSH: I don't know whether you would call this report of the Police Committee that we promised new business or not.

PRESIDENT GROENIER: In just a minute I will call on you for that.

MR. AUDRITSH: O.K.

PRESIDENT GROENIER: I wanted to augment to Neal Jackson's report the fact that we have now settled on the winners of the contests which were announced in the Bulletin. Curtis Springer of Indianapolis, Indiana, will receive a $50 War Bond for his article in the February issue on "The Constant Six-Volt D.C. Supply With a Radio Service Lab". That article, although it may seem insignificant, has been copied by many other trade journals, and your committee considered it the best technical article.

In the March issue the honors again go to Indiana for the article on "Indiana Does It Again" by Harry Evans of the Indiana State Police, who will receive a $25 War Bond. An article by Lieutenant Walter Boas, Connecticut State Police, on "Emergency Police Telephone System", will receive a $25 War Bond.

I also want to add just a few words about the Bulletin, and that is, that the other night, the first night of the conference, Neal asked for an Executive Committee meeting in which he wanted to tell us of the difficulties he has encountered in the way of cancellations brought upon largely because some of the manufacturers being uncertain as to whether or not they wanted to continue in a certain field because of termination of war contracts. That is largely what brought about the two thousand dollar deficit. The reason he didn't have that figure on the deficit was that it really isn't a deficit in the sense that he hasn't got the money in the funds. He was turned over a certain sum by the former Bulletin Editor, and that sum is now approximately $2,000 less than it was. We in the Executive Committee decided that if Neal were re-elected (and he was and we wanted him to be), there would be a policy of increased rates. We called in three of our larger advertisers at the meeting, and they agreed that our rates were too low. So, beginning January 1st, we will increase the rates and in return for that we are going to distribute the Bulletin to approximately 1500 non-users of radio. Remember those "non-users" words were well chosen. We didn't want to distribute it indiscriminately amongst owners of police radio systems who are not members, because it might have an adverse effect on our membership. We feel that it may be some only pay their dues because they get the Bulletin. We didn't want to give it to them, but by distributing it to police departments who do not have radio, we are first of all giving the manufacturers a good break because their advertisements are of a nature which would interest non-users more than they would (that is, non-users and prospects for replacements) more than they would persons who now have a good system; so that these non-users interested the manufacturers very much. It does another thing: When these departments then install a radio, they will have heard of APCO, and we stand a good chance of getting their members, so with the increased circulation and the increased rates, we think we can pull The Bulletin out of the hole.

Now, there is one appeal that I want to stress upon that Neal touched on, and that was of you men soliciting advertising. This is your Bulletin; it is your financial responsibility; so that when you go home, if you know of anyone who is interested in placing an ad in the Bulletin, it is your responsibility to solicit that ad; and as Neal says, he will give you any assistance he can. Now, that is where you fit into the picture in making the Bulletin a success, as well as continuing to contribute articles.

MR. GEBENINI: What are the rates?

PRESIDENT GROENIER: You can get a rate card from Neal Jackson. I don't believe we have one here, because in increasing the rates, we did it on a percentage basis. It will be about 25 per cent more. I can tell you now that a page ad is about $75.00, approximately; and that is if you buy, I think, twelve of them. It runs around $100.00 if you just take one. If you buy twelve in a year, it is $75.00. If you want to run, say, six double-page ads, that is still the same rate. You have to take twelve 1-page ads in a year to get that rate, and that will be increased by approximately 25 per cent. I believe that is all for the Bulletin Editor's report.

I am now going to ask for our Secretary's report.

MR. ERICKSON: Gentlemen, I have been here 5 or 6 days and haven't opened my mouth yet, but I can assure you I have been pretty busy. This has been a rather unusual conference in that the general routine has been interrupted -- or probably disrupted -- by Committee 1 of Panel 13, and everybody has had to concentrate on an item that has a lot of us worried, and most of us a little scared about it; so the general committee reports have been a little on the down side in order to take care of this larger problem.

Any association is built upon membership, and I give the membership problems a lot of attention and a lot of consideration. Since I started as Secretary some years ago in Madison, the membership was 275. I would like to give the membership now. It isn't increasing in a direct ratio by years as compared to the last two years. It reached a point where I couldn't handle it with the facilities I had. In fact, Chapters grew to such an extent that the controlling factor was the inability to get all the material out that was required; but it is growing on its own momentum, and the assistance of the Chapter Secretaries right now. Right now we have 1,220 members, which is broken down to 700 active, 115 commercial, for 1946; and 40 members for 1947 that have paid in, and 29 honorary members. And in addition to that, we have a minor job in collecting the memberships from 336 delinquent members, and it seems to be quite a job to extract the membership fee from some people who become enthused about the possibilities of membership, and unless they are invoiced and billed continually, they don't come through. I think almost any magazine or organization has the same problem. You send about 7 or 8 bills and finally the fellow comes through and you are taking kind of a risk on your very small investment, but it does consume a lot of routine time; but the membership is increasing and new fields are opening up. We have broken into Canada this year; that is, in 1946. This is quite good because up until this time there hasn't been a single member from Canada, and the Canal Zone and Hawaii and Australia are represented.

We expect to distribute 1500 copies of the Bulletin to non-members and systems that do not have radio stations. As Ray said, we don't feel we should distribute the Bulletin to radio stations who are not members, because they will soon feel that they can get the Bulletin for nothing and why should they pay their dues.

The membership fees support the expenses to Washington, the telephone calls and clerical work necessary to run the office and pays for the Procedure Manual and all these thick reports you have seen and the $3 you pay goes for that purpose. It has been our intention to keep this Bulletin on a self-sustaining basis. We are not in business as in the banking business to make money or profit. We just want to be able to conduct the affairs of the Association without losing money and the Bulletin is intended to be self-sustaining; but due to reasons you have already heard, they ran into difficulty on cost and printing. The membership fee is important. It indicates the expansion of the Association and the greatest aid to expanding the Association is the Chapter.

The Chapters grew almost one a month in 1945, but it had to stop because the work involved in keeping those Chapters going didn't leave any time for further development. I would like to impress on the Chapter officials and secretaries that a little more attention should be given to the Chapter problem. We have a few Chapters that are practically Chapters in name only, and it is certainly not a very good condition when you consider that the FCC through their representative here, Mr. Wofford, urged the work of the Chapters in the allocations field, because it is sensible to assume that the Chapters know the local conditions. This body can pass on general allocations plans and frequency assignment patterns, but when it comes down to assigning the channel on an area basis, you have to have people there who know what they are doing, and naturally the radio engineers in the locality that know the problems will be able to assign those frequencies through the Chapter Frequency Committees or the Chapter itself and keep it within the framework of the FCC allocation program. So, if the Chapter falls down, the Police Department suffers for it, and it is a rather dry subject elsewhere when you get together and decide whether Paducah shall have this frequency or somebody else; so it is necessary to work up a technical program, possibly entertainment at dinner meetings, to attract the members. We found that in Illinois unless you have attractive features in a technical way you aren't going to have a meeting attendance, and it has fallen off, if you just continue to discuss allocation problems. So I would like to urge the Chapters' Secretaries and Presidents to really get after their Chapters and get them in line.

That concludes the Secretarial portion of the report.

I have the financial statement from 1945 and 9½ months of 1946. Do you wish to have me read it? After all, this is not up to date since Toledo, since the conference in Chicago was not a national or an annual meeting.

PRESIDENT GROENIER: I suggest you read it or give a condensation of it at least, so they know the financial status of the organization.

MR. ERICKSON: Well, the only way I can do is by reading all of it. I just want to say first that the financial condition plotted on the curve is on the up-grade. The expenses have met the income both ways so the cash balance is increasing. This is good in the light of the fact that we anticipate a lot of trips to Washington on numerous FCC orders you get occasionally from there, and general association work. Due to the size of the association, it has come to the stage now where the officials ought to be paid expenses for their trips instead of putting the burden on the department for whom they work. The association should pay for it and we are getting to the stage where we can do it.

The annual statement for 1945 is as follows:

Cash on hand in bank and government bonds, Jan. 1, 1945 $1,702.14

Income is as follows:

Dues: Active Membership	$1,561.50	
Associate Membership	88.00	
Commercial Membership	194.75	
Standard APCO Stationery Sales to Chapters	104.24	
Procedure Manual Sales	280.91	
APCO Emblem Buttons Sold	142.30	
Toledo Conference Balance	1,022.72	
Bulletin Fund - Balance from Wherritt's Account which was held out of total and a portion given to Jackson.	813.39	
Five Chapter Conference	1,278.85	
This gives a total income of		5,468.84

The Expenses for the same period, which is the calendar year of 1945, is as follows:

Printing and Stationery	$ 595.42	
Postage and Stamps	323.33	
Telephone and Telegraph	279.07	
Office Supplies	153.17	
Printing of the Procedure Manual	583.10	
APCO Emblem Buttons	235.34	
Secretarial Expense from October, 1944, to December, 1945	700.00	
Indianapolis Transcript	212.00	
Toledo Conference Reporting Fee	231.00	
Five Chapter Conference Expenses and Deposits	495.66	
Advanced to Directory Fund	100.00	
Travel Expenses for Jackson	56.29	
" " for Groenier	36.52	
FCC Report No. 1 Negatives	120.00	
FCC Hearing Transcript Fees	23.50	
Refunds to Chapters	17.50	
Secretary Bonding Fee	12.50	
Indianapolis Meeting Rooms	14.63	
Stenographical Expenses	12.00	
Express Charges	13.39	
Special Gift Expense (The Executive Committee felt that due to the long service of our former editor, Captain Wherritt, he deserved some sort of farewell gift.)	69.84	
Corporation Reports filing fee	1.00	
The total expense comes to		$4,285.82

Cash on hand in bank and government bonds, Dec. 31, 1945 $3,385.16

That takes care of 1945. Do you want to hear 1946?

PRESIDENT GROENIER: Would the totals be all right, or do you want the details?

MR. AUDRITSH: The totals.

MR. ERICKSON: Well, the total income for the 9½ months up to the 15th of this month was $2,328.07. The expenses which are itemized were $1,636.88. The present bank balance is $3,576.35. That includes the Bond that President Groenier is responsible for from the Madison Conference, which is valued at $370.00.

That concludes my report. (Applause).

PRESIDENT GROENIER: Are there any comments on the Secretary's report? (No response) If not, we will have our final report for Committee No. 1 for this conference. Final, that is, for this conference. Zellon Audritsh.

MR. AUDRITSH: The work of the Police Committee never seems to cease. It goes on and on and on and on. I told you that we would report further to you as a result of our Committee meeting. Actually, I think that we are, or had more members present in Committee 1, Panel 13, meetings than there were in the hall at any given time, so you have most of this information; but we do have something new which will be very interesting to you. It is a new approach, an attempt to alleviate the situation.

At the meeting Sunday, you will recall that Ed Denstaedt had outlined certain things to accomplish. Some of those wound up as motions and some were passed. Other items of work were not completed and we hope to complete that in a special Washington meeting that I will tell you about later; and Monday we had this meeting at night and Don McFarlane represented the ESPRL. He was here and went over some of the things we went over Sunday. We had further discussion.

First of all, I would like to read these things that were brought up as motions and passed. One of them was that this group go on record as favoring the 72 to 76, and 152 to 162 megacycle police allocations as at present issued, indicating at the same time that we did not get sufficient channels in these bands; that we go on record as favoring the 42 to 44 megacycle state police plan as issued; that we go on record as indicating it will not be possible for all municipal or county departments to move out of the 30 to 40 megacycle band to the 72 to 76 and the 152 to 162 megacycle bands without serious interference resulting, simply because of the scarcity of police channels in all bands; that we make necessary suggestions to the FCC to allow many city and county departments to continue on the 30 to 40 band indefinitely and to give most others more time to move to the higher frequency bands.

Now, about that time we were discussing the latest proposal of the FCC concerning the 30 to 40 megacycle band reallocations, and we had hoped at the conference to try to arrive at something in the way of a plan as to how the change-over could be accomplished. I think I can very seriously say that the general consensus of opinion was that the location of the police blocks were all right as to the 20 kilocycles channel width. We just didn't have the information at the time, and there were differences of opinion that had to be resolved, and in the first instance in referring back to this FCC proposal, there was the matter of an interim arrangement that had to be taken care of. In short, there was much more work to do that we didn't think we could get done at the conference and so a motion was made that we appoint representatives of APCO, ESPRL and IACP, to meet with Commission engineers to discuss the change-over plans and allocations for a united front at the forthcoming hearing on December 16th. That was the date set in this FCC proposal for hearing. That was the second; and then it was decided that appointment should rather be in the name of Committee 1, Panel 13, rather than APCO and ESPRL and then it was put to a vote and passed unanimously. I might mention that this representative group was to perform the work that I told you had been unfinished and tried to reach agreement.

Now, came the matter of appointing members of that Committee to try to get to Washington. We have since done that and even arrived at the tentative date. I will read the names: Don McFarlane, Ed Denstaedt, Art Vickerson, Vincent Doyle, Walter Hartford, Edward Tierney, Ray Groenier, Robert Batts, Al Shirk, and Zellon Audritsh, and then we requested Captain Leonard of the IACP to invite chiefs who have been active in or associated with communications work to also come to the conference. I can't presume to appoint them but I might recall that in the discussion Chief Bullock was mentioned and then of course we had met with Commission representatives, presumably engineering representatives. Now, I might add that since that time we are shooting at the date of November 18 for that particular meeting.

Now, to tell you about this matter that is rather new: Since the meeting Monday night, the chairmen of the sub-committees have gotten together to discuss this allocations picture up one side and down the other. We have had our arguments and efforts to try to work something out, and everytime we do we come back to one fact, and you noticed it in these motions, that we simply do not have the channels. We simply do not have enough channels to work it out and so we want to recommend a new approach, might I say in desperation, to try to fill in the need for new channels; and so we proposed to approach Panel 13 and the Panel 13 services, (and this will be subject to the approval, incidentally, of our Chiefs' Association), that Panel 13 petition the FCC for the use of the following spectrum space in addition to that already allocated to the mobile services: 44 to 50 megacycles, now known as the television channel No. 1; and 180 to 186 megacycles, now known as television channel No. 9.

I don't know how much more we can say at this time, but I do believe that that will be a subject which you will first have to approach our Chiefs' Association, and undoubtedly that will also be a topic to take up at this Washington meeting. If Panel 13 goes along with that proposition it may be that this will develop into a general Panel 13 meeting at approximately that time. I might mention the shortage of channels also exists with other services in Panel 13 as with the police, and it still is really quite desperate.

It has been contended that the space now allocated will not even supply the requirements of the near future, but on the expansion, the inevitable expansion that takes place with the mobile services, it couldn't possibly take care of it. We must have some room to expand. Now, this isn't a new idea at all. I have heard members of Panel 13 mention it several times, including Dr. Dan Noble, the Chairman. I recall one hearing at which he mentioned the subject and the need for it and then in his briefs submitted to the FCC on January 18th, 1946, at which time the FM broadcasters had petitioned for the use of 42 to 50 megacycles, I believe, for FM broadcasting.

The Chairman of Panel 13 included this excerpt: (I got this out of the APCO Bulletin at the last moment) "If there is to be any change in the assignment -- parenthetically on the allocations in the 42 to 50 megacycle band -- continuing the quote, I say that the lower television band 44 to 50 megacycles should be added to the facilities provided for the Panel 13 services in order that a realistic approach can be made to minimize the skyway by pattern assignment and by reserving adjacent channels as guard bands. Under no conditions can the services I represent agree to a plan which will reduce the mobile channels in the 42 to 44 megacycle bands. I further object to any plan placing FM broadcasting in the 44 to 50 megacycle band because I believe time will prove the necessity of clearing the band for the mobile services." Signed, Daniel E. Noble, Chairman, Panel 13.

Now, I would like to point that I did not discuss this matter with Dr. Noble at all and this statement I used without his permission. I took it off of the official record. That is the general picture except that we, as I say, in desperation, we think that may offer a solution for the police dilemma and perhaps other Panel 13 mobile services. I would like your general reaction on the thing, and as I pointed out before, as far as we are concerned it will have to go through our Chiefs' Association.

MR. CROWDER: Mr. Chairman, I would be strongly in favor of doing everything in our power to obtain more frequencies, particularly by the addition of television channel No. 1 and television channel No. 9. I understand there are almost no applications, particularly in television channel No. 1, and undoubtedly we would not be able to obtain all of that space for police. We could have to share them with other users of Panel 13, but I would feel very strongly that APCO should do everything in its power to bring this to the attention of Panel 13 and secure early action on this matter. If it is in order at this time, I move that the APCO immediately take steps to attempt to obtain additional frequencies in this range.

MR. AUDRITSH: Could I amend that "through the Chiefs of Police Association"?

MR. CROWDER: Yes.

PRESIDENT GROENIER: Would you put that in the form of a motion?

MR. CROWDER: Yes.

MR. LATHROP: I second the motion.

PRESIDENT GROENIER: It has been moved and seconded.

MR. McFARLANE: I feel at this time that you might have believed in opposing force here when I walked in here Monday. I want to tell you that Zellon Audritsh and myself for the last three days argued pro and con, back and forth, and it was my contention from the very beginning that there were not enough frequencies to provide for adequate channel allocations for all services, and the reason that I am standing here now is to tell you all openly that I am fully in support of what Zellon has just proposed, as Zellon will undoubtedly admit. Partly -- and mostly, perhaps -- it is the result of our arguments pro and con, or should I say "discussions". I take this opportunity to speak for the Eastern States Police Radio League because after all, I consented to represent the whole Eastern seaboard, and the Eastern States Radio League favor this particular motion in its entirety.

PRESIDENT GROENIER: Thank you, Don. I also want to add to Don's comments that Don did take a considerable amount of credit for instigating that and we think it is a splendid idea. I know for myself, I am going to want to of course cooperate in every way we can. Are there anymore comments before we are ready for the vote? (No response.) All those in favor of that motion, signify by the usual method of saying "Aye". Contrary. The "Ayes" have it.

(Motion duly carried.)

There being no further committees to report, other than my own, I will now combine my report for the past year's activities and my so-called speech of acceptance and proposed platform for the future.

As you know, I took office by virtue of the resignation of Frank Walker in the summer of 1945, at which time I stated publicly in the Bulletin that we had a firm foundation upon which we stand and that I hoped that at this meeting at least the walls would have been completed. However, we find that because of sundry reasons other than work stoppages, we weren't able to complete our house. During this year, I have made many trips. I attended a Chapter meeting at Richmond, Indiana, a meeting of Committee 1, Panel 13, in Indianapolis. I attended the Five States meeting in Chicago, of course; the IMSA meeting which followed. I attended a meeting of the Iowa Chapter in Iowa City; attended a meeting of the Committee in Chicago in January, another Panel 13 meeting in March; made a trip to Washington in February; made another trip to Washington in April; and other trips to Chicago to meet with our Secretary. So you can see how active the year has been. I want to thank you men for the vote of confidence you gave me this morning in re-electing me as your President for the ensuing year, and I want to tell you what I think we will try to accomplish in the coming year.

First of all, I hope to continue and complete the work of the Radio Technical Planning Board and our negotiations for frequencies with the Federal Communications Commission. The large job ahead of us of course, as most of you realize, is whether or not the police communication system will continue in their present form of individual ownership or whether we will relinquish the ownership and service of communications equipment to a corporation. I know it is a delicate subject. I don't hesitate to express my views on this matter at all; and that is, of course, that I am in favor of the present method of individual ownership and control all the way through. Let's analyze who we are; what brought this about.

Our friend Mr. F. M. Ryan gave us credit for pioneering two-way radio. Communications with most of us was our hobby. We liked it. We were amateurs. The police called upon us back in the days when crime was rampant. They needed assistance. They needed something to catch these high-powered fast moving automobiles, and they called upon us. Maybe I am conceited, but I do think we have a right to take a lot of credit for accomplishments in stopping that crime wave in America. We men are inherently of an experimental nature, of a technical nature. If we are removed from the police service, I believe that the police departments will lose a vast opportunity for expansion which they will not have if their facilities are leased from a commercial corporation. As Dr. Noble pointed out last night, a large corporation is inherently unyielding. We have found that out when we want a telephone line strung in our building. They tell us where to put it. If we want it done a certain way, and unless it is not in conformity with some particular page of their rules and regulations, they won't do it. I have had that experience. The railroads are a good example of what happened with a large corporation. They are still waving the red lantern like Paul Revere waved it in 177(something). You can tell me, Don.

MR. McFARLANE: 1775.

PRESIDENT GROENIER: Now, they want radio. Why haven't they got radio? They lost their individuality and their pioneer spirit because of their very size. I have no grief with the men who represent the large corporations. A large corporation employs mighty fine high type, high grade men. It is their job to sell these services, and they are going out and sell them. I think this thing reaches further than my individual job. I am not so concerned over that because I am not a young man and I will soon get a small pension, if not, some old age subsistance, but I am thinking more of the effect it will have on our country. It will be led to a state similar to fascism if these large corporations continue to absorb our individual and private communicating systems. Personally, I don't think that any of us in this room will disagree with the facts that I have stated, but what are we going to do and what can we do to suppress it? The mere fact that I, as your President, would stand up on this platform and state my policies will not accomplish anything. It is going to need the assistance of everyone of us who will believe in it to go back to our communities and spread the gospel of which you believe in.

I wanted to appear before the International Association of Chiefs of Police in Mexico City, but was unable to do so and convey this thought to them. We are in an unsettled condition at this time and I consider it a very poor time to enter into a contract with the commercial communicating system. I would like to see them defer action for a couple of years until we see how this thing develops, and I believe that if each and every one of us could go back and do that, we can accomplish something. In preparing, or rather in turning over in my mind what I should say in this regard, I had many other details which I wanted to bring out. One is the work-stoppage clause; but I know that most of you have thought of the same things that we have. Another is the lack of competition which adds the spice that we Americans thrive on. When we started building our own equipment, there was keen competition amongst us. I thought I had built a better set than Bob Lathrop did in Waukesha, and I had arguments with him. That competition has been extended to the manufacturers of equipment. That has aided us greatly in developing the equipment to the state of the art of which it now is and I would very much dislike to see that competition destroyed, which I believe would be if it were in the hands of large corporations. When I get through I am going to ask for comments on this. As I stated in the early part of the talk, I don't hesitate to state my views. Probably I should have done it before election. Maybe I wouldn't be President, but if I am wrong I certainly will withdraw. I mentioned in the Committee #1 session that we are fighting with bow and arrows with an atomic bomb over our heads, and that is it, gentlemen. We have got to settle these differences amongst ourselves, in order to combat this proposition which we are faced with now.

It is getting late. I won't go on with any more details. I want to close my remarks by saying that anytime during the ensuing year if any of you have any suggestions or comments, I certainly want to hear from all of you, and again I want to thank you for the vote of confidence you have given me. (Applause.)

Now, before closing the meeting, you know how I stand on this issue. I will throw it open to discussion and let it go where it might, Mr. Crowder.

MR. CROWDER: Mr. Chairman, I am heartily in agreement with your statements in your talk concerning possibilities of large corporations taking over our system. I think the fear of work stoppages is entirely justified. We all know that several times within the last two years that the Bell System has been subjected to work stoppages over wide areas which has seriously disrupted communications. This might readily happen at a time when a police department was in dire need of the communication service, and it would be impossible under a contract system to have their technicians make repairs at that time. Again, as you say, in a large system stagnation is very apt to take place after they have a fairly comprehensive system in operation. All new equipment will be made so as to be interchangeable, and operate with that present equipment to avoid a loss in their investment, and there is very little opportunity for the rapid advance that we have experienced in the last few years where each department may change his own equipment or its own equipment as it desires. Competition is encouraged because we all know that the telephone instrument has changed very slowly over the years, and that is due to a large part because their switchboard equipment and instruments must work with every instrument in operation.

PRESIDENT GROENIER: Thank you.

MR. HULL: Ray, first, I would like to say I am 100 per cent in accord with all your statements. We had a couple of gentlemen yesterday, I believe, that offered to give us an explanation of how this came about. There are a couple of places where it has already taken place. I wonder if we could get an explanation on that and get some background on what has happened?

PRESIDENT GROENIER: Is Mr. Searle here?

MR. SEARLE: I regret very much to be placed in this position where I have to take exception to the remarks made by the President because I respect his right to make any remarks he wants to make, and if he feels that way about it, it is certainly his privilege and the privilege of every other man in this room to feel that way as individuals. Now, anybody who wants to question what we do in the State of New York, it is all right for them to talk about it. That is fine, but when it comes to an organization like this going on record as opposing the policy which is set up in New York after considerable length of time, then I will say very quickly and very honestly and very frankly that I don't believe it is the purpose of APCO or any other organization. Now, we have not done anything that in any way affects any of you people. If it were a matter of frequencies, if it was a matter of operating practice, if it was a matter of something that went on outside the state and interfered with this fellow here or that fellow there, then I would say, "Yes, that is fine", but we haven't done anything like that. I just heard our President say a moment ago that in the old days they built their own equipment. You went out and got a few tin cans and so forth and you made a transmitter. There came a day when you found it was better to go out and buy one which somebody had already manufactured, and I don't think that any man in this room would want to go back and make his own equipment again, although he may make it in special cases. Now, I think this thing follows along the same line. As an individual I can see why many of you men would not want to have anybody other than your own people operate your police radio systems. I can see that in many cases. Sometimes small departments -- sometimes large departments -- I can see a very good reason why you should run it yourselves, but in our particular case we acquired and to a good many angles, we tried to find the best way for us to do our job, and I want to go on record here and now as saying that the telephone company did not come to us and ask to sell us that service. We went to them and asked if they would consider such a proposition and they were the last of a number of people to say that they would.

Now, I know there has been considerable discussion about the new way that we tried to set up an outfit that would be maintained by somebody else. In our particular case we felt that it was the thing to do, and as I say, we went and asked the question. Nobody came to us. The thing that I can't understand, as I hear the discussion is: What are you people so fearful of? What are you afraid of? Nobody is going to make you buy one of these things. If a telephone man comes around and asks if you want it or if you don't want it, you can say "No." There is no way they can blackjack you into it. You can have what you want, and if your bosses are satisfied that you are doing a good job, and you are doing it cheaper than anybody else can do it, I don't see why they will make a change.

Now, unfortunately, that wasn't our case; and I might also add, gentlemen, there is nothing new about the New York State Police renting a transmitter or leasing, if you will. The very first transmitter we ever had was leased from the General Electric Company in Schenectady along about 1931, and that is one of the reasons why we consider this service, because our service was very satisfactory. Now, from time to time, in organizations like this, there are certain fears that come up among the people who happen to be a charter member of this organization, and there was a time that I worked very hard in getting members and serving on committees and trying to make this thing a successful organization, and I don't think that any man in this room would deny that; but I also want to say that there was a time also in the early days of this organization when certain members didn't want the membership of certain of us people who are simply wire men, and there were motions passed and discussions as to whether or not we were eligible for membership. Now, I don't think you are going to say that it was a mistake for us to come here, because many of us wire boys have worked hard for you, and many of us now have radio. So there was a case when somebody was afraid, and I don't think it did any harm.

I also want to say if you look back on the record I think you will find that I am the guy that made the motion that in order to have this thing successful, you should get the sponsorship or approval of the entire National Chiefs, and when it came to Chapters I was the first one to say that it should be approved by the chiefs of the State in whatever state it was operating. I think you will find that is on the record. Now, the reason I bring that point out here is this: That we want the support of our chiefs, and we want our chiefs to believe in the things we are doing. But I do have a suspicion that if we go into our chiefs and start dictating policy, that these chiefs won't like it, because after all, the manner in which a job is done is a matter of policy; whether we go out and hire wire or whether we put our own wire up, or whether we hire radio service, or what we do, is the policy of that particular organization; and so long as we in New York haven't told anybody anywhere that we think they should go out and get wire -- excuse me, go out and lease a radio system, or for that matter to get wire -- there is no harm done. We have never told anybody that. If anybody wants to know, as I said yesterday, I will be very pleased to give them all the information about the whole thing, but I haven't told anybody I think they should do it. In their particular case it might not be necessary, and therefore why does the APCO come around and tell us that we shouldn't go out and lease a radio system any more than they tell us not to lease a telephone or lease to a teletype. I maintain, gentlemen, that is our business; and if we think that is the thing to do, we are going to go ahead and do it. As long as it is lawful and as long as we don't hurt you fellows, why have you any objection to it?

Now, I could go on like this. I am not going to, because I don't want to antagonize anybody. I respect everybody's opinion, but I don't believe that you have any right as an organization --- now, individuals, all right --- but as an organization, to come in and oppose a policy, no. As a pleasure proposition all around today, we find different organizations starting up, and then the first thing you know, they want you to do so and so, and if you don't do it, they put the squeeze on you and try to make you do it. I don't believe that we should ever, as APCO members, get in that kind of position where we are going to tell anybody how to run their own police department. Thank you. (Applause.)

PRESIDENT GROENIER: Thank you, Mr. Searle. Mr. Batts.

CAPTAIN BATTS: Mr. President, I think George Searle hit the keynote here. I would like to back him up all the way through; that is, I am very skeptical of going on record here or voting as an organization to go ahead and take any action, organized action, against anything that we may as individuals be very strongly against. Personally, I don't like it myself; but I don't think we should bring anything like this to a vote and attempt to go out and organize to beat anything like this. It is absolutely the wrong policy; and also while I am on my feet, I want to pat George on the back a little bit, because I have known him for a good many years. We haven't seen him for many years; he has been in the Army -----

MR. SEARLE: The Marines, please. (Laughter.)

CAPTAIN BATTS: The Marines, all over the world. I can vouch for the things he said he has done for this outfit in the years gone past. He has been very active and has done a whole wheel-horse of his share.

PRESIDENT GROENIER: Thank you, Bob, and I want to make it clear I did not ask for a vote, or didn't have any intention of asking for one. I just couldn't but help shout out the way I felt about it.

MR. McFARLANE: I can understand how Mr. Searle feels with everybody perhaps directing their remarks, he feels, toward him; but I think the reason for that is that everybody feels that perhaps the New York State Police have set up a precedent which might well be echoed by the rest of the police chiefs. I myself, personally, think it would make no difference at all to me. However, I do say this: That I can't understand how chiefs of police would have the confidence within himself to hire a radio system from a concern which does not apparently have the ability to make their own equipment. I think that that in and of itself would be a very well-founded claim upon which we might stand in explaining to the chiefs that if the telephone radio engineers are of such high caliber that they can well maintain a system, I think it might be very well evidenced first by them designing equipment which is superior to the type of equipment we now have.

MR. SEARLE: Mr. President, could I just add this: I tried to do this in a kind of a jocular sort of way. I have to smile while I am saying it. I didn't want to say anything about it, because after all, the man who said these things wasn't here or isn't here and therefore if I say something he didn't mean, he has no chance to protect himself. But as long as we are saying these things, I want to say this: That I was at the banquet last night, and I seemed to gather from the remarks made by Dr. Noble, that there was some question in his mind as to whether or not the thing we were doing was right and how successful it would be. I think he said something about in two or three years you fellows would be going right on ahead. Well, that is the case, if there is any error, if we have in New York made a mistake and we fail, I probably won't be around to one of these meetings, because there is about a million bucks tied up in it. I will probably be trying to get a boat to Japan or some place. (Laughter) But if I do fail, well, then of course all the heartaches and hard luck and everything that go with us won't be on your fellows. It will probably be on the people in New York who tried this idea. Now, we all have to try these things. I understand Wagner is going to try it. I did hear informally that somebody down in Texas is going to do it. I think the State Highway Patrol is; but if the thing turns out as I think, it will be all right. If it turns out as Professor Noble had in mind, then of course when the time comes, you fellows can look back and say, "Well, we told you so." But let's wait; let's wait a while. This thing isn't even operating yet. We have got a contract, yes. I heard you mention a contract, Mr. President. It is too late; the contract is already signed -- has been some several months; so the contract is there. Let's all you fellows try to come to Los Angeles next year and give your report on it and see what happens. If we are wrong -- if we have hurt somebody -- then it will be time; but right now we are not bothering anybody; we are not hurting anybody. We are trying something which we think is right. Maybe we are damn fools; God only knows. But Let's wait a year and find out, and then we will come back in and I will try to get to Los Angeles if I am still on the job, and I will come in and tell you what happened. I would like to see it that way. I don't want to see this outfit do this sort of thing. There is too much of this stuff of people getting in and demanding things and putting the squeeze on people. I saw a little of that a couple of weeks ago. Some of it was sincere, and some of it was very honest, but in my own particular mind, certainly misguided. Let's mark time a little bit; let's not throw things into an uproar and do something we will be sorry for. I thank Mr. Batts for his remarks. I doubt if it would have been so good if you had thrown out a lot of the wire people. Maybe if you had talked us out, we wouldn't be here. Maybe you wouldn't have the trouble with us that you are having. Anyway, I think you will agree, and I think Bob will agree it would have been a mistake to do it. Yet, there were very many, I think, who said, "This is a radio outfit; we don't want any teletype people; this is strictly a radio outfit." So we had to fight to stay aboard.

Now, I don't think, as I said three or four times, that you are sorry. Now, let's not get ourselves committed to some kind of a thing before we find out, because we might be wrong on this, as you would have been if you had tossed all the wire boys out, because most of the wire boys now are radio boys. Let's wait and see what happens, because, as I said, nobody made us do it; nobody is going to make you do it. We had to go and almost plead. We asked all these people to furnish us the service, and this was the only one we could get. We are not firing any of our people in the State Police. As a matter of fact, I think we will have to take on a few more, because it is a very big proposition. There are certain things we have got to do; so nobody is going to be thrown out of work. I ask again, please, before you get yourself tied up in this thing, give it a chance. Next year if it is terribly wrong and you guys are out of work, you can get me somewhere and give me my lumps, but don't give them to me until you find out. (Laughter).

MR. BURNS: Mr. Chairman and gentlemen, I represent the Police Department, as you know, of the City of New York. I think we are the largest subscriber of the telephone company in that city. They maintain our entire communications system; that is, the telephone teletype system in that city. As a member of the telegraph police department before they took over -----

PRESIDENT GROENIER: Pardon me, Mr. Burns. There is a long distance call for Mr. Doyle.

MR. BURNS: When we came in and took over, we had the same feeling that you men are going through today. We were afraid we were going to lose our jobs. There wasn't a man in that department that lost a job through a telephone company coming in and taking over our telephone system. Well, I say to you now that you should be a little more conservative before you go on record as opposing any change of this kind, if you don't know what will come out of it. I think that the departments that you represent will retain you in your present positions. They are not going to allow a telephone company to come in there and take over and just push you right out of your job. They have to have somebody there to watch the telephone company and to handle their business. I don't think there is a police department in the country that will permit any outside agent to come in and take over their communications system. So, as I say, I am just offering you our experience as a guidance before you go on record as opposing something of this kind before you have the full judgment of the situation. Thank you very much.

PRESIDENT GROENIER: There is another one over here.

MR. MULNANE: We rent them. We have rented wire in two instances -- three instances: telephone, telegraph, and the instruments. Our radio system is owned by the State of New Jersey. We are also intending to go into the use of facsimile. If at this time we could get as good a job done by the telephone company and we were going into a new system, and if the prices were lower and the quality equal, I doubt if we would hesitate.

PRESIDENT GROENIER: I think Mr. Crowder has something to say.

MR. CROWDER: It was brought out earlier here that as to whether the leasing of equipment or owning of equipment was a policy-making decision of the superior department. I am hardly in agreement with that statement. I do know that most of the policy-making officers of the department are police officers and police executives, and they have many concerns besides the communications system which is under their jurisdiction. They depend for advice on the operation and maintenance of that communications system and how to set it up so it will operate and provide the most efficient communications for their department upon the recommendations of their radio men, and I believe that in general the radio men in that particular locality are more conversant with the local problems and the needs of his department than any outside group of engineers, regardless of whom they might be. I believe it is the duty of the radio engineer, or the technical supervisor of that department to advise his chief so that he may have all the facts before making a decision of policy, because certainly the commercial companies are going to present their side of the story. It isn't a question of protecting our individual jobs, probably the telephone company if they ever got that many systems would need all of us. It is a question of providing services for the community, and I believe that we can do a better job than any impersonal company can. Most of us take an individual part in our system and our work. To them it would mean merely dividends for their stockholders and salaries for their employees. I feel very strongly that we should ---- well, not officially going on the record, it is an American privilege for anyone to compete for a business. I think that we should advise our chiefs of every angle that we can think of which merely covers this situation and not leave all of the story to the sales representatives of the communications service.

PRESIDENT GROENIER: Anyone else? (No response.) Well, I think we have heard enough of that for this Conference. I know a good many of you want to check out of your rooms by 6 o'clock. I want to thank Mr. Ryan for staying over for this short part of the discussion.

MR. RYAN: Could I say just one word?

PRESIDENT GROENIER: Certainly.

MR. RYAN: In reply to your thanks. That is just this: That telephone men and radio men who are in the telephone business get just as much fun and satisfaction out of their work as you fellows do. In fact, we are just the same kind of a bunch, and I didn't like the thought that all they were thinking about was dividends. The average telephone man is just as wrapped up in his work, I think, as the man in any other field, and the fellows I have known seem to me to be outstandingly so. I know they will give their utmost to their jobs. The only other thing is that the telephone companies are not trying to stuff anything down your throats. They will continue to cooperate with you wherever they can, and you can look at our wares and make your minds up. I just wanted to leave that idea with you.

PRESIDENT GROENIER: Thanks, Mr. Ryan. Mr. Vickerson?

MR. VICKERSON: I just wanted to remind you that perhaps some of the boys might want some transcripts of what went on here. You might want to mention that before we close.

PRESIDENT GROENIER: We really haven't decided on whether we are going to make a charge for the transcript or not. I think the best way to leave that, Art, is this: We will see to it that you have an opportunity to get a copy of the transcript. If we feel that we should charge for it, we will send you a postal card advising you of such decision, and then those of you who want it can request the transcript; otherwise, we will automatically mail them to all those who are present.

MR. MULNANE: In order to save time, wouldn't it be possible to indicate that you want a copy, regardless of whether it is going to cost something or not, so you can save some time in receiving it?

MR. ERICKSON: I would like to answer that. If we sell it, we probably will distribute about four on the basis of past experience, but if the financial balance of this meeting is adequate, I think we can spend the money to have the transcript cut on stencils and run off so everyone can get it. We had a policy started in Toledo where the cost of the transcript was included in the registration fee, and I think it will be continued.

MR. GIBENINI: How much time will it take?

MR. ERICKSON: It will take at least $2\frac{1}{2}$ months. The major portions will be in the Bulletin as soon as possible.

PRESIDENT GROENIER: There being no further business, I again want to thank all of you men.

MR. WHITING: How about the installation of officers?

PRESIDENT GROENIER: Pardon me. I am glad that was brought up. Did Vince Doyle come back in the room?

MR. DOYLE: Yes, I am back.

PRESIDENT GROENIER: Come up on the platform, Vince. There will be a slight installation charge here, of course. (Laughter.) Mr. Sowle. Is Larry Geno here? I know Neal Jackson is gone. First, I want to ask each one of these newly elected officers to say just a few words, and I will call Vince Doyle first.

MR. DOYLE: Thank you, Ray. Gentlemen, I want to thank you first for the confidence you have placed in me in electing me Second Vice-President, and I hope I am able to live up to all your expectations. Thank you. (Applause.)

PRESIDENT GROENIER: Mr. Sowle

MR. SOWLE: Well, gentlemen, I want to thank you first, as Vince has done, for your electing me as your First Vice-President. I feel it a great honor for one who has been a member of this organization only four years, and also I am very happy that it has happened, because I am from the Far West, not the Middle West. (Laughter.) That is a long way out, and I will do everything I possibly can to bring the wishes and the things that the boys in the Far West would like to have introduced into effect. I will also do everything I can to assist Ray, even though I am a long way from him. He will have to dispatch his jobs to me by mail, and I will do everything I can by mail and when necessary and the funds being available, in person. Thank you. (Applause.)

MR. ERICKSON: Mr. Chairman, I move we adjourn.

MR. WHITING: I second the motion.

PRESIDENT GROENIER: It has been moved and seconded that we adjourn, and we will see you all in Los Angeles.

(CONFERENCE ADJOURNED.)